



2022-23 CATALOG

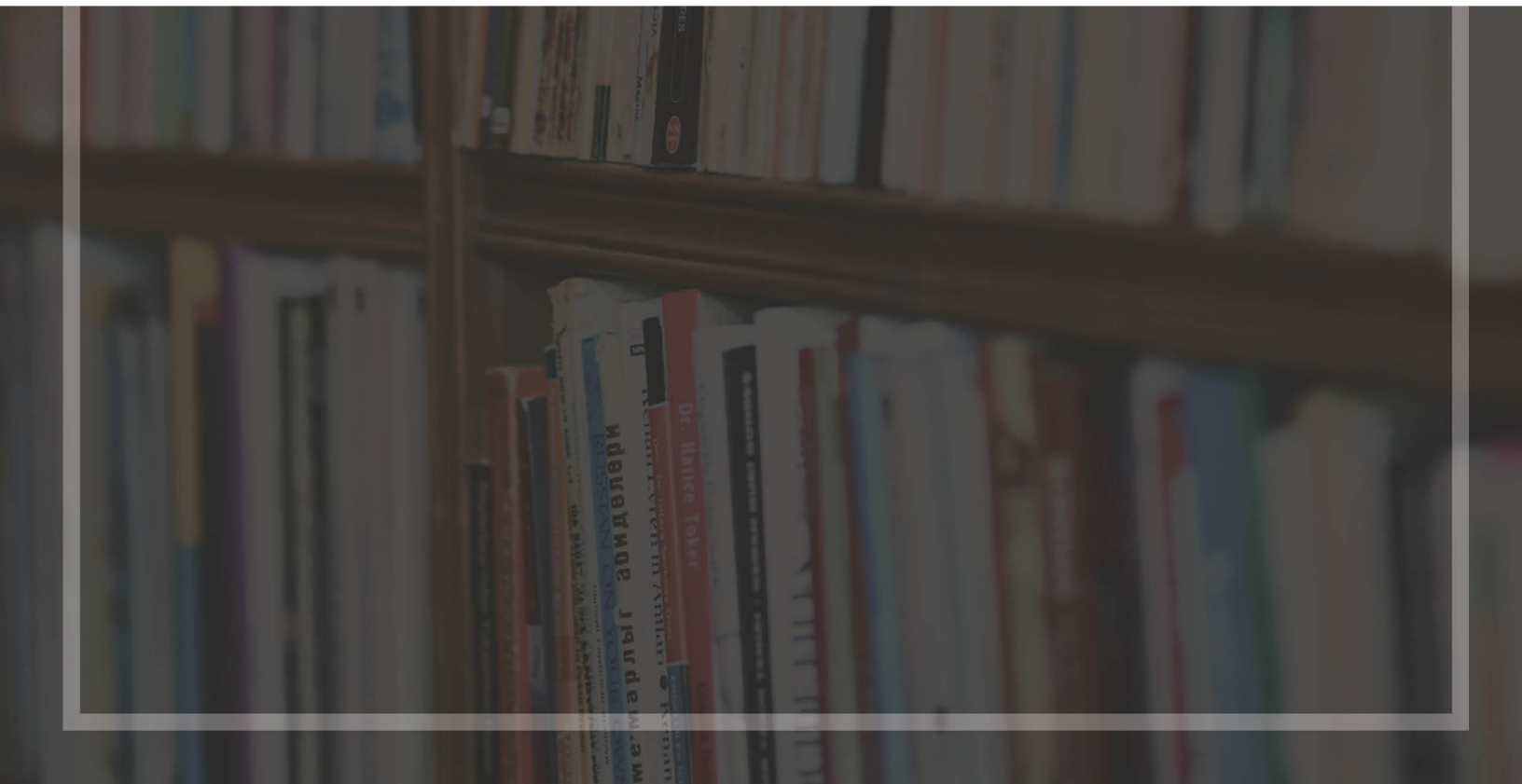


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Undergraduate Catalog

General Information

The University campus is situated in Villanova, Pennsylvania, on Lancaster Pike (U.S. Route 30) six miles west of City Line Avenue in Philadelphia, Pennsylvania. The post office address is 800 Lancaster Avenue, Villanova, Pennsylvania 19085-1699. University offices are open Monday through Friday from 9 a.m. to 5 p.m. The telephone number is 610-519-4500. The Web address is www.villanova.edu.

Prospective students may obtain additional information by contacting the Director of Admissions, Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085-1699, tel. 610-519-4000, email: gotovu@villanova.edu.

Villanova University is an affirmative action institution, and it is the continuing policy of Villanova not to discriminate against any person on the basis of race, color, sex, sexual orientation and gender identity, religion, national origin, age, veteran status, non-job-related disability or any other basis prohibited by law.

NOTE: In order that programs offered by Villanova University reflect current advances and additions to knowledge and upgraded professional requirements, Villanova University reserves the right to change programs and requirements without prior notice. Students generally are bound to the requirements in effect and published on the world wide web for the year in which their class begins its first year of study. Special requirements may be in effect for students who have left the University and are being readmitted.

Students are advised to check with the web catalog or with their college offices regarding changes that may affect them. Additional academic information may be obtained from the various college offices and the web sites listed for the particular policies, programs and services found in this catalog.

Academic Calendar: 2022-2023

Fall Semester 2022

Aug. 20-23 (Sat-Tu)	New Student Orientation
Aug. 24 (W)	Classes Begin
Aug. 30 (Tu)	Last Day for dropping and/or adding classes and last day for requesting Satisfactory/Unsatisfactory
Sept. 5 (M)	Labor Day - No Classes
Oct. 7 (F)	Mid-term
Oct. 10 (M)	Semester Recess
Oct. 17 (M)	Classes Resume
Oct. 19 (W)	Grades Due (Noon)
Oct. 21 (F)	Registration Advising Begins
TBA	Registration Begins for Spring 2023
Nov. 9 (W)	Last Day for Authorized Withdrawal without Academic Penalty (WX)
Nov. 22 (Tu)	Thanksgiving Recess begins after last class
Nov. 28 (M)	Classes Resume
Dec. 12 (M)	Final Day of Classes
Dec. 13 (Tu)	Reading Day
Dec. 14-20 (W-Tu)	Final Examinations (No exams on Sun., Dec. 18)
Jan. 3 (Tu)	Final Grades Due (Noon)
Jan. 27 (F)	Last day for "N" grade conversion to be received by Registrar

Spring Semester 2023

Jan. 16 (M)	Martin Luther King Day (No Classes)
Jan. 17 (Tu)	Classes Begin
Jan. 23 (M)	Last day for requesting Satisfactory/Unsatisfactory
Jan. 23 (M)	Last Day for dropping and/or adding classes
Mar. 3 (F)	Mid-Term
Mar. 6 (M)	Semester Recess
Mar. 13 (M)	Classes Resume
Mar. 15 (W)	Grades Due (Noon)
Mar. 15 (W)	Registration Begins for Summer 2023 semester
Mar. 17 (F)	Registration Advising Begins
Mar. 27 (M)	Registration Begins for Fall 2023 semester
Apr. 5 (W)	Last Day for Authorized Withdrawal without Academic Penalty (WX)
Apr. 5 (W)	Easter Recess begins after last class
Apr. 11 (Tu)	Classes Resume
May 4 (Th)	Final Day of Classes

May 5 (F)	Reading Day
May 6-12 (Sa-F)	Final Examinations (No exams on Sun., May 7)
May 15 (M)	Final Grades Due (Noon)
May 19-20 (F-Sa)	Baccalaureate and Commencement
June 30 (F)	Last day for "N" grade conversion to be received by Registrar
	Tuesday, May 2 will be deemed a Friday class day and will follow a Friday schedule (UG Day only)
	Wednesday, May 3 will be deemed a Monday class day and will follow a Monday schedule (UG Day only)

Academic Calendar: Summer 2023

Session I: May 31 (W) - June 28 (W)

May 30 (Tu)	Final registration for Summer Session I, Online or Vasey Hall. Please note that some student services offices close between 4:00 p.m. and 5:00 p.m. Late fee applies after this date
May 31 (W)	Classes begin
June 2 (F)	Last day for late registration and for dropping and/or adding classes
June 19 (M)	Juneteenth Holiday (No Classes)
June 20 (Tu)	Last day for withdrawing from courses or changing from credit to audit
June 28 (W)	Final examinations will be held on June 28 or the last scheduled class day
July 5 (W)	Final grades due
July 28 (F)	Last day for "N" grade conversion to be received by Registrar

Summer III May 31 (W) - July 31 (M)

May 30 (Tu)	Final registration for Summer Session III, Online or Vasey Hall. Please note that some student services offices close between 4:00 pm and 5:00 pm. Late fees apply after these dates
May 31 (W)	Classes begin
June 6 (Tu)	Last day for late registration and for dropping and/or adding classes
June 19 (M)	Juneteenth Holiday (No Classes)
July 4 (Tu)	4th of July Holiday (No Classes)
July 11 (Tu)	Last day for withdrawing from courses or changing from credit to audit
July 31 (M)	Final examinations will be held on July 31 or the last scheduled class day
Aug. 7 (M)	Final grades due
Sept. 5 (Tu)	Last day for "N" grade conversion to be received by Registrar

Session II: July 3 (M) - July 31 (M)

June 29 (Th)	Final registration for Summer Session II, Online or Vasey Hall. Please note that some student services offices close between 4:00 pm and 5:00 pm. Late fees apply after these dates.
July 3 (M)	Classes begin
July 4 (Tu)	4th of July Holiday (No Classes)

July 5 (W)	Last day for late registration and for dropping and/or adding classes
July 25 (Tu)	Last day for withdrawing from courses or changing from credit to audit
July 31 (M)	Final examinations will be held on July 31 or the last scheduled class day
Aug. 7 (M)	Final grades due
Sept. 5 (Tu)	Last day for "N" grade conversion to be received by Registrar
	Please note: This calendar is tentative and subject to change.

Academic Calendar: 2023-2024

Fall Semester 2023

Aug. 19-22 (Sa-Tu)	New Student Orientation and Registration
Aug. 23 (W)	Classes Begin
Aug. 26 (Sa)	Saturday Classes begin for PT Studies only
Aug. 29 (Tu)	Last Day for dropping and/or adding classes and last day for requesting Satisfactory/Unsatisfactory
Sept. 4 (M)	Labor Day - No Classes
Oct. 6 (F)	Mid-term
Oct. 9 (M)	Semester Recess
Oct. 16 (M)	Classes Resume
Oct. 18 (W)	Grades Due (Noon)
Oct. 20 (F)	Advising Begins
TBA	Registration Begins for Spring 2024
Nov. 8 (W)	Last Day for Authorized Withdrawal without Academic Penalty (WX)
Nov. 21 (Tu)	Thanksgiving Recess begins after last class
Nov. 27 (M)	Classes Resume
Dec. 11 (M)	Final Day of Classes
Dec. 12 (Tu)	Reading Day
Dec. 13-19 (W-Tu)	Final Examinations (no Exams on Sunday, December 17)
Jan. 2 (Tu)	Final Grades Due (Noon)
Jan. 26 (F)	Last day for "N" grade conversion to be received by Registrar

Spring Semester 2024

Jan. 15 (M)	Martin Luther King Day (No Classes)
Jan. 16 (Tu)	Classes Begin
Jan. 22 (M)	Last Day for dropping and/or adding classes

Jan. 22 (M)	Last day for requesting Satisfactory/Unsatisfactory
Mar. 1 (F)	Mid-Term
Mar. 4 (M)	Semester Recess
Mar. 11 (M)	Classes Resume
Mar. 13 (W)	Grades Due (Noon)
Mar. 15 (F)	Registration Advising Begins
TBD	Registration Begins for Fall 2024
Mar. 27 (W)	Easter Recess begins after last class
Apr. 2 (Tu)	Classes Resume
Apr. 3 (W)	Last Day for Authorized Withdrawal without Academic Penalty (WX)
May 2 (Th)	Final Day of Classes
May 3 (F)	Reading Day
May 4-10 (Sa-F)	Final Examinations (No exams on Sun., May 5)
May 13 (M)	Final Grades Due (Noon)
May 17-18 (F-Sa)	Baccalaureate and Commencement
June 28 (F)	Last day for "N" grade conversion to be received by Registrar Tuesday, April 30 will be deemed a Friday Class Day and follow a Friday Schedule for UG Day Classes Only. Wednesday, May 1 will be deemed a Monday Class Day and follow a Monday Schedule for UG Day Classes Only. Please note: This calendar is tentative and subject to change.

Academic Calendar: Summer 2024

Session I: May 29 (W) - June 26 (W)

May 28 (Tu)	Final registration for Summer Session I, Online or Vasey Hall. Please note that some student services offices close between 4:00 p.m. and 5:00 p.m. Late fee applies after this date
May 29 (W)	Classes begin
May 31 (F)	Last day for late registration and for dropping and/or adding classes
June 18 (Tu)	Last day for withdrawing from courses or changing from credit to audit
June 19 (W)	Juneteenth Holiday (No Classes)
June 26 (W)	Final examinations will be held on June 26 or the last scheduled class day
July 2 (T)	Final grades due

July 31 (W)	Last day for "N" grade conversion to be received by Registrar
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Summer III May 29 (W) - July 29 (M)

May 28 (Tu)	Final registration for Summer Session III, Online or Vasey Hall. Please note that some student services offices close between 4:00 pm and 5:00 pm. Late fees apply after these dates
May 29 (W)	Classes begin
June 4 (Tu)	Last day for late registration and for dropping and/or adding classes
June 19 (W)	Juneteenth Holiday (No Classes)
July 4 (Th)	4th of July Holiday (No Classes)
July 9 (Tu)	Last day for withdrawing from courses or changing from credit to audit
July 29 (M)	Final examinations will be held on July 29 or the last scheduled class day
Aug. 2 (F)	Final grades due
Sept. 5 (F)	Last day for "N" grade conversion to be received by Registrar

Session II: June 28 (F) - July 29 (M)

June 27 (Th)	Final registration for Summer Session II, Online or Vasey Hall. Please note that some student services offices close between 4:00 pm and 5:00 pm. Late fees apply after these dates.
June 28 (F)	Classes begin
July 2 (Tu)	Last day for late registration and for dropping and/or adding classes
July 4 (Th)	4th of July Holiday (No Classes)
July 18 (Th)	Last day for withdrawing from courses or changing from credit to audit
July 29 (M)	Final examinations will be held on July 29 or the last scheduled class day
Aug. 2 (F)	Final grades due
Sept. 5 (F)	Last day for "N" grade conversion to be received by Registrar Please note: This calendar tentative and subject to change.

History: Background, Mission, Enduring Commitments

Background

For a century and a half, Villanova has been directed by the Order of St. Augustine, known as the Augustinians (<https://www1.villanova.edu/villanova/mission/heritage.html>), one of the oldest religious teaching orders of the Catholic Church. The first American foundation of the order within the present limits of the United

States was established in 1796 at old St. Augustine's Church in Philadelphia. Villanova University traces its lineage from this foundation and from St. Augustine's Academy, which was opened there in 1811.

In January 1842, the Augustinians at old St. Augustine's took possession of Belle Air, the country estate of the Revolutionary officer and merchant John Rudolph. In accordance with the old Catholic custom, the new foundation was placed under the patronage of a saintly hero of the past. For their patron the Augustinians chose St. Thomas of Villanova, a 16th century Spanish Bishop who was a distinguished Augustinian writer and educator. The school soon became known as Villanova and gave its name to the surrounding countryside.

Classes were opened in the old mansion house at Belle Air during the fall of 1843. On March 10, 1848, the Governor of Pennsylvania, Francis R. Shunk, signed the Act of the Legislature incorporating The Augustinian College of Villanova in the State of Pennsylvania and conferring on Villanova College the right to grant degrees in the Arts and Sciences.

The Liberal Arts College took its first step toward university status in 1905 with the establishment of what is now called the College of Engineering. The Science unit, inaugurated in 1915, is now an integral part of the present College of Liberal Arts and Sciences. In 1918, what was known as the Part-Time Studies Division of the College of Professional Studies came into being. The College of Commerce and Finance was founded in 1922 and became the Villanova School of Business in 2006. The College of Nursing and the School of Law were founded in 1953. The College of Professional Studies was founded in 2014.

Villanova's development over the years into a complex institution of higher education received official sanction when, on November 10, 1953, pursuant to an act of the Legislature of the Commonwealth of Pennsylvania, its charter was amended to permit its being designated Villanova University.

Mission Statement

Villanova University is a Catholic Augustinian community of higher education, committed to excellence and distinction in the discovery, dissemination and application of knowledge.

Inspired by the life and teaching of Jesus Christ, the University is grounded in the wisdom of the Catholic intellectual tradition and advances a deeper understanding of the relationship between faith and reason. Villanova emphasizes and celebrates the liberal arts and sciences as foundational to all academic programs. The University community welcomes and respects members of all faiths who seek to nurture a concern for the common good and who share an enthusiasm for the challenge of responsible and productive citizenship in order to build a just and peaceful world.

Enduring Commitments

In pursuit of this mission, we commit ourselves to academic excellence, to our values and traditions, and to our students, alumni and the global community.

To foster academic excellence, we as a University:

- Create a diverse community of scholars, united and dedicated to the highest academic standards.
- Emphasize the liberal arts and sciences as our foundation and foster in our students, active engagement, critical thinking, life-long learning and moral reflection.
- Concern ourselves with developing and nurturing the whole person, allowing students, faculty and staff to grow intellectually, emotionally, spiritually, culturally, socially and physically in an environment that supports individual differences and insists that mutual love and respect should animate every aspect of university life.
- Encourage interdisciplinary research, teaching and scholarship.
- Affirm the intrinsic good of learning, contemplation and the search for truth in undergraduate and graduate education.
- Support a curriculum that encourages both a global perspective and an informed respect for the differences among peoples and cultures.

To honor our values and tradition, we as a Catholic University:

- Believe that the dialogue between faith and reason drives the pursuit of knowledge and

wisdom, and fosters St. Augustine's vision of learning as a community ethos governed by love;

- Seek to understand, enrich and teach the Catholic intellectual tradition through our curricula, scholarship and activities in ways that engage diverse religious, intellectual and cultural traditions in a vigorous and respectful pursuit of truth and wisdom in every area of humanity.
- Provide opportunities for students, faculty and staff to seek guidance from Catholic intellectual and moral traditions, while always welcoming people from all faiths, cultures and traditions to contribute their gifts and talents to our mission.
- Respect and encourage the freedom proposed by St Augustine, which makes civil discussion and inquiry possible and productive.
- Look to the Order of St. Augustine to preserve our Augustinian character, by showing appropriate preference to Augustinians in faculty and staff appointments, and by welcoming their presence and influence in our university community.

To serve our students, alumni and global community, we as an Augustinian University:

- Encourage students, faculty and staff to engage in service experiences and research, both locally and globally, so they learn from others, provide public service to the community and help create a more sustainable world.
- Commit to the common good, and apply the knowledge and skills of our students and faculty to better the human condition.
- Encourage our students and faculty to pursue virtue by integrating love and knowledge, and by committing themselves to research and education for justice, with a special concern for the poor and compassion for the suffering.
- Respect a worldview that recognizes that all creation is sacred and that fosters responsible stewardship of the environment.
- Include our alumni as an integral part of the Villanova community.
- Value highly our relationship with neighboring communities.

Augustinians at Villanova

The Augustinian Order is a vibrant presence at Villanova University. Members of the Order serve in many areas of the University including teaching in academic departments, ministering and counseling in Campus Ministry, as well as serving in a number of administrative positions.

Augustinians are also represented in the governance of the University, as President and through membership on the Board. Villanova seeks to play an important role in allowing the voice of Augustine of Hippo (354- 430 A.D.) to continue to speak effectively to today's world. With this in mind, Villanova established The Augustinian Institute to solidify efforts already undertaken and initiate new projects that flow from this rich Augustinian legacy. This Institute serves the university as an agent and resource to support its efforts to give Augustine's thought a vibrant and integral place within Villanova's academic and community life. Beyond the university it reaches out to the wider culture through conferences, publications, fellowships, and other initiatives. The Institute is located in 451 St. Augustine Center.

The Augustinian Historical Institute promotes the research and publication of studies in the history of the Augustinian Order and in the allied fields of theology, philosophy, missiology, and biography. The Institute maintains an exceptional collection of books, manuscripts, reviews and micro copies pertinent to these studies.

List of Degree Programs

Programs of undergraduate study in the various colleges lead to the following degrees:

College of Liberal Arts and Sciences

(www.artsci.villanova.edu): Bachelor of Arts; Bachelor of Science; Bachelor of Arts, Honors; Bachelor of Science, Honors; Associate of Arts (only offered to students enrolled in Villanova's Program at SCI Phoenix).

College of Engineering

(<https://www1.villanova.edu/university/engineering.html>): Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Computer Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering; Bachelor of Science in

Chemical Engineering, Honors; Bachelor of Science in Civil Engineering, Honors; Bachelor of Science in Computer Engineering, Honors, Bachelor of Science in Electrical Engineering, Honors, Bachelor of Science in Mechanical Engineering, Honors.

School of Business

(<https://www1.villanova.edu/university/business.html>): Bachelor of Business Administration, Bachelor of Business Administration, Honors.

College of Nursing

(<https://www1.villanova.edu/university/nursing.html>): Bachelor of Science in Nursing; Bachelor of Science in Nursing, Honors.

College of Professional Studies

(<https://www1.villanova.edu/university/professional-studies.html>): Bachelor of Interdisciplinary Studies, Bachelor of Arts, Associate of Arts, Associate of Science. Students may also pursue selected Bachelor of Arts or Bachelor of Science degrees in the College of Liberal Arts and Sciences.

Majors will be listed on the transcript, not on the diploma. To qualify for the Bachelor's Degree, the student must have completed successfully one of the four-year courses of study as specified by the University together with other work assigned. The awarding of the degree is conditioned not upon the attainment of any fixed number of credit hours, but upon the satisfactory completion of all the studies prescribed for the degree sought. Details are available in each college's sections of this Catalog.

Normally, a student may receive only ONE degree, regardless of how many majors they earn. Students who have completed all the requirements for two or more degrees – e.g., B.B.A. and B.A., or B.A. and B.S. – must choose which degree to take – unless they have completed 43 or more additional credits beyond the greater of the two program credit requirements, in which case they may receive two degrees and two diplomas. Multiple majors, regardless of college, will appear on a student's transcript. The College Dean will be responsible for the proper counting of credits and for determining whether a given student will receive more than one degree/diploma.

Honors Degree Requirements

Honors degrees are available to students accepted into the University Honors Program. In addition to completing the degree requirements in their home college/school additional requirements (see below) are required to change the degree to an honors degree.

For the College of Engineering 10 Honors classes (30 credits) are required to earn an Engineering Honors degree, at least four of which must be in Engineering. In addition to completing all course requirements, students must achieve a minimum 3.33 cumulative GPA to earn the Bachelor of Science in Engineering, Honors.

For the College of Liberal Arts and Sciences 10 Honors courses (with Senior Capstone required for a total of 30 credits) are required to earn a Liberal Arts and Sciences Honors degree. At least three of the 10 must be upper-level courses. In addition to completing all course requirements, students must achieve a minimum 3.33 cumulative GPA to earn the Bachelor of Arts/ Science, Honors degree.

For the Fitzpatrick College of Nursing 10 Honors courses (30 credits) are required to earn a Nursing Honors degree. Both the Junior Experience and Senior Capstone courses are required. In addition to completing all course requirements, students must achieve a minimum 3.33 cumulative GPA to earn the Bachelor of Science in Nursing, Honors.

For the Villanova School of Business 10 Honors classes (30 credits) plus VSB 2121 (1 credit) are required to earn a Business Honors Degree, and at least four of the 10 must be in Business. In addition to completing all course requirements, students must achieve a minimum 3.33 cumulative GPA to earn the Bachelor of Business Administration, Honors degree.

Accreditation and Recognition

Villanova is approved by the Pennsylvania Department of Education and is accredited by the Middle States Association of Colleges and Secondary Schools.

In the College of Liberal Arts and Sciences, the degree program in computer science is accredited by the Computer Science Accreditation Commission of ABET, www.abet.org. The Chemistry Program is certified by the American Chemical Society. Villanova University is recognized by the United States Navy as a training center for Reserve Officer Training (NROTC).

The undergraduate programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Degree programs within the School of Business are fully accredited by the American Assembly of Collegiate Schools of Business (AACSB).

The College of Nursing is approved by the State Board of Nursing of the Commonwealth of Pennsylvania. Upon completion of the undergraduate program, graduates are eligible to take the licensing examination (NCLEX) for professional registered nurses. The undergraduate and graduate programs are both fully accredited by the Commission on Collegiate Nursing Education.

Honor Societies

In addition to the many honor societies appropriate to individual colleges and academic disciplines and departments, Villanova has chapters of these national honor societies:

Phi Beta Kappa

[Website](#)

The Sigma Chapter of Phi Beta Kappa was established at Villanova in 1986. Membership is an honor conferred primarily in recognition of outstanding scholarly achievement in the liberal arts and sciences.

Phi Kappa Phi

<https://www1.villanova.edu/content/university/student-life/ofsl/chapters.html>

Phi Kappa Phi is an honor society whose objective is the recognition and encouragement of superior scholarship in all academic disciplines.

Alpha Sigma Lambda

https://www1.villanova.edu/university/professional-studies/villanova-cps-experience/advising/advising_support_for_credit/alpha_sigma_lambda.html

The Mu Chapter of Alpha Sigma Lambda was established at Villanova University in 1958. The society honors dedicated part-time and evening students.

Dean's Lists

Each year the Dean of each college at Villanova honors those students who are deemed to have established an outstanding academic record as determined by the College and its Dean. To qualify for the Dean's List, a student must be a full-time student, with no non-passing or missing grades on the semester report, at least 12 credits of earned letter grades and with a semester average of 3.5. The College of Nursing has a Dean's List only in the spring semester and requires a 3.5 average in both semesters.

Academic Services

Advising

Villanova takes seriously the responsibility of academic advising. Students are urged to consult with their academic advisers on a regular basis. Each College has its own advising system. For details, see the college sections that follow in this Catalog and consult the various college offices.

Career Center

The Career Center provides guidance to all students and alumni of Villanova on every step of their career journeys: exploring career and graduate school options, strategically connecting to internships and jobs, changing careers, and more. The team at the Career Center partners with units across the university to deliver comprehensive professional development opportunities customized to a variety of interests each year. The Center manages Handshake, the university's career management system, which connects students and alumni to thousands of job postings and on-campus interviews, as well as hundreds of recruiting events which take place on campus. Individual career counseling is available year-round, allowing Villanovans to get specific feedback and best practices on interviewing, resume and cover letter writing, and

industry-specific job search strategies. The Career Center's website provides extensive information on career development and resources for graduate school applicants.

The office is located in Garey Hall on the 1st floor and our team, including trained student Career Assistants, looks forward to meeting you.

Center for Access, Success and Achievement (CASA)

The Center for Access, Success and Achievement (CASA) aims to recruit, retain, and graduate underrepresented, first generation, and Pell Eligible students through holistic support in a culturally diverse and academically excellent environment. Our goal is to maintain successful retention by providing students with a sense of belonging in a nurturing environment, opportunities for self-realization and personal development, and holding them accountable for working to the best of their abilities. As a multifaceted center, CASA houses a number of resources that provide access to success. In addition, our office coordinates programming throughout the year to promote self-care, self-actualization, and self-advocacy. To accomplish these goals, we partner with local units, resources, and Villanova departments to provide coordinated care and support.

The Center for Access, Success and Achievement is located in the Learning Commons, Falvey Library, 2nd Fl. Call 610-519-4075 for information.

The main programs are:

Academic Advancement Program (AAP). AAP is an admission and resource program designed especially for highly motivated students who have strong academic credentials and could benefit from additional financial and academic support. The goal of the AAP program is provide an educational opportunity to such students and to facilitate their academic and personal adjustment to college. The pre-college component offers a three-credit freshman English course, math, college writing skills, general sciences classes, and critical thinking workshops. Selection for participation is made through the Admissions Office and is based on students' high school transcript, SAT/ACT scores, their college essay and family income levels. Students residing in Pennsylvania, New Jersey, Delaware and

Maryland are eligible for the AAP program. Anyone interested in this program should call Linda Coleman at 610-519-4074.

A.C.T.I.V.E (Advising, Counseling, Tutoring, and Information to enhance the Villanova Experience).

CASA offers comprehensive integrated services to all incoming students. Our goal is to ease first and second year students' transition into the Villanova University community. In addition to academic tutoring, counseling and course advising, we can also help students select and get involved with a wide array of engaging extracurricular activities. First and second year students, at times, may feel overwhelmed and under prepared when inundated with opportunities and issues on and off campus. When faced alone, these issues may affect their personal and academic life. Adding to those concerns may sometimes include cultural differences, social, political, spiritual, and economic hardships. The Center for Access, Success and Achievement combats these concerns through the services they offer. Anyone seeking information about this program should call 610-519-4075.

St. Thomas of Villanova Scholars Program (STOVS).

The STOVS program is a three-week summer program where invited incoming freshmen begin their college career. During STOVS, students have the opportunity to familiarize themselves with college level courses, connect with University faculty and administrators, and meet some of their new best friends. STOVS is a residential program and during this summer program, students take a 3-credit, Augustine and Culture Seminar (ACS) class, or a 3-credit Economics class (based on major selection and committee recommendation). Through one-on-one meetings, students will begin to identify and work towards their academic, social, and career goals. Students are invited to apply to the STOVS program in early May, after submitting their deposit to attend Villanova University. For more information about the program contact The Center for Access, Success and Achievement at 610-519-4075.

Center for Research and Fellowships

The Center for Research and Fellowships (CRF) is a results-oriented team of professionals that

supports Villanovans—at all levels and from diverse backgrounds—to enhance their career trajectories through mentoring, student research funding, and assistance in winning competitive awards. CRF provides the opportunity to engage in undergraduate research as well as comprehensive advising for students who pursue prestigious national scholarship and fellowship opportunities. The team at the Center mentors students in all aspects of professional development, and this mentoring can begin as early as a student's first year.

Applications assisted by the CRF team include the Truman, Goldwater, Udall, Fulbright, Knight-Hennessy, Marshall, and Rhodes Scholarships, the National Science Foundation Graduate Research Fellowship, the DAAD-RISE international research internships, and National Science Foundation Research Experiences for Undergraduates, among others. Established in 2001, we have connected hundreds of Villanova students and alumni to programs of research and scholarship around the world.

CRF provides financial support for student research through the Villanova Match Research Program for First-Year Undergraduates and the Villanova Undergraduate Research Fellows Program, as well as short-term research, conference, and travel grants. In recent years, over 250 Villanova undergraduates have received CRF funding for research that they have published in peer-reviewed scholarly journals and presented at national and international conferences.

The Center is also proud to manage all aspects of the Presidential Scholars Program, including the nomination, application, and selection processes as well as mentoring Presidential Scholars throughout their time at Villanova—and beyond.

CRF is located in Garey Hall.

Education Abroad

Each year, over 800 Villanova students study overseas for a summer, a semester, or a year to add an international dimension to their academic career. Villanova offers students a wide variety of programs and locations around the world. All majors can study abroad for a semester, though planning early is important, especially for Engineering, Nursing, and Science students. The

Office of Education Abroad helps students identify opportunities and facilitates the process of enrollment in overseas programs.

For more information, visit our website <https://www1.villanova.edu/content/villanova/provost/abroad.html>, email abroad@villanova.edu or call the main office at 610-519-6412.

Information Technologies (IT)

The Office for University Information Technologies (UNIT) partners with the Villanova Community to deliver IT Solutions and Services. UNIT delivers innovative technology offerings for wide and varied needs ranging from academic related technology, IT computing, network services, web development and support services to the entire campus community. UNIT also provides a campus-wide network for data, voice, and video communication for students, faculty, and staff. Wireless network connectivity and Xfinity Cable services are extended to all residence hall rooms.

Virtual and VPN technologies facilitate access to network and campus technology resources from off-campus locations.

In addition to many college and department-specific student computing labs, UNIT manages public student labs located Tolentine hall as well as computer print stations throughout campus that are open 18-24 hours a day. Computer workstations in these locations feature Virtual Desktop (vDesktop) technology and support general-purpose applications such as the Microsoft Office suite and Adobe. Additionally, multiple Apple iMac are available in Tolentine Lab areas for student use.

The Villanova TechZone is a walk-up IT support center with multiple locations in Falvey Library, Charles Widger School of Law and The Commons in Cannon Hall. The TechZone provides assistance to students and Villanova Employees with University issued laptop computers, issues with BYOD (Bring Your Own Device) equipment, and general technical support issues from 9am to 7pm M-Th and 9am to 5pm F. Technical support is complemented by Web based documentation, IT Service Catalog, and UNIT's Facebook site. In addition to the TechZone, UNIT operates the

University Help Desk and provides technical support and service from 8am to 7pm M-Th and 8am to 5pm F, via phone by calling 610-519-7777.

Technical service and support is also provided by:

- Chat (www.villanova.edu/villanova/unit.html) from 9am to 7pm M-Th and 9am to 4pm Friday
- Email (Support@villanova.edu)
- Self-Service Support (<http://www.villanova.edu/villanova/unit/helpsupport/EasyVista.html>).

The Center for Instructional Technologies (CIT) provides many resources and services to promote the use of technology in the teaching and learning environment. Included in these services are multimedia development, online teaching and learning resources, instructional design consultation, training/support for the campus Learning Management System (Blackboard), video and audio streaming studios, classroom lecture capture utilizing Mediasite, video and web conferencing, access to Internet 2, workshops offered on a variety of technologies utilized on campus, and classroom AV integration and support.

All 200 classrooms are equipped with high-end AV systems that feature widescreen LCD projectors, large format projection screens, intuitive control systems, various AV connectivity options, (wireless) internet access, multimedia teaching technologies and are fully supported by our Classroom Technologies Support Hotline (610-519-5631).

The Villanova User-ID is assigned to each student to access many Villanova systems and services throughout campus such as myNova, wifi, Blackboard and email. All undergraduate students receive a Gmail email account with access to Google aps. Cloud services and storage are offered via Google Drive and Microsoft Office 365 - OneDrive at office.villanova.edu.

All students have a personalized portal called myNova that provides access to their course schedules and course related materials and allows them to perform most administrative functions, such as registration or grade lookup.

The University Card Office provides the “Wildcard”, a photo identification card that is required for all Villanova students, faculty, and

staff. The Wildcard allows convenient and secure access to all card related services, including personal identification, facility access and access monitoring, debit transactions processing (NovaBucks), meal plan administration, banking relationship management, student printing allowance, and web- based transaction processing. The Wildcard is universally accepted on campus and at selected off-campus locations.

Nova Alert is Villanova’s Emergency Communication system that uses text and phone messaging features that enables campus public safety and university officials to send targeted alerts to students and faculty members in a matter of seconds. Nova Alert is designed to communicate an emergency, which could jeopardize the physical safety of the members of the University community. The alert is also used to notify the Villanova community about weather issues, such as snow-related campus closures. The alert may contain instructions on where to go, what to do or not do, as well as instructions on where to find additional information. Depending on the recipient’s preference, the Nova Alert may be sent to cell phones, e-mail accounts, smart phones and PDA devices. Nova Alert sign-up allows for current students, faculty, and staff to enter multiple devices, enabling alerts to be sent to parents or other family members.

Learning Support Services (LSS)

Learning Support Services (LSS) offers students a variety of academic support services that are designed to help all Villanova students maximize their academic success. These services include one on one weekly academic coaching sessions, study skills consultation, and accommodation support for students with disabilities. Online resources including a series of study skills workshops are available from our website at: <https://www1.villanova.edu/villanova/provost/learningsupport/>

Additionally, LSS is committed to providing “reasonable academic accommodations” for students with learning disabilities, ADHD, students on the Autism spectrum, and students with mental health conditions and chronic health conditions that rise to the level of disability. Villanova students may request support services in accordance with Section 504 of the

Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA). Our goal is to ensure that students with disabilities have an opportunity to grow independently to their full potential at Villanova.

To receive academic accommodations, students need to register with LSS by first completing the Online Intake Form through Clockwork, our secure data management system. To access Clockwork, students select the Clockwork for Students login on the Villanova University LSS website <https://www1.villanova.edu/villanova/provost/learningsupport.html> or myNOVA. Once on the Clockwork homepage, select the Online intake form. Students can then log in with their Villanova username and password to access and complete the form. Documentation supporting the need for accommodations can be loaded directly to Clockwork. Reasonable academic accommodations are based on the assessment of the current impact of the disability on academic performance; therefore, it is in the student's best interest to provide current and complete documentation. Given the specific nature of the disability, "reasonable academic accommodations" will be determined on an individual basis. Once approved for accommodations, the student can go into Clockwork each term to request accommodations for specific classes.

The Office of Learning Support Services is in 212 Falvey Library. For additional information about our services, contact 610-519-5176 or email learning.support.services@villanova.edu

Math Center in the Learner's Studio

The Math Center in the Learner's Studio is a center for student learning excellence. It offers free peer tutoring in mathematics, primarily with first and second year math classes. It also provides an environment where students can work on group projects, study independently, and use its learning resources. These resources include computers capable of running the mathematical software currently being used in math courses offered at Villanova and a comprehensive collection of review materials which students may use for review or independent learning.

The Center is located in 204 Falvey Library, tel. 610-519-6572.

<https://www1.villanova.edu/villanova/provost/mlrc.html>.

The Learner's Studio

The Learners' Studio provides one-on-one tutoring for [Computer Science](#), Romance Languages, Biology, Chemistry, Physics, Nursing, Engineering and more.

<https://www1.villanova.edu/university/academic-enterprise/student-support/learners-studio.html>

Center for Speaking and Presentation

Taking a public speaking class? Working on a formal presentation? Prepping for an interview? Looking for practice participating in a seminar? The Center for Speaking and Presentation can help you develop and refine these skills and more.

<https://www1.villanova.edu/university/academic-enterprise/student-support/speaking-presentation.html>

Writing Center

Writing Center tutors offer assistance to undergraduates, graduate students, faculty, and staff who are engaged in every kind of writing. Students are welcome to come to the Writing Center at any stage of their composing process. Walk-in appointments are welcomed, but scheduled appointments are strongly encouraged. An individual session takes approximately 45 minutes in length, and clients may request a specific tutor.

The Center is located in 210 Falvey Library;
Phone: 610-519-4604

<https://www1.villanova.edu/villanova/provost/writingcenter.html>

Learning Communities

Join one of our Learning Communities and get the most out of your first year of college! Villanova's Learning Communities create innovative educational environments that integrate the academic, co-curricular, and communal aspects of the first year of college in specially themed versions of the required Augustine and Culture Seminar.

Your choice will help you quickly foster strong relationships with your classmates and professor. By also living in the same residence hall as your seminar classmates and participating in a 1-credit weekly workshop, you will integrate your academic and social experiences and participate in unique opportunities with special programming, events, and trips related to your learning community's theme. Get more information at <https://www1.villanova.edu/university/student-life/residence-life/communitas.html>

Examples of themes/interests are

- Leadership (commuter sections also available)
- Art and Culture
- Caritas: Service Learning
- Creative Writing
- Environmental Leadership
- Faith and Reason
- Global Community
- Healthy Living
- Crossroads: Science and Humanities (no workshop requirement)

Library Resources and Services for Students

Falvey Memorial Library, located in the center of the campus, provides a variety of services to help all students excel at Villanova.

Collections: The library's electronic and print collections include more than one million books, tens of millions of journal articles, as well as audio-visual and other types of materials. The library's e-books and e-journals are available 24/7 and can be accessed anywhere in the world through the library's website: <http://library.villanova.edu>. If a student needs a title that the library doesn't have, library staff usually can provide a copy of an article within 24 hours of request and a book within a few days.

Copies of select course materials are available at the library. Faculty may place print copies of the required and recommended readings for classes on reserve at the library's service desk or course materials may be available electronically via Blackboard.

The library also contains the University Archives and Special Collections that support the teaching

and research of the campus community and the global network of scholarship. These collections include rare and unique materials with particular strengths in the histories of Villanova, Augustinians, and Irish- Americans. Many items from these distinctive collections have been digitized and are available at <http://digital.library.villanova.edu>.

Services: Subject librarians are available to assist students through the year. Librarians can help students learn the skills and tools needed to find, evaluate, and cite information sources for research assignments. Students can call, email, text, chat online, or visit the library to work with a librarian. Students looking for an in-depth consultation are encouraged to schedule a meeting with a librarian. For more information see: <http://library.villanova.edu/research>.

Librarians have also created many self-help guides to assist students with the research assignments. Guides are available on many subjects and topics as well as for specific courses at <http://library.villanova.edu/research/subject-guides>.

The Learning Commons, located on the second floor of the library, provides academic support services for students. Services include the Center for Access, Success, and Achievement (CASA), Learning Support Services Office, Math Learning Resource Center, and Villanova Writing Center.

Facilities: The library is a hot spot for student study. There are many places to work in the library ranging from silent individual study, to areas that allow quiet conversation, to group study rooms for highly collaborative work. The most popular study area in the library is Dugan Polk Family Reading Room which students can access 24 hours-a-day. Other 24-hour study spaces are available on the first and second floors of the library.

The library also has computer workstations, high-speed printers, and scanners located on the first floor of the library. TechZone is located on the first floor and provides help with connectivity, VPrint, software, hardware and other technical problems.

Community Engagement: Falvey Memorial Library is the center for academic life outside the classroom and strives to provide a welcoming environment for students of all backgrounds and

abilities. The library hosts hundreds of events for the community each academic year, ranging from scholarly lectures, to cultural events, to stress relieving activities for students. The library has several meeting rooms available for use by official student groups. For more information see: <http://library.villanova.edu/events/general>.

ROTC

Villanova University, in a long-standing relationship with the United States Navy, maintains one of approximately 60 Naval Reserve Officer Training Corps units in the United States. The University also has an Army ROTC program in affiliation with Widener University and an Air Force ROTC program in affiliation with St. Joseph's University. For more details about these programs, consult Special Programs in the Liberal Arts and Sciences section of this Catalog.

Transcripts

Students may obtain transcripts of their records by ordering them online. Current students log in to myNOVA. In the search box, enter Order a Transcript. Select Order a Transcript *Current Undergraduate, Grad and Non-Credit*. Select Main Campus Degree Program and complete the order online. Student transcripts may be ordered for pick up, mailing, electronically or expedited delivery.

Students and Alumni without a myNOVA account order transcripts on-line from the Registrar's Website www.registrar.villanova.edu. Select Transcript Requests, *Undergraduate or Graduate - Office of the Registrar*, Select How to Request a Transcript and then select the Parchment link under Alumni and Former Students to access the Main Campus Degree Program ordering form.

Telephone and email requests cannot be accepted. Official transcripts bear the seal of the University and the signature of the Registrar. Those given, mailed or electronic transcripts, delivered directly to the student are stamped with a statement which points out this fact.

Transcripts will not be released for persons whose financial accounts are not clear in the Bursar's Office.

Electronic Transcripts are available to students who attended since September 1984.

The Cost of a Transcript:

- PDF transcripts (payable by credit/debit card) = \$5.55 per transcript
- Online orders for mail delivery (payable by credit/debit card) = \$7.85 per transcript
- Online orders for pick-up or campus mail (payable by credit/debit card) = \$5.55 per transcript
- Walk-in request (payable by check or cash) = \$10.00 per transcript

Costs of transcripts are subject to change.

Campus Programs and Services

Art Gallery

In its role as an extension of the classroom, Villanova's world-class Art Gallery serves to make the visual arts an engaging part of campus life for students, their families, staff and the community. Free on-campus exhibits by leading American and international artists, and emerging ones of promise, are publicly presented throughout the academic year.

Athletics and Recreation

Villanova student-athletes compete in 24 varsity sports, including 13 sports for women and 11 for men. The rich tradition of Wildcat Athletics has produced 20 National Championships and 103 Conference Championships. Faculty, staff and students have access to fitness centers, a swimming pool and intramural and competition in a wide variety of sports. In addition, the Athletic Department offers 30 different club sports in which students participate.

Campus Ministry

Linda Jaczynski: Director, Center for Worship and Spirituality

John Edwards: Director, Center for Pastoral Ministry Education

Kate Giancatarino: Director, Center for Service and Social Justice

<https://www1.villanova.edu/villanova/mission/campusministry.html>, 610-519-4080

Villanova Campus Ministry is inspired by the Augustinian values of truth, unity and love, and models its programs after St. Thomas of Villanova, who dedicated his life to serving those on the margins of society. We welcome and encourage all students to engage in the search for meaning and purpose - through prayer and liturgy as well as education, community, and service. Embracing people of all faiths, and those who do not identify with any faith tradition, we seek to provide spaces for students, individually and in community, to explore the intersection of personal beliefs, spirituality, justice, and compassionate engagement with the world around them.

Through its fulltime staff and graduate interns, Campus Ministry coordinates a diverse array of **worship and prayer opportunities** for the Villanova community. We pray together through daily and weekly Masses, a weekly Ecumenical Protestant worship service, Muslim Friday prayers, and opportunities for devotional and mindfulness practices, as well as special worship services marking major events throughout the academic year. Many students participate in worship leadership as liturgical ministers, pastoral musicians, and members of planning teams.

Students learn and grow together through weekly **"Get Real" discussion groups**, opportunities for individual **spiritual direction**, and a wide array of **retreats** that encourage reflection and understanding of personal faith. Campus Ministry partners with diverse Christian fellowship groups, Hillel, the Muslim Student Association, and the student-led Interfaith Coalition to create **ecumenical and interfaith** experiences that enable students of diverse religious traditions to know and learn from one another.

Seeking to embody the call of the Gospel, and inspired by Catholic Social Teaching, Campus Ministry provides opportunities for students, faculty and staff to act in solidarity with neighbors in need - locally, nationally and globally - through **Service and Justice Education** break trips, and **weekly community service** options. These service experiences are accompanied by opportunities to reflect upon the people and communities encountered in light of issues of social injustice, in order to deepen students' ongoing learning.

Campus Ministers provide **pastoral care and counsel**, including helping students deal with value conflicts, grief, spiritual discernment, and many other issues connected with faith and life.

In all that we do, Campus Ministry prioritizes the development of leaders who embody the values of truth, unity and love, and the fostering of community life shaped by pursuit of the common good.

Campus Ministry is located on the first floor of St. Rita's Hall. Regular weekday office hours are 9 a.m. to 5 p.m., and appointments can be made in person or by phoning 610-519-4080. Detailed information on Campus Ministry activities can be found on the website:

<https://www1.villanova.edu/villanova/mission/campusministry.html> and in *The Blue Book: The Villanova University Student Handbook*.

Counseling Center

The University Counseling Center, located on the Main Floor of the Health Services Building, offers psychological counseling, groups, consultation, and referral. Except for emergencies, appointments are required and can be scheduled either by phone 610-519-4050 or by visiting the Center.

Some examples of services are:

- **Personal and Psychological Counseling.** Students can discuss personal concerns in a private, confidential setting. Individual counseling sessions are available, as are counseling groups. All contacts are completely confidential and are not recorded on the student's university records. Doctoral Psychologists help students with issues such as: depression; anxiety; relationship concerns; eating disorders; trauma; self-defeating behaviors; family issues; and other problems.
- **Drug and Alcohol Counseling.** Students who are concerned about their use of alcohol or other drugs are encouraged to seek help from our psychologists.
- **Consultation regarding other individuals.** Students who are concerned about a family member, friend, or fellow student, may also consult the Counseling Center staff about how best to support that person.

- Referrals are provided for students who prefer to obtain off-campus counseling, or whose counseling needs exceed the capacity of the Counseling Center.

Crisis Response Services

Villanova University has devoted significant resources to providing a safe campus and assuring the safety of our community members. In addition to day-to-day coverage by our 75-member Public Safety team, we have an extensive Emergency Preparedness Plan in place that includes procedures to ensure a rapid response to an unanticipated emergency or threatening situation. Villanova takes all incidents affecting student, faculty, and staff safety as serious and time critical. We will use all available means of communications in a crisis situation, including text messaging, telephone, the Web site, and e-mail. The University will also implement on-site personal contacts by utilizing Public Safety officers and other University staff and officials. In the event of an emergency on campus or off, we provide full-service counseling services, as well as access to Campus Ministry staff trained to provide grief counseling.

International Student Services

The International Student Office assists international students in becoming familiar with the Villanova community, policies and U.S. government regulations that will govern their status here in the United States. The office sponsors a variety of social and cultural programs in conjunction with other Villanova organizations and local area universities and colleges. Each Fall semester in conjunction with the Office of University Admission the office holds an orientation session geared towards the concerns of incoming international freshmen.

Incoming international freshmen are strongly advised to plan to attend this program. Examples of topics covered during the orientation program include: the necessity to provide updated addresses and health insurance, how to maintain proper legal status during your academic career at Villanova, and regulations regarding employment. NOTE: Villanova University requires that all full-time students have health insurance.

All new international students to Villanova are required to check in with the International Student Services Office upon arrival at Villanova. This office, with the Registrar's Office, is responsible to ensure that all international students are registered with the Department of Homeland Security each semester. The International Student Service Office is located in the Connelly Center, second floor (610-519-4095 or 610-519-8017).

Office of Disability Services (ODS)

The Office of Disability Services (ODS) is responsible to oversee University compliance with the American with Disabilities Act (ADA) as it relates to academic accommodations.

The ODS is the primary office at Villanova University with specialized knowledge and experience in physical disability issues. ODS also advises faculty on the policies and procedures relevant to students with disabilities and acts as a general information and referral service on disability issues.

Students with identified disabilities have been admitted into Villanova University by the same criteria as other students and they have met the same rigorous standards for admission. The office meets with students to determine accommodations needed to succeed in academic programs. ODS works closely with Facilities Management to insure classroom and facility accessibility.

Incoming students should make an appointment with the office to request accommodations by contacting either Mr. Greg Hannah (610-519-3209) or Dr. Stephen McWilliams (610-519-4095). The office is located on the second floor of the Connelly Center.

Office of Diversity, Equity and Inclusion (ODEI) Student Outreach and Diversity Initiatives

Office of Diversity and Inclusion seeks to ensure that each student's educational experience at Villanova University takes place in the context of a welcoming, caring, just, and educationally purposeful community. The Center pursues this

goal through the promotion and facilitation of intercultural awareness and by offering learning resources and structured learning experiences to support students and student organizations. Students are encouraged to contact the Center if they encounter any form of bias or discrimination at the University. Once reported, students will meet privately with office staff to develop strategies for remedying problems encountered with bias or discrimination. The office also offers opportunities for students to assist the office in achieving its goals by participating in student organizations to promote diversity. Students are encouraged to e-mail bias@villanova.edu, visit the Office of Intercultural Affairs, or the Office of Diversity and Inclusion in person or online (www.diversity.villanova.edu).

Intergroup Dialogue Program

The Program on Intergroup Relations (IGR) is an educational program focused on supporting greater understanding about issues of inequity and promoting greater justice. IGR accomplishes this by providing students (as well faculty and staff) with the opportunity to understand their own social identities and those of others' more deeply, and to engage responsibly in promoting equity through allyship and action. IGR is a partnership between the Communication Department and the Office of Diversity and Inclusion. One-credit Dialogue classes (COM 5300) are the hallmark of the program and allow students in the four colleges to engage in small group conversations about race, class, gender, religion, and sexual orientation. IGR classes are housed in the Communication Department and are rooted in developing the communication skills of dialogic listening, cross-cultural understanding, empathy, and facilitation. Specially trained faculty and staff members co-facilitate each small class, limited to 12 students. For more information e-mail igrinfo@villanova.edu or visit www.villanova.edu/igr.

Office of Health Promotion

The mission of Health Promotion at Villanova University is to provide health resources and services grounded in evidence. Facilitate opportunities for students to build skills that empower them to make healthy and responsible lifestyle choices. Instill a sense of personal

responsibility for individual health decisions and recognize the impact those decisions can have on the Villanova community.

Health Promotion fulfills its mission through its comprehensive campus-wide change efforts related to high-risk behaviors (e.g., alcohol abuse and sexual violence), first year learning community, POWER peer education and academic internship program, the Stall Street Journal and Student Health 101 publications, Web and print resources, one-on-one consultation, and the Thrive 365 initiative. To find out more about the Office of Health Promotion, please visit us on the first floor of the Health Services Building, call us at 610-519-7407 or e-mail us at healthbytes@villanova.edu.

Music Activities

The Office of Music Activities promotes, maintains, and supervises the creative and artistic endeavors of student performing groups on the Villanova campus.

These groups include:

- **INSTRUMENTAL:** The Villanova Band; Chamber Strings; Brass Ensemble; Woodwind Ensembles; Jazz Ensemble; Music and Instruments Club (MIC)
- **CHORAL:** Villanova Singers (male); Villanova Voices (female)
- **A CAPPELLA:** Haveners; Nothing But Treble; Minor Problem; Sirens; Spires; Supernovas; Vocal Minority; Measure Up
- **DANCE:** Villanova Dance Team; Twirlers; Dance Company & Ensemble; Ablaze (Hip-Hop); Irish Dance Team; Nova Nassa (Indian Fusion/Bollywood); Nova Noise (Tap); Nova on Pointe (Ballet); Superlative (Hip Hop); Wazobia (African Dance)
- **THEATER:** Student Musical Theater (VSMT); Student Theater (VST); Music Activities Stage Crew (MASC)

For more information, visit the MUSIC ACTIVITIES website (<http://music.villanova.edu>).
PHONE 610-519-5050

Residential Facilities

The University maintains a variety of living facilities which are intended to serve as extensions of Villanova's learning environment.

Approximately 5400 students are housed on-campus across 18 traditional residence halls and 14 residential apartment structures. Lounge areas and laundry facilities are available in most residence halls and dining facilities are conveniently located throughout campus.

Admission to the University as a resident and payment of the admission deposit guarantees placement in residential facilities for consecutive freshman, sophomore, and junior years. Beginning Fall 2020, on-campus residency will be available to limited number of Seniors via a housing lottery. Transfer students are not guaranteed on-campus residency. More information on residential facilities may be obtained by contacting Residence Life, Stanford Hall (610-519-4154) or by visiting our website: www.reslife.villanova.edu.

Student Health Service

The Villanova University Student Health Center (610-519-4070), is staffed by registered nurses 24 hours daily. The Student Health Center is open with limited hours during semester breaks and over the summer. Physicians and nurse practitioners are available weekdays by appointment.

Gynecologic services are provided by the nurse practitioners by appointment. Registered nurses provide 24-hour care to students who require inpatient treatment and observation, as well as to students who require walk-in care. Other medical services include diagnostic laboratory testing, administration of allergy injections and immunizations. In the event that a student requires emergency care, transportation is provided to a local hospital. Though students are not billed for physician or nurse practitioner visits, they are financially responsible for some medication and all laboratory fees, as well as consultation with specialists.

For information about health insurance requirements for students please see our website: <https://www1.villanova.edu/university/student-life/health-services/health-center.html>. The Health Center is located in the Health Services Building, Third Floor.

Student Involvement

Dedicated to the Augustinian mission of the University, the Office of Student Involvement

seeks to foster the growth of the total person, one who builds community, values differences, leads ethically, and serves others. The office also provides a variety of services, programs, and activities which enhance campus life. The Office of Student Involvement enriches the student collegiate experience and serves the campus community through the active involvement of students, faculty, and staff in quality programs and organizations. Life at VU is filled with many opportunities for you to become an integral part of the Villanova community, as well as enriching your time at the university. There are so many options to choose from that will add to your experience on campus. Our office oversees the administration of over 200 student organizations at Villanova. Its aim is to provide a co-curricular program emphasizing leadership skills and co-curricular learning. The interest areas represented at Villanova include: governance, programming, student media, politics, academics, cultural activities, honor societies and special interest groups.

A complete listing of organizations and information on how to join can be found in the Office of Student Involvement, 102 Dougherty Hall (610-519-4211).

Student Organizations

Getting involved with a student organization can enhance the college experience. Organizations exist for a variety of purposes including: Academic and Professional, Athletics, Cultural, Fraternity/Sorority Life, Media, Music, Dance, Student Theater, Peace & Justice, and Political. Students also can start a club if an existing one does not meet their interests. For more information visit <https://www1.villanova.edu/university/student-life/student-involvement.html> for a list of the many options on how to get connected to student organizations on campus.

University Shop

The Villanova University Shop is the on-campus provider of merchandise and course-related items for Villanova University. The University Shop provides textbooks, a full selection of school supplies, calculators, and study aids. Our authentic assortment of Villanova fan gear includes t-shirts, sweatshirts, shorts, pants, hats and accessories for men, women, and children. We also carry a full assortment of drinkware, home accessories and gift items as well as dorm

essentials. Our technology department features Apple products as well as phone cases, chargers, cables, printers, speakers, and more. Order online at www.villanovabookstore.com and take advantage of our free in-store pickup option, which is a huge time saver when classes begin.

Veterans Benefits

Veterans Benefits

[Download as PDF](#)

The School Certifying Official (SCO), located in the Registrar's Office (Room 205, Kennedy Hall) serves as a liaison between the University and the Veterans Administration. Veterans, Military Students, and dependents, who will be registering for the first time must apply for their benefit by submitting VA 22-1990 or VA 22-2990e (transfer of entitlement) with the Veterans Administration. Application for VA Benefits is available online through the Department of Veteran Affairs online application (<https://www.va.gov/>). Once the application is processed, the VA will send the student a Certificate of Eligibility (COE). This needs to be sent to the SCO prior to any enrollment certification. After the student has registered for the appropriate courses, the student needs to submit an [Enrollment Verification Form](#) so the enrollment certification will be transmitted to the Veterans Administration to secure payment of benefits. Veterans who transfer from another institution must complete the form "Request for Change of Program or Place of Training," available online through the Department of Veterans Affairs website: <https://www1.villanova.edu/villanova/enroll/veterans-military.html>. The veteran must submit the COE along with the [Enrollment Verification Form](#) to the SCO. The enrollment certification will then be transmitted to the Veterans Administration to secure payment of benefits. It is the Veteran Student's responsibility to submit an Enrollment Verification form each semester after they have registered that they plan to continue to use their VA benefits, so that their credits may be certified with the VA in a timely manner.

Please contact the School Certifying Official, Amy Rockwell at 610-519-4034 for more information or for any questions that you may have.

More information can be found at <https://www1.villanova.edu/villanova/enroll/veterans-military.html>.

Veteran and Military Students

Military Tuition Benefit Verification: GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). For more information about VA educational benefits, please visit the official Veteran Affairs website at www.benefits.va.gov/gibill. The VA determines student eligibility to receive educational benefits. Students should apply for their VA educational benefit electronically by utilizing the Vets.gov (<https://www.va.gov/>) or eBenefits (<https://www.ebenefits.va.gov/ebenefits/homepage>) websites. Students will fall into one of two categories: "Initiating VA benefits for the First Time" or "Resuming VA Benefits".

Certification depends upon a student's VA determined eligibility, enrollment status and program of approved study. To verify that either a degree or a non-college degree (NCD) is approved for VA benefits, students can visit WEAMS <https://inquiry.vba.va.gov/weamspub/buildSearchCountryCriteria.do>. This website has a search filter from which students can look up Villanova University to see a list of approved degree programs and Non-College Degree (NCD) Programs.

At Villanova, Veteran certifications are processed within the Office of the Registrar by a School Certifying Official (SCO). SCO contact information is provided at <http://www1.villanova.edu/villanova/enroll/registrar/veterans.html>. Students should notify their Program Coordinator or online Enrollment Representative as well as the SCO of any enrollment changes.

If a student would like to check on the status of their application, remaining entitlement, or any other general questions, they should contact the Department of Veteran Affairs educational hotline: 1-888-GI-BILL-1 (1-888-4424551) or submit a question electronically through Ask a Question. Villanova personnel cannot provide advisement or counseling related to Veteran benefits.

Military members who are eligible for Military Tuition Assistance (TA) can use TA for approved

NCD courses. TA can lessen a student’s financial concerns considerably since it now pays up to 100 percent of tuition expenses for semester.

In accordance with Title 38 United States Code Section 3679(e), Villanova University will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a Covered Individual borrow additional funds, on any Covered Individual because of the Covered Individual’s inability to meet his or her financial obligations to Villanova University due to the delayed disbursement of funding from the VA under Chapter 31 or Chapter 33.

Covered Individuals should provide to the School Certifying Official (SCO) (email: veterans@villanova.edu; phone: 610.519.4034), no later than the first day of a course of education: a certification of eligibility for entitlement to education assistance, along with the Enrollment Verification Form. A certificate of eligibility can also include a statement of benefits obtained from the VA website www.benefits.va.gov/gibill, e-benefits<https://www.ebenefits.va.gov/ebenefits/homepage> or a VAF 28-1905 form for Chapter 31 authorization purposes.

This policy applies during the period beginning when a certification of eligibility is provided to the SCO (no later than the first day of a course of education) and ending on the earlier of one of the below dates:

- The date on which payment from the VA is made to Villanova University.
- 90 days after the date Villanova University certified tuition and fees following the receipt of the certificate of eligibility.

Admissions

General Policy on Undergraduate Admission

Villanova seeks to enroll students who excel academically and possess wide interests and positive qualities of character. In selecting members of the first-year class from the large number of qualified candidates who meet the

minimum quantitative and qualitative requirements, the University undertakes to admit those who appear best prepared to benefit from the programs of study offered.

The criteria used to assess academic potential are: the scholastic record as reflected by the rigor of courses chosen in high school and the quality of performance; rank in class (where rank is reported); scores earned the SAT and/or the ACT; participation in extracurricular and community service activities; secondary school counselor and teacher recommendation; and essays.

Students are holistically selected on the basis of individual merit. The University does not discriminate against applicants seeking admission because of their race, color, national or ethnic origin, religion, sex, sexual orientation, gender identity, age, disability, veteran status or family financial status.

Required and Elective Units for Admission

Although individual consideration is given to each applicant, it is expected that all applicants, except in most unusual circumstances, will minimally satisfy the unit requirements listed below the college to which they make application. As used here, a unit represents a year’s work in any subject. Each college requires 16 units.

College of Liberal Arts

For Liberal Arts Curriculum:

Biology	1 Mathematics	3
English	4 Science	2
Foreign Language	2 Electives	3
History or Social Science	2	

For Applied and Life Science Curricula:

English	4 Foreign Language	2
Chemistry	1 Physics (recommended)	1
Mathematics	4 Electives	4

Villanova School of Business

English	4 Science	1
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History	2 Electives	5
Mathematics (Calculus preferred)	4	

College of Engineering

English	4 Physics (required)	1
Chemistry	1 Electives	6
Mathematics	4	

College of Nursing

English	4 Mathematics	3
History	2 Electives	2
Biology	1 Other Science	1
Chemistry	1 Foreign Language	2

Elective units acceptable in all colleges:

Latin	2 Social Studies	2
Foreign Language	2 Mathematics	2
History	2 Laboratory Science	2
Chemistry	1	
Biology	1	
Physics	1	

Health Affiliation Program

Villanova University has accelerated Health Science Affiliation programs with a number of institutions including the University of Pennsylvania School of Dental Medicine, and the Pennsylvania College of Optometry at Salus University. Completed applications to these programs must be received by the Office of Undergraduate Admission no later than November 1. The SAT and/or ACT must be taken no later than October of the senior year.

Early Action

Early Action admission is awarded to those exceptional students who have outstanding high school records, rigorous curricula, and correspondingly high SAT or ACT scores as judged by the Committee on Admission. Applicants will be evaluated on the basis of their three-year record and scores on the SATs and/or ACTs taken no later than October of the senior year. Note that Villanova may be test (SAT or ACT) optional in a given year and details will be provided on the University's Office of Undergraduate Admissions' webpage.

For Early Action, the completed application must be received by the Office of University Admission no later than November 1. Every effort will be made to notify all Early Action applicants by January 15. These applicants need not apply only to Villanova. Deferred applicants will also be

notified and will be reconsidered in the Regular Decision applicant pool; candidates may also be denied admission at this time. The Committee on Admission reserves the right to admit, defer, or deny any candidate for Early Action.

Early Decision

For students who have decided that Villanova is their first choice after a thorough and thoughtful college search, we offer a binding Early Decision 1 plan. With a deadline of November 1, all applicants will be notified of their decision by December 15. An Early Decision Form must also be submitted by November 1 with all required signatures. The Early Decision Form is available on the <https://www.commonapp.org/> website.

All standardized test results (SAT and/or ACT) must be submitted directly to Villanova and taken no later than November 10 of the senior year for ED consideration. We will also require a senior progress report with any grades that are posted by November 1. Note that Villanova may be test (SAT or ACT) optional in a given year and details will be provided on the University's Office of Undergraduate Admissions' webpage.

If you are applying for financial assistance, you must have all required documents including the FAFSA and CSS Profile submitted by November 1.

For those admitted through Early Decision 1, the non-refundable deposit of \$700 will be due by January 7, and all applications to other colleges and universities must be withdrawn.

For children of Villanova graduates, legacy affiliation will be given the most consideration through the Early Decision option.

We also offer a binding Early Decision 2 plan. This plan has an application deadline of January 15 (including FAFSA and CSS Profile if seeking financial assistance) with tests scores submitted by January 31. The non-refundable deposit is due by May 1.

Regular Decision

Applicants for Regular Decision may submit their credentials any time after August 1 prior to the start of the senior year. The completed application must be received by the Office of Undergraduate Admission no later than January 15. Applicants for Regular Decision will be

evaluated on the basis of their three-year high school record (to include senior mid-year grades), rigor of curricula, and scores on the SAT and/or ACT taken no later than December of their senior year. Note that Villanova may be test (SAT or ACT) optional in a given year and details will be provided on the University's Office of Undergraduate Admissions' webpage. Every effort will be made to notify all applicants by April 1 of the following appropriate decision: admittance, waiting list, denial, scholarship award, loan assistance and/or grant-in-aid. To secure a place in the class, admitted students must submit a non-refundable registration deposit of \$700 no later than May 1.

Students who are admitted as resident students and pay the \$700 enrollment deposit by May 1 are guaranteed three consecutive years (first year, sophomore and junior) of on-campus housing. Students accepting the University's offer of admission are advised to submit their registration deposits on-line or by check, credit card, or money order payable to "Villanova University" as soon as possible. The deposit is non-refundable and is applied toward the student's first semester account.

Application Procedure

To ensure proper processing of applications for admission, all candidates should follow the procedure outlined below:

Complete the online Common Application with the Villanova Member Section by the appropriate deadline at www.commonapp.org. (This includes the submission of the Common Application and Villanova essay along with the \$80 application fee. Villanova participates in various fee waiver programs for eligible students.) Notify their secondary school counselor or other educational professionals to submit Secondary School Counselor section of the Common Application and official high school transcript to the Office of Undergraduate Admission. The completed admission applications must be received by Villanova no later than November 1 for Early Action, Early Decision 1, Honors Program Consideration and Health Affiliation Programs; December 1 for Presidential Scholarship (including nomination) consideration and Villanova Scholarship consideration; and January 15 for Regular Decision and Early Action 2 consideration.

Villanova offers the applicant the option to self-report your SAT and/or ACT scores in the testing section of the Common Application. Should you choose, you may also have your official score sent to Villanova, but this is not necessary for your application to be reviewed. If you are admitted and choose to enroll, we will require that the official scores be sent directly from the College Board and/or ACT. Any misrepresentation of these scores will result in the denial or recession of admission.

Submit one teacher recommendation online through the Common Application. (A paper copy will be reviewed, but may not become part of the applicant's file.)

Transfer Students

Candidates for admission who have attended other colleges and universities should submit applications for transfer to the Office of Undergraduate Admission of Villanova University no later than June 1 for the fall and November 1 for the spring semester (unless otherwise stipulated).

The transfer applicant must submit complete seal-bearing transcripts from all the college/university and secondary schools attended, a list of courses in progress, a catalog describing courses completed at the college-level institution, evidence of honorable withdrawal (Common Application Transfer College Report), essay and any other information the Admission Committee may require. Transfer students are required to choose a major at the time they apply.

Admission criteria vary slightly contingent upon the college or academic program to which a candidate applies. A cumulative grade point average of 3.00/4.00 is recommended for students interested in transferring to Villanova. Admitted transfer students into the College of Liberal Arts and Sciences are not eligible to transfer internally to one of the other Villanova academic colleges. If you intend to earn a degree from the Villanova School of Business, the M Louise Fitzpatrick College of Nursing, or College of Engineering, you must apply directly to that college.

Transfer credit towards undergraduate degrees will, in general, be granted for appropriate academic work completed with a grade "C" (2.00) or better at an accredited institution.

Credit may be granted for courses without direct Villanova equivalents when such courses are of clear academic merit. Quality-grade points for work taken elsewhere are not included in the calculation of the student's cumulative average used to determine advancement at Villanova and eligibility for graduation. The final thirty credits (senior year) of a degree program and at least half of all major courses must be taken at Villanova.

Candidates for admission from junior colleges, community colleges or institutes are judged by the same regulations pertaining to applicants from four-year institutions. Credits will be granted, as above, for appropriate courses completed in a two-year program, provided that the institution is regionally accredited or a candidate for such accreditation.

Transfer students from two-year programs should note that graduation after two years of study at Villanova cannot be guaranteed because of the complexities of scheduling and the fulfillment of the requirements of Villanova's program.

Applications for transfer of credit from non-accredited institutions are considered on an individual basis. Credit is granted for those courses that are of clear academic merit and in which the transfer applicant has earned grades. In all cases, the University reserves the right to require a written examination in the course or courses in question before transfer credit will be granted.

International Students

Villanova University admits to its undergraduate program citizens from other countries who meet the appropriate criteria. International students are admitted to begin their studies in the fall semester only. The final date for receipt of the application for undergraduate students is January 15.

To be considered for admission, international students must submit the same admission application and supporting academic credentials, and all non-native English speakers must take an English language proficiency test such as the TOEFL or IELTS. Official results must be sent directly to the University. For admission consideration, candidates must attain a minimum score of 90 on the iBT (internet based), or 577 on the paper based TOEFL; or a band score of 6.5

on the IELTS. This requirement may be waived for students who have completed at least three years of secondary education at an American or International School where English is the primary language of instruction or for students who have achieved a 620 on the Evidence-based Reading and Writing section of the SAT.

All undergraduate international students should note that they must pay a non-refundable tuition deposit of \$700 by May 1 and submit a Certification of Finances form and supporting bank letter prior to the issuance of the form I-20.

International students are eligible to compete for some merit-based and athletic scholarships. Need-based financial aid is available to first-time freshman international students from University sources on a limited basis.

Advanced Placement and International Baccalaureate Credit

Villanova recognizes advanced standing from the College Board's Advanced Placement program (AP) and from the International Baccalaureate Programme (IB). Students who have taken these courses should report to their College Dean's office to verify Villanova's receipt of the scores to ensure that proper adjustments have been made to their academic records. The courses will be entered into the student's record with Villanova credit without a grade. In some cases, the Advanced Placement or International Baccalaureate results may allow the student to place out of a lower level course, but will not be counted as credit.

The following AP courses will receive Villanova credit if a student receives a score of 4 or 5:

U.S. History (07); Art /Art History (13); Biology (20); Calculus (66 or 68); Calculus Subgrade (69); Chemistry (25); Computer Science (31); Economics (34 and 35); English (36 or 37); European History (43); Chinese Language and Culture (28); French (48); Japanese Language and Culture (64); Italian Language and Culture (62); Latin (60); Environmental Science (40); Human Geography (53); Physics (80 or 82); Political Science (57 or 58); Psychology (85); Spanish (87 or 89); Statistics (90); World History (93).

Only International Baccalaureate Higher Level course work will be considered for credit. The following Higher Level IB courses will receive Villanova credit if a student receives a score of 6 or 7: Anthropology; Biology; Chemistry; Computer Science; Computer Science Information Technology; French A; English; Economics; Geography; History: Americas; History: Europe; Italian; Latin; Mathematics; Mathematics Further; Music; Philosophy; Physics; Psychology; Spanish A. Students also receive credit for score of 5 in Computer Science H L, Computer Science Information Technology, English, Economics, Geography, and Mathematics Further.

Credit by Examination

Qualified matriculated students may test out of selected courses and receive full credit for them. Such courses are graded on a "Satisfactory/Unsatisfactory" basis; however, a failing grade will not appear on the student's transcript. Applications and information are available in room 107, St. Augustine Center.

Transfer within the University

When a student transfers from one college to another within the University, the Dean may delete from the computation of the Grade Point Average courses which are not applicable to the new program.

However, if such a student returns to her or his previous college, the Dean of that College will notify the Registrar to reinstate those courses. The grades and any credits earned will again be computed in the Grade Point Average.

Pre-Matriculated College Credit

College-level work completed prior to high school graduation, including college courses that fulfill high school graduation requirements, may be awarded transfer credits upon receipt of the following:

1. an official letter from the high school principal, secondary school counselor or other educational professional describing the college-level program of study;

2. an official letter from the college/university stating that the courses were taught by members of the regular faculty, open to enrollment by and graded in competition with regularly matriculated undergraduates at the college and a regular part of the normal curriculum published in the college catalog;
3. a course syllabus;
4. an official, seal-bearing transcript from the college/university showing a grade of C or better. Credit or advanced standing for courses taught at the high school will not be accepted. With respect to courses taught in a distance learning format, and for other requirements, each academic program will review on a case by case basis. Each supporting document is to be sent to the Dean of the College in which the student is enrolling. All pre-matriculated credit must be accepted and approved before the completion of two semesters at Villanova.

Tuition and Fees

Tuition and Fees

Undergraduate Colleges and Programs Tuition (Per Year)*

	Tuition	Per Credit Rate	General Fees	Student Health Fees
All Undergrad Colleges	\$60,768	\$3,377	\$460	\$390

Villanova begins producing Fall semester bills in July (due in August and Spring semester bill in November (due in December)

Semester charges are:

Semester Tuition Rate	Per Credit Rate	General Fee	Student Health & Wellness Fee
\$30,384	\$3,377	\$230	\$195

1. Undergraduates are charged the semester tuition rate if they are enrolled in 9 credits or more in that semester. If enrolled in less than 9 credits undergraduates are charged the per credit rate for each credit hour taken.
2. An Orientation Fee is charged to first year students - \$250.

Please note the semester tuition rate is charged to students enrolled in 9 credits or more.

Full-time enrollment for federal, state, and institutional aid is defined as 12 or more credits a semester.

Athletic aid and participation, housing access, etc. is also defined as 12 or more credits a semester.

Fees

Application Fee	\$80 (non-refundable)
Tuition Deposit (Deposit due upon acceptance; credited to account upon registration)	\$700 (non-refundable)
Orientation Fee	\$250 (new students only)
Late Registration Fee	\$25
Late Payment	\$200
Returned Check Charge	\$30
Monthly Service Fee	\$10 per Month (for Past Due Accounts)
Parking Fee (Annually)	\$100
Reinstatement Fee	\$250
Credit by Examination	\$100 per credit hour
Nursing Pre-Licensure Exam Fee	TBD
Room (Depending on Accommodations)	\$4,006-\$5,988 /semester
Board (Depending on Meal Plan)	\$2,310 -\$4,050 (\$1,205 available for commuter/ semester)

**Subject to change at the discretion of the University Administration.*

***A Late Payment fee is charged to any account which is not paid in full by the official first day of class.*

Once a student is registered, they will receive a bill and tuition is due by the due date shown on the bill. If a student registers after the due date, payment will be due upon receipt of the bill. Registration or the release of academic records cannot be completed until all financial obligations have been settled with the Bursar's Office. In addition to the above expenses, students should include expenses for textbooks, laundry, clothing, personal effects, and travel between the University and their homes in their educational costs.

Tuition for International Studies

Villanova charges current students full tuition for all Fall and Spring term International Studies programs. Villanova students will be eligible to use Villanova University financial aid (i.e. grants and scholarships) to assist with study abroad

tuition costs as long as those funds do not carry policy constraints or conditions which would restrict their use for this purpose.

If a recipient institution's tuition exceeds Villanova's, the University is obligated to pay a maximum amount equal to that of the normal Villanova tuition for that academic term's undergraduate tuition. Villanova will not pay for room, board, travel, books, brokerage or associated non-academic fees of an international studies experience.

There are special considerations for students on tuition remission programs. These students should check with the International Studies program for details.

College of Professional Studies, Tuition and Fees 2022-2023

Application Fee (Non-refundable)	\$50
Late Registration	\$25
Tuition Evening Rate	\$706 (per credit)
Tuition Day Rates	\$1,172 (per credit)
General University Fee	\$15/semester
Reinstatement Fee	\$250
Late Payment Fee**	\$200
Monthly Services Fee for Past Due Accounts	\$10/month
Returned Check Charge	\$30
Parking Fee***	\$50 (Night Courses) \$100 (Day Courses)

**Subject to change at the discretion of the University Administration.*

***A Late Payment fee is charged to any account which is not paid in full by the official first day of class.*

****Annually for evening students. For students taking day courses, the fee is \$100.*

NOTE: Registration or the release of academic records cannot be completed until all financial obligations have been settled with the Bursar's Office.

Refund Schedule

Fall/Spring Semester Refund Policy

Segment of Semester Refund

Up to first week	80%
Up to second week	60%
Up to third week	40%
Up to fourth week	20%
Beyond fourth week	No Refund

(For Summer Semester policy, please see Bursar's website: <https://www1.villanova.edu/villanova/finance/bursar.html>)

Refunds as a result of official withdrawal will be made according to the following schedule. Excluded from the refund calculation will be the costs related to on-campus housing and university meal plans. Activity, library, and medical fees are not refundable. There will be no refund for unauthorized withdrawals. Students who do not register or who notify the Registrar's Office prior to the first day of class that they will not enroll are entitled to a full refund.

In addition to the University's refund schedule and in accordance with the Higher Education Amendments of 1992, if a student completely withdraws from the University and has utilized Federal Title IV funds (e.g. Federal Pell Grant, Federal Supplemental Educational Opportunity Grant [SEOG], Academic Competitiveness Grant, National SMART Grant, Federal Perkins Loan, Federal Direct Stafford Student Loan, Federal Direct PLUS, Federal Direct Graduate PLUS), during the semester in which they withdraw, the University will observe the federally mandated process in determining what, if any amount of money must be returned to the federal program (s). For more information on the Return of Title IV Funds please visit: https://www1.villanova.edu/villanova/enroll/finaid/policies/title_iv.html.

Financial Assistance

The cost of a college education is a major concern facing parents and students. Villanova University recognizes this fact and attempts to provide a comprehensive package of financial assistance consisting of need-based grants, loans, and student employment. In addition to these need-based programs, Villanova offers several merit-based scholarships.

Scholarships

Listed below are scholarship programs awarded by the University to entering first-year students.

Presidential Scholarships. The Presidential Scholarship is a renewable, merit-based award covering full tuition, room, board (up to 21 meals-per-week plan), general fee, and the cost of textbooks for eight semesters. Presidential Scholars are transformational leaders both on and off campus who have demonstrated a love of learning and a commitment to enhancing both their local and broader civic communities. Villanova Presidential Scholars represent diverse intellectual, social, ethnic, and economic backgrounds. Each year, of the 24 Presidential Scholarships, 6 scholarships are reserved for candidates from historically underrepresented groups; including African American/Black, Latino/Hispanic, American Indian/Native Alaskan, Asian/Pacific Islander, first in their family to pursue a college education, and low income (generally Federal Pell Grant eligible) students. Students must be nominated by the chief academic officer of their high school (principal, president, headmaster), secondary school counselor or an official school designee. They can also be nominated by a representative from a home school entity or non-profit educational organization dedicated to helping disadvantaged high school students with the college search process.

Nominees will be expected to show evidence of superior academic performance as reflected by their high school course selection and grade point average, as well as a high level of achievement on the SAT or ACT. Candidates will also be assessed in terms of leadership, civic engagement, ability to respond effectively to adversity, creativity, and expertise in a specific field. Candidates will be required to complete a series of short essays to supplement the nomination form. The average weighted high school grade point average of candidates selected as finalists for the Presidential Scholarship in the Fall 2017 entering freshman class was 4.33 (on a 4.00 scale); the average combined SAT score (Evidence-Based Reading and Writing and Math) was 1500 and the average ACT was 34.

For more information regarding the Presidential Scholarship Program, application deadlines and the nomination process, visit the following websites: Center for Research and Fellowships: <https://www1.villanova.edu/villanova/provost/crf.html> and The Center for Access Success and Achievement: <https://www1.villanova.edu/>

villanova/provost/casa.html. For more information regarding the Program's particular commitment to enrolling Underrepresented Students, contact the Center for Access Success and Achievement at 610-519-4075.

The Saint Augustine Scholarship. No new St. Augustine Scholarships will be awarded after August, 2019. Students who have already received the award will continue with the scholarship assuming they continue to meet the criteria set out in their scholarship letter.

St. Martin de Porres Scholarship. Villanova University offers St. Martin de Porres Scholarships to serve the University's goal of attracting a richly diverse and talented population of undergraduate students. St. Martin de Porres Scholarships are valued at full tuition and general fees. To be eligible for consideration, applicants must be U.S. citizens or permanent residents from one or more of the most underrepresented groups at Villanova University, including (but not limited to) underrepresented racial and ethnic populations, economically disadvantaged backgrounds and/or students whose parents have not graduated from college. All applicants also must have exemplary high school records, leadership roles, and active involvement through service to the community. In honor of the history of this award, preference will be given to applicants living in the greater Philadelphia area, which is defined as Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; Burlington, Camden, Gloucester, and Salem Counties in New Jersey; and New Castle County in Delaware.

To apply, you must have already submitted a completed application for admission as a first-year student. Then, you must submit the St. Martin de Porres Scholarship application no later than February 1 and the required essay by February 7. Applicants may apply for admission via Early Action, Early Decision (both November 1 deadlines) or Regular Decision (January 15 deadline).

Additional information will be sent to you via email once your completed application is received. Incomplete applications for admission and/or scholarship will not be eligible for consideration. Finalists will be required to interview either in person or via Skype. The selection committee will review qualified applicants and notify recipients by April 1.

Denise McNair Memorial Scholarship. The Denise McNair Memorial Scholarship has been instituted in memory of Denise McNair who, on Sunday, September 15, 1963, died in the early days of the civil rights movement in a racially motivated bomb attack at the Sixteenth Street Baptist Church in Birmingham, Alabama. This Scholarship, valued at full tuition for eight consecutive regular semesters (not including summer), will be awarded to a first-year student who is a U.S. citizen from a traditionally underrepresented population and, who has demonstrated outstanding academic achievement and a commitment to family, religious faith, peace and justice. The McNair Scholarship is awarded every four years to an entering first year student. Therefore, this scholarship will next be awarded to an entering first-year student entering fall 2024.

To apply, you must have already submitted a completed application for admission as a first-year student. Then, you must submit the McNair Memorial Scholarship application no later than February 1 and the required essay by February 7. Applicants may apply for admission via Early Action, Early Decision (both November 1 deadlines) or Regular Decision (January 15 deadline).

Additional information will be sent to you via email once your completed application is received. Incomplete applications for admission and/or scholarship will not be eligible for consideration. The selection committee will review qualified applicants and notify recipients by April 1.

Goizueta Foundation Scholars Fund. The Goizueta Foundation Scholars Fund has been instituted for the purpose of providing need-based scholarship assistance to those who have extensive personal interest, involvement, and experience in the Hispanic/Latino culture. The award (of a varying amount) is made to students who are U.S. Citizens or permanent residents and whose families currently reside in the United States, who come from communities or populations that have been historically underrepresented in the student body at Villanova, who have demonstrated financial need and who have demonstrated outstanding academic achievement. This award will be granted to two entering first-year students. This scholarship is renewable for a total of eight consecutive full-time undergraduate regular

semesters (not including summer). Returning undergraduate students will be considered for scholarship renewal on the basis of their academic performance and financial need.

To apply, you must have already submitted a completed application for admission as a first-year student. Then, you must submit the Villanova Scholarship Interest Form no later than February 1 and the required essay by February 7. Applicants may apply for admission via Early Action, Early Decision (both November 1 deadlines) or Regular Decision (January 15 deadline).

Additional information will be sent to you via email once your completed application is received. Incomplete applications for admission and/or scholarship will not be eligible for consideration.

Anthony Randazzo Endowed Presidential Scholarship. This award is a renewable, merit-based award covering full tuition, room, board (up to 21 meals-per-week plan), general fee, and the cost of textbooks for eight consecutive full-time undergraduate semesters that is awarded to one first-year African American/Black student. The chosen candidate must have demonstrated academic merit and financial need, been involved in community service and/or civic leadership activities, and reside in the city of Philadelphia, Pennsylvania.

To apply, you must have already submitted a completed application for admission as a first-year student. Then, you must submit the Villanova Scholarship Interest Form no later than February 1 and the required essay by February 7. Applicants may apply for admission via Early Action, Early Decision (both November 1 deadlines) or Regular Decision (January 15 deadline).

Additional information will be sent to you via email once the required essay is received. Incomplete applications for admission and/or scholarship will not be eligible for consideration. Applicants are also required to complete the FAFSA and any applicable state grant application as the award may be reduced by any Federal Pell or state grant funding.

This award was made possible by the generosity of Anthony T. and Marjorie Randazzo and family.

Villanova National Merit Scholarship. These awards, ranging from \$500 to \$2,000, are offered to top students who are designated as finalists by the National Merit Scholarship Corporation and who selected Villanova University as their first college choice. Students should file the Free Application for Federal Student Aid (FAFSA) and the CSS Profile so that the proper award amount can be determined.

Army ROTC. For recipients selected by the Army ROTC program, Villanova grants up to five scholarships. Villanova University agrees to fund U.S. Army scholarship winners with an amount not to exceed \$5,000 to be used for University room and board charges only.

Naval ROTC. Villanova University provides grants to NROTC scholarship recipients who are designated by the United States Navy. Villanova may award up to four partial scholarship annually to NROTC Scholarship recipients. These partial scholarships may be applied toward room or board expenses incurred at Villanova. To be eligible for consideration, a candidate must meet all minimum academic requirements of the St. Augustine Scholarship. The recipients of this award are selected after the successful completion of the first semester of their first year at Villanova by the Unit Commander.

Student Financial Aid

To apply for all types of student aid, prospective full-time first-year students must file the Free Application for Federal Student Aid (FAFSA) for consideration for federal and state aid and the CSS Profile for consideration of University (institutional) aid. To receive priority consideration for financial aid, applicants must file the FAFSA and CSS Profile by November 1 (Early Decision); December 1 (Early Action) and January 15th (Regular Decision). Additionally, for students who wish to be considered for need based assistance, signed copies of the student's and custodial parents' and stepparent's (if applicable) U.S. or Puerto Rico Tax Returns, W-2 form(s) and 1099 form(s) must be submitted to the College Board Institutional Document (IDOC) Service no later than November 1 (Early Decision); December 1 (Early Action) and January 15th (Regular Decision). Late applicants will be aided only if funds remain available. Students and parents are also required to use the IRS Data Retrieval Tool to import their tax information from their filed federal tax forms directly into the

FAFSA on the Web if selected for verification (see below). If unable to use the IRS Data Retrieval Tool the student and parent will need to submit a U.S. Tax Return Transcript to the Villanova University Office of Financial Assistance.

A limited number of accepted Full-time International Students may be reviewed for need-based Villanova University Grant Assistance. Applicants must file the CSS Profile by November 1 (Early Decision); December 1 (Early Action) and January 15th (Regular Decision) to receive consideration for need-based funding. International students are awarded two forms of funding: student employment and Villanova Grant. In addition to the CSS Profile, Villanova requires the following documentation to be submitted to determine financial need: A letter from each parent's employer verifying either the monthly or annual income, a Certificate of Finances verifying what their annual family contribution will be along with a bank letter to support their family contribution. The Certificate of Finances and bank letter are also requirements of the Admissions Office in generating the student's visa. International students, who are not funded in their freshmen year, will not be reviewed for funding in future years.

A limited number of accepted Full-time freshmen Undocumented students who live in the United States without an approved visa, or without permanent residency/citizenship may be eligible for consideration of need-based financial assistance. To receive consideration for financial aid, applicants must file the FAFSA and CSS Profile by November 1 (Early Decision); December 1 (Early Action) and January 15th (Regular Decision). Students and parents are also required to submit signed copies of their Federal Tax Returns and schedules (if applicable), along with copies of all Federal W-2, 1099 and/or 1099R forms. Undocumented students who are not funded in their freshmen year, will not be reviewed for funding in future years. Transfer students should consult the Office of Financial Assistance website: <https://www1.villanova.edu/university/office-of-financial-assistance.html> for additional information and application deadlines.

Students applying for admission through the College of Professional Studies or students seeking a second baccalaureate degree should consult the Office of Financial Assistance website: <https://www1.villanova.edu/university/>

[office-of-financial-assistance.html](https://www1.villanova.edu/university/office-of-financial-assistance.html) for additional information and application deadlines. Some programs of aid may not be available to these students.

All returning undergraduate students and Undocumented students who live in the United States without an approved visa, or without permanent residency/citizenship and wishing to be considered for federal or state aid must reapply and must file the Renewal FAFSA. Returning students who are new financial aid applicants must file an original FAFSA for consideration for federal and state aid. Returning undergraduate students must also complete the CSS Profile to be considered for University (institutional) aid. To receive priority consideration for financial aid, returning undergraduate applicants must file the FAFSA and CSS Profile by May 1. Both new and renewal applicants who are not Pennsylvania residents should file the appropriate application for State Grant consideration in their home state. Additionally, signed copies of the student's and custodial parents' and stepparent's (if applicable) U.S. or Puerto Rico Tax Returns, W-2 form(s) and 1099 form(s) may be requested and must be submitted to the College Board Institutional Document (IDOC) Service. Late applicants will be aided only if funds remain available. Students and parents are also required to use the IRS Data Retrieval Tool to import their tax information from their filed federal tax forms directly into the FAFSA on the Web if selected for verification (see below). (Returning students and parents are encouraged to use the IRS Data Retrieval Tool if their tax returns have been filed to facilitate the Renewal FAFSA application process.) If unable to use the IRS Data Retrieval Tool the student and parent will need to submit a U.S. Tax Return Transcript to the Villanova University Office of Financial Assistance.

Returning Full-time International Students who received need-based Villanova Grant funding are required to file the CSS Profile no later than May 1 in order to be reviewed for renewal of funding. The Certificate of Finances is not required after the student's first year. However, students and parents may be required to submit employer letters and bank letters supporting the family contribution.

Please refer to the section below titled Verification for additional information and/or requirements needed in order to receive financial assistance.

Throughout the application process prospective students are to check their Applicant Status Page. All enrolled students are to check on the completeness and status of their application via MyNova. Additionally, aid eligibility is posted to the Applicant Status Page and MyNova. Returning Undergraduate and Graduate students will be sent an email indicating when their financial aid eligibility is available to be viewed on MyNova. Freshmen and transfer students will be sent their original aid notice via regular mail and can also view their financial assistance package on their Applicant Status Page and MyNova, once a deposit is made. Once a student enrolls all subsequent award notices will be sent via email to the student's Villanova email address.

Additional information regarding the financial assistance process may be obtained via the Office of Financial Assistance website at <https://www1.villanova.edu/university/office-of-financial-assistance.html>. Students and families may also address questions or concerns to the Office of Financial Assistance via phone at 610-519-4010, fax 610-519-7599 or email at finaid@villanova.edu.

Financial Aid Packages

In addition to assistance from federal and state sources, students attending Villanova University may be considered for aid administered by the university which is provided through the generosity of individuals and organizations.

Villanova University believes the primary responsibility for meeting educational expenses belongs to both the parents and the student. However, Villanova University is committed to assisting with the needs of families for whom the needs analysis determines that they cannot afford the full cost of a Villanova education with financial aid packages from the following federal, state, private, and university sources:

Villanova University Grant. This need-based aid is an institutional grant based on the demonstrated financial need of the student and parent based on information on the FAFSA, CSS Profile, and tax documents. Students must be accepted/enrolled full-time (minimum of 12

credits per semester) in the day college in an undergraduate degree program and pursuing their first baccalaureate degree. All Villanova students must apply for need-based financial assistance each year to be considered for this program. This grant can most often be applied only to tuition charges billed by Villanova University during the academic year (i.e. during the Fall and Spring semesters) for a maximum of 8 semesters (4 years), excluding summer terms, including semesters in which you do not receive the grant, regardless of the fact that a student may still have remaining Federal Title IV eligibility. To be given priority consideration for the grant, students must meet the application deadline. The Villanova University Grant may be replaced by endowed scholarship funds.

Federal Pell Grant Program. This is a federal grant for students demonstrating exceptional financial need and accepted/enrolled in an undergraduate degree program. Application for Federal Pell Grants may be made by submitting an initial FAFSA or a Renewal FAFSA. Part-time students may be eligible for Federal Pell Grants.

Federal Supplemental Educational Opportunity Grant (SEOG). This is a federal grant administered by Villanova University based on financial need. Only undergraduate degree candidates are eligible. Priority consideration is given to Pell Grant recipients who are enrolled full-time.

Federal Nursing Student Loan. This is a federal loan based on financial need for students accepted/enrolled in an undergraduate nursing program. The Federal Nursing Student Loan is a 5% interest loan and becomes payable nine months after leaving the University, or nine months after the student is no longer enrolled at least half-time or is no longer in a Nursing degree program. Entrance and exit interviews are required by federal law. Due to limitations in our funding levels we have not been able to award Federal Nursing Loan funds to part-time students.

Federal Work Study (FWS). This is a federal employment program based on financial need for students who are accepted/enrolled in either an undergraduate or graduate degree program. Students are given the choice to work on campus (or off-campus if Pennsylvania domicile) with salaries set according to the job description. Students receiving work-study awards are limited

to earning the amount of their initial allocation. Once that limit has been reached, students should contact a Financial Assistance counselor concerning further work study employment. Current work-study job listings are posted on the Office of Human Resources website: <https://www1.villanova.edu/villanova/hr.html>. Due to limitations in our funding levels we have not been able to award Federal Work Study funds to part-time or graduate students.

Pennsylvania State Grant. The Pennsylvania State Grant is based on financial need for students who qualify as Pennsylvania state residents and who are accepted/enrolled in an undergraduate program and enroll for at least six credits each semester. Eligibility is determined by the state. For State Grant consideration, students are required to file either an initial FAFSA or a Renewal FAFSA by May 1. Additional information on the Pennsylvania State Grant can be found at www.pheaa.org.

Other State Grants. Certain states allow residents to take their state grants into Pennsylvania for study at Villanova. Students are responsible for checking with the respective State Higher Educational Agencies for the correct application necessary for state grant consideration.

Outside Aid/Scholarships. Organizations outside Villanova University may provide scholarships or financial assistance to Villanova students. Students are responsible for consulting the individual organization for the proper applications and deadlines and for sending transcripts to the scholarship committee if required. NOTE: State, federal, NCAA and University regulations prohibit over awards. All outside scholarships, whether based on academic merit, financial need or as a result of a benefit provided by the parents' employer will be counted as a source of aid and will be added to the student's total aid package. This may result in a reduction of a Villanova University Grant or federal or state aid. It is the student's responsibility to notify the Office of Financial Assistance concerning any outside aid received.

Any change in a student's financial or academic status may result in an adjustment to his or her aid. The Office of Financial Assistance retains the right to make any necessary changes.

Federal Direct Loan Program. This is an educational loan available to students accepted/

enrolled on at least a half-time basis in an undergraduate or graduate degree program. Students must complete a Master Promissory Note (MPN) and Entrance Counseling with the U.S. Department of Education, who is the lender of the loan, at www.studentloans.gov. Eligibility for a Federal Direct Loan is based on cost of education, amount of other financial aid being received, as well as an expected family contribution towards educational costs. Students who demonstrate remaining financial need will qualify for the Federal Direct Subsidized Loan. Students without remaining financial need will be eligible for a Federal Direct Unsubsidized Loan and either need to make interest payments while enrolled or capitalize interest payments (i.e. add interest to the principal balance). Repayment of the Federal Direct Loan begins six months after the student leaves the University or is no longer enrolled at least half-time. The student has up to ten years to repay. The interest rate is currently fixed at 3.73% for the Undergraduate Direct Subsidized and Unsubsidized Loans, and 5.28% for the Graduate Direct Unsubsidized Loan. Any changes to the interest rate will be reflected on the financial aid website: <https://www1.villanova.edu/university/office-of-financial-assistance.html> should this occur. An origination fee of 1.057% for first disbursements after 10/1/2020 and before 10/1/2022. The fee goes to the government to help reduce the cost of the loan program. The maximum loan amount per year is \$3,500 for freshmen, \$4,500 for sophomores, and \$5,500 for juniors and seniors. Students may also qualify for an additional \$2,000 Federal Direct Unsubsidized Loan.

Additional information regarding the application process for the Federal Direct Loan program can be found on the Office of Financial Assistance website (<https://www1.villanova.edu/university/office-of-financial-assistance.html>) or the U.S. Government at www.studentloans.gov.

Other Funding Opportunities. While not a specific program of aid, the following list of programs can be considered for meeting your education expenses. These include, the Monthly Payment Plan offered exclusively through NelNet, The Federal Direct Parent PLUS loan, and a Private Education Loan.

Nelnet Campus Commerce (Nelnet) Tuition Payment Plan. The Nelnet Tuition Payment Plan allows students to spread their balance out over the semester for a small fee. There is no interest

charged on the plan. **Nelnet Campus Commerce (Nelnet)** administers the program for Villanova University. Information on this program can be obtained via their website at <https://mycollegepaymentplan.com/villanova> www.afford.co or by calling them directly at 1-800-609-8056 .

Federal Direct PLUS Loan. Parents of dependent undergraduate students may be eligible to borrow up to Villanova's cost of education minus estimated financial assistance. Eligibility for this loan is based on creditworthiness and the interest rate currently is fixed at 6.28%.

The Federal Direct PLUS Master Promissory Note can be obtained from the U.S. Department of Education at <https://studentaid.gov> A FAFSA must also be completed in order to receive a Federal Direct PLUS loan. An origination fee of 4.228% of the principal amount of each Direct PLUS will be charged for loans first disbursed after 10/1/2020 and before 10/1/2022. The fee goes to the government to help reduce the cost of the loan program.

Alternative Loans. Alternative or Private Educational Loans are loans administered by private lenders. These programs may be used to bridge the gap between cost and traditional need-based and/or merit-based assistance. Alternative loans require that the borrower (the student) and/or a co-signer be evaluated in order to determine if they meet minimum credit standards. Students may choose any alternative lender they wish but should carefully compare all options before selecting a lender. Additional information regarding how to compare Alternative loans can be found on the Office of Financial Assistance website (<https://www1.villanova.edu/university/office-of-financial-assistance.html>).

Information About Subsequent Award Years

Villanova University is committed to maintaining the total level of funding if the Expected Family Contribution remains similar from year to year. However individual components within the total funding package may change.

Need-based eligibility, including the Villanova University Grant could be affected (reduced or entirely removed) if the following circumstances occur in subsequent years:

- Any increase or decrease in the number of members in the household
- Any increase or decrease in the number of family members enrolled as full-time undergraduate students at a Title I eligible college/university
- Receipt of outside aid (e.g. scholarships, state grants, tuition remission)
- Change in enrollment status from full-time to part-time
- Any increase or decrease in family income and/or assets
- The graduation, withdrawal or change to less than full-time enrollment from an undergraduate college, university or business, trade or technical school by members in the household. (A family's choice to continue to fund graduate education for a sibling cannot be considered.)
- Change in housing status
- Student's enrollment after 8 semesters (4 years)

Questions about how these circumstances could affect your aid should be addressed to the Office of Financial Assistance. We invite you to make an appointment to speak with a financial aid counselor if you anticipate there will be changes in the future so you can consider how that could affect your family's ability to pay for the entire academic period at Villanova.

Minimum Standards for Satisfactory Academic Progress for Financial Aid Applicants

Federal regulations require that an institution establish, publish, and apply reasonable standards for measuring whether a student, who is otherwise eligible for aid, is maintaining satisfactory academic progress in his or her course of study. The standards must be the same or stricter than the institution's standards for a student enrolled in the same academic program who is not receiving financial assistance. Listed below is the complete statement of Minimum Standards for Satisfactory Academic Progress for Financial Aid Recipients.

The purpose of this policy is to provide undergraduate students with information on Villanova University's Satisfactory Academic Progress Standard for Federal Title IV Sources of Aid (Federal Pell Grant, Federal Supplemental Educational Opportunity Grant [SEOG], Federal Work Study, Federal Direct Subsidized Loan, Federal Direct Unsubsidized Loan, and Federal Direct PLUS Loan), as well as other Federal and Villanova University Need-Based Aid (Federal Nursing Loan, Villanova University Grant, and Villanova University Endowed Scholarships). This document describes the qualitative and quantitative standards that make up this policy, how standards are measured, and how financial aid is reinstated if eligibility is lost during enrollment.

Process Overview

The Office of Financial Assistance is required, in accordance with Federal Title IV regulations, to monitor satisfactory academic progress for students who receive federal financial assistance. In order to continue to receive financial aid while enrolled at Villanova University, undergraduate students must maintain the minimum standards as defined below. The Satisfactory Academic Progress standards for financial aid, listed below, are either the same or stricter than the individual Colleges' academic policy for students enrolled in the same academic program who are not receiving financial assistance.

Students must make both quantitative and qualitative progress towards their educational goals each academic year to receive federal and Villanova University need-based financial assistance. Villanova University's academic year consists of two regular semesters (fall and spring) and the summer sessions.

Qualitative Standard

Undergraduate students must maintain a minimum cumulative grade point average (GPA) of 2.00 calculated at the end of each academic year in order to be considered as a student making satisfactory academic progress for financial aid consideration. Only credits earned at Villanova University will affect the cumulative GPA calculation. The grade point average from transfer coursework at a previous college or university will not affect a student's Villanova University grade point average. Quantitative Standard. Students must pass the minimum

number of credit hours during the academic year associated with their enrollment status for that academic year. If a student is full-time, the student would be enrolled in a minimum of 24 credits for the academic year and must complete a minimum of 24 credit hours. If a student is enrolled three-quarter time for the academic year (9-to 11 credits per semester) the student must complete at least 18 credits per academic year. If a student is enrolled half-time for the academic year (6-to 8 credits for the semester), then the student must complete at least 12 credits during the academic year.

Credits are considered successfully completed when a grade of A, B, C, or D is earned.

Failures ("F" and "NF"), INCOMPLETES ("N"), WITHDRAWALS ("W," "WX", "Y"), MISSING GRADES ("NG"), Grade of Audit ("AU"), Grades of "In Progress" ("IP") are not successfully completed credits.

Repeated Coursework

As defined by the U.S. Department of Education, Villanova University will include and fund any repeated coursework previously taken by the student in his or her enrollment status one time. Villanova University will only allow a student to retake previously passed coursework one time and count the coursework in the student's enrollment status (e.g., the student is retaking the coursework in an attempt to meet an academic standard such as a better grade) for financial aid consideration.

A student may not receive Federal or Villanova University funds to retake previously passed coursework if the student is required to retake the course due to the student failing other coursework. For example, if the student is enrolled in four classes in the fall semester and fails one of those courses, the Dean may require the student to repeat the previously passed three courses along with the course that the student failed. If the student retakes the four courses in the spring, only the course that the student failed may be counted toward the student's enrollment status.

Pace (Maximum Timeframe)

Within the Satisfactory Academic Progress Policy, Villanova University is required to establish a maximum time frame in which students must complete their program of study in order to

remain eligible for financial aid funds. The maximum time frame for degree completion at Villanova University for an undergraduate student as defined by the U.S. Department of Education is 150% of the student's program(s) required credits.

Once a student reaches the maximum amount of credits attempted as specified by the program(s) for graduation, the student will be ineligible to receive further Federal Title IV aid. Students in this category may submit appeals in accordance with the Appeals section of this policy.

Note: The Villanova University Grant is only offered for a maximum of four academic years (eight semesters), excluding summer terms regardless of the fact that a student may still have remaining Federal Title IV eligibility.

Measuring Academic Progress

Academic Records are reviewed by the Office of Financial Assistance at the end of each academic year in May after spring grades are entered. Measurement begins with the Fall semester and ends with the last summer session. Students who were enrolled during the Fall and/or Spring semesters and who failed to meet the qualitative and/or quantitative requirements for academic progress can attempt to complete additional credits and raise their cumulative GPA during the summer sessions at Villanova University. Upon completion of additional credits, a new determination of academic progress will be made.

All financial assistance applicants are subject to the Satisfactory Academic Progress Standards regardless of whether or not they received financial assistance previously. When the Minimum Standard of Academic Progress is Not Achieved. A student who does not make satisfactory academic progress will be placed on financial assistance suspension until the requirements are met. During this suspension, a student is denied Federal and Villanova University aid. The student will be notified in writing of the financial assistance suspension. Appeals. If a student has failed to achieve satisfactory academic progress, the student can appeal the decision to the Office of Financial Assistance. The appeal must be submitted in writing and specify the extenuating circumstances which prevented the student from

achieving academic progress. The following types of mitigating circumstances may be considered when a student appeals, and are listed, as follows: injury or extended illness of the student, death in the family, or a change in educational objectives. Mitigating circumstances do not include the withdrawal from classes to avoid failing grades, pursuing a second major or a second degree. The student must explain what has changed that will allow him/her to make satisfactory academic progress by the end of the semester. A copy of the student's academic plan developed in conjunction with the student's faculty advisor, academic dean or his/her representative also must be submitted. The Office of Financial Assistance may request additional documentation and/or require a personal interview with the student.

Students must appeal within two weeks of receiving a notice from the Office of Financial Assistance of the financial aid suspension. Appeals will not be accepted after the two-week period has passed and the student will be responsible for all charges on their student account. The student will receive a reply from the Office of Financial Assistance within two weeks of receipt of their appeal.

A student who is denied assistance based on qualitative or quantitative standards will be considered for assistance when standards have been achieved.

Academic Plan

The academic plan is a written document developed by the student and his/her college that ensures the student is able to meet the University's Satisfactory Academic Progress Standards by a specific point in time. It could include qualitative and quantitative requirements necessary to achieve that plan. The academic plan could take the student to completion of their program rather than meeting the University's Satisfactory Academic Progress standard at a specific point in time as determined by an appropriate academic official.

Financial Aid Probation

Villanova University will assign this status to a student who fails to make satisfactory academic progress and who has successfully appealed and had eligibility for aid reinstated. If the Office of Financial Assistance determines that the

Academic Progress Standards can be waived for one semester, the student will be placed on Financial Aid Probation. As part of the student's Financial Aid Probation, the Office requires a student, along with their academic advisor, to develop and submit an academic plan that includes a strategy of improving progress and reaching the student's educational goals. A student placed on Financial Aid Probation may receive Federal and Villanova University funds for one semester. The student will be required to meet the University's Satisfactory Academic Progress standards at the end of the semester or meet the terms and conditions of their academic plan as well as the plan established by the academic advisor.

At the end of the probationary semester, the Office of Financial Assistance will determine if academic progress requirements have been met or if the student continues on the path of the designated academic plan. If requirements have been met, the probationary status will be removed. If academic requirements have not been met, and the student has deviated from the academic plan, the student may not receive Federal or need-based Villanova University funds for the following semester. A student may only be granted one semester of Financial Aid Probation during their academic career.

Reinstatement of Financial Aid

Once financial assistance has been discontinued, it will be reinstated provided:

- The student has successfully achieved the required number of credits and cumulative grade point average; and,
- The student has requested reinstatement in writing.
- Reinstatement is not automatic. The student is responsible for making certain that the grades and credits completed have been properly posted to the academic transcript with the Office of the Registrar prior to requesting reinstatement of financial assistance.

Students are encouraged to file all financial assistance application forms by Villanova University's established deadline so that once

reinstatement has been achieved, he or she can be considered for assistance as quickly as possible.

Students Returning After a Year or More

If a student previously left the university after failing to make satisfactory academic progress and returns to the university, the student is required to appeal his/her status. The student must submit an academic plan. If the appeal is granted, the student is placed on financial aid probation for one semester.

The student's academic status will be reviewed after the semester to determine if the student successfully made satisfactory academic progress.

Return of Federal Title IV Aid

If a student completely withdraws from the University and has utilized Federal Title IV funds (e.g., Federal Pell Grant, Federal Supplemental Educational Opportunity Grant [SEOG], Federal Direct Loan, or Federal Direct PLUS Loan, Federal Direct Graduate PLUS Loan) during the semester in which they withdraw, the University will observe the federally mandated process in determining what amount of money, if any, must be returned to the federal program(s).

Students who intend to withdraw from the University must complete the process as outlined in the University Catalog under the Academic Policies section. In cases where a student has received federal financial assistance during that semester, the Office of Financial Assistance will determine what, if any, adjustment must be made. This determination will be based on the formula prescribed in the federal regulations for the return of Title IV funds. This determination is made on the basis of the number of calendar days completed in the semester prior to the student's notification to withdraw, divided by the total number of days in the semester. If the resulting percentage is greater than or equal to 60%, no return of federal funds will take place.

If the percentage is less than 60%, this percentage will be used to determine the portion of Title IV aid that has been "earned". The remaining amount must be returned in the following order:

- Federal Direct Unsubsidized Loan Federal Direct Subsidized Loan
- Federal Direct PLUS/Federal Direct Graduate PLUS Federal Pell Grant
- Federal SEOG Other Title IV Aid

NOTE: Refunds as a result of official withdrawal or leave of absence will be made in accordance with the University's refund policies which appear in the Tuition and Fees section of the Catalog.

A student who withdraws or takes a Leave of Absence from an online program will have their last date of attendance measured by their last academic related participation via their appropriate system. Academic activities include but are not limited to:

- Submitting an academic assignment
- Taking an exam, an interactive tutorial, or computer-assisted instruction
- Participating in an online discussion about academic matters
- Attending a study group that is assigned by the institution
- Initiating contact with a faculty member to ask a question about the academic subject studied in the course
- The academically related activity is NOT defined by:
 - Logging into an online class without active participation
 - Participating in academic counseling or advisement

For all programs offered in modules, a student is considered to have withdrawn for Title IV purposes if the student ceases attendance at any point prior to completing the module, unless the school obtains written confirmation from the student at the time of the withdrawal that he or she will attend a module that begins later in the same payment period (semester). If a school obtains a written confirmation of future attendance but the student does not return as scheduled, the student is considered to have withdrawn from the payment period (semester). A return of Title IV calculation will be processed at that time.

Students are required to return written confirmation within two weeks of being contacted by the Office of Financial Assistance. If not returned, a withdrawal calculated will be conducted. If the amount of money that must be returned to Title IV programs exceeds that which

exists in the students account as a result of the University's refund policy, the student will be notified as to the amount of any grant money that must be repaid. This repayment must take place in order for a student to reestablish eligibility to receive federal funds in the future. Any loan proceeds must be repaid and will become part of the normal repayment procedures for the loan program.

Citizens and Eligible Non-Citizens

In order to receive federal or state financial assistance, a student must be a U.S. Citizen, a U.S. National, a U.S. permanent resident who has a Permanent Resident Card (Form I-551, since 1997) or Resident Alien Card (Form I-551, before 1997), or an otherwise eligible non-citizen with a temporary resident card (I-688); or must possess one of the following:

- A Form I-94 (Arrival-Departure Record) with an appropriate endorsement;
- A Form I-181 or I-181B that has been signed by a U.S. Citizenship and Immigration Services (USCIS) district director;
- An official statement granting asylum in the US; or
- Other proof from the U.S. Citizenship and Immigration Services (USCIS) that one is in the U.S. for other than a temporary purpose.

Students should check with the Office of Financial Assistance at Villanova University to see what documents are required. Students in the U.S. on an F1 or F2 student visa only, or on a J1 or J2 exchange visitor visa only, may not receive federal or state student aid, nor can those who possess only a notice of approval to apply for permanent residence (I-171 or I-464A).

Limited need-based University funds are available to International Students and Undocumented students who live in the U.S. without an approved visa, or without permanent residency/citizenship. For complete application information check the International Students Services Office website: https://www1.villanova.edu/villanova/studentlife/be_empowered/international_students.html.

Verification

Verification is a requirement of the U.S. Department of Education and is the process of

confirming information submitted for consideration of the various Federal Title IV Funds including the Federal Pell Grant, Federal SEOG and Federal Direct Loans. Applicants should be aware that this federal regulation requires them to submit tax data and other requested information to the Office of Financial Assistance before the processing of student loan applications and/or the awarding of funds. Students must submit the required information to complete the verification process no later than 45 days before the last day of the student's enrollment. Failure to comply with the verification requirements within the timeframe will result in the loss of funds.

Only students selected for verification by the U.S. Department of Education based on information on the FAFSA and determined by criteria set by the U.S. Department of Education or selected by a counselor will be verified.

Items to be verified include: adjusted gross income; U.S. income taxes paid; number of family members for whom parents provide more than half of their support; the number of children in post-secondary schools who are enrolled at least half time; dependency status; untaxed income; eligible non-citizen status and any other item for which conflicting information has been submitted to the Office of Financial Assistance. Students selected for verification will be required to submit additional documents. These additional requirements will be reflected on the student's Applicant Status page (prospective students) and on the MyNova account (enrolled students).

Documents/Data Required

For dependent students): signed copies of custodial parents', stepparent's (if applicable) and student's U.S. or Puerto Rico income tax returns, W-2 form(s) and 1099 form(s).

Transfer of financial data from the IRS Data Retrieval Tool or submission of U.S. Tax Return Transcript (see IRS DATA Retrieval Tool below for more information) (For independent students): signed copy of the student's (and spouse's if applicable) U.S. or Puerto Rico income tax return and W-2 forms.

If the student or custodial parent or stepparent (if applicable) did not file taxes or if a foreign tax return was filed, a signed non-tax filer statement and copies of all W-2 forms or proof of earnings

must be submitted. Non-taxable income verification such as VA Benefits, Social Security Benefits for all household members and Public Assistance Letters must be submitted to the Office of Financial Assistance. CSS Profile for prospective students and all returning undergraduate students. *The CSS Profile form is required for consideration for institutional aid only.*

IRS Data Retrieval Tool

The U.S. Department of Education in conjunction with the Internal Revenue Service (IRS) uses the IRS Data Retrieval Tool, a feature that allows students and parents to import their tax information from their filed U.S. tax return directly into the FAFSA on the Web. The IRS Data Retrieval Tool may be used when filing the initial FAFSA, or the renewal FAFSA each academic year. In order to access the tool, FAFSA site users must have a valid social security number, an active Federal Student Aid ID (FSA ID), and must have filed their federal tax returns with the IRS.

The IRS Data Retrieval Tool may be used either while completing the online FAFSA or after the online FAFSA has been submitted. If accessing the IRS Data Retrieval Tool during FAFSA completion, the user will be given the opportunity to utilize the tool during the completion of the income questions on both the student and parent FAFSA sections. If the decision to use the IRS Data Retrieval Tool is made after initial FAFSA submission, the user may then log into the FAFSA website: <https://studentaid.gov/h/apply-for-aid/fafsa> with their FSA ID and complete the following steps:

- Click 'Link to the IRS' to be transferred directly to the IRS website <https://www.irs.gov/>
- If you already have used the IRS Data Retrieval Tool to transfer your tax return information into your FAFSA application, click the "View Option to Link to the IRS" hyperlink
- Once on the IRS website, enter the requested user-verification information exactly as it appears on the tax return. Use the FSA ID for the person whose tax information is being transferred.
- Choose to transfer the tax information from the IRS into the FAFSA. If you use the IRS Data Retrieval Tool to transfer your tax return information from the IRS, the

information will not display on your FAFSA. For your protection the answer to each question is replaced with "Transferred from the IRS."

Those who are exempt from and unable to use the IRS Data Retrieval Tool include: students and parents who are married and filed separate federal income tax returns for the applicable tax year, are married and filed as Head of Household, students and parents whose marital status changed prior to the end of the applicable tax year, students and parents who filed an Amended Tax Return for the applicable tax year, and filers of foreign and Puerto Rican tax returns.

If you are not able to use the IRS Data Retrieval Tool and filed a U.S. tax return, you will need to submit a U.S. Tax Return Transcript to the Villanova University Office of Financial Assistance. Students and parents may request an official copy of their U.S. Income Tax Return Transcript from the IRS at IRS.gov. Your parent(s) should sign the Tax Return Transcript and mail or fax it to the Villanova University Office of Financial Assistance. For more complete instructions consult the Office of Financial Assistance website:
<https://www1.villanova.edu/university/office-of-financial-assistance.html>.

Online Undergraduate Programs

Students attending an online undergraduate degree program are pursuant to the same federal financial aid policies as traditional undergraduate degree programs held on campus. Consult the Office of Financial Assistance website for specific application processes and deadlines. The information that follows includes specific information related to the disbursement of funds and the payment of funds to our third-party administrative partner, BISK (formerly known as University Alliance).

Disbursement of Federal Student Aid. Federal Student Aid funds are required to pay directly to students' Villanova University accounts in equal disbursement amounts. The disbursement date is set after the drop period has ended.

Please note that students will need to be enrolled in at least 6 credits per semester to be eligible for "half-time" status and Federal Direct Loans. "Half-time" status is defined accordingly:

- MUST be enrolled in 6 credits for Session I of the semester OR
- MUST be enrolled in 6 credits for Session II of the semester OR
- MUST be enrolled in 3 credits for Session I and 3 credits for Session II for the semester**

***For this option, students must be enrolled in all 6 credits at the start of Session I in order to receive Federal Direct Loan disbursement. Otherwise, the Federal Direct Loan will not be awarded or disbursed.*

A student may not combine credits from another semester's session or term to qualify for half-time status. For example, a student who enrolls in Summer Session II for 3 credits and then Fall Session I for 3 credits cannot combine those terms for half-time status and Federal Direct Loan eligibility. The student in this scenario would be considered less than half-time.

Once federal financial aid has disbursed at Villanova, the Office of Financial Assistance will conduct a review of the student's financial aid award. This review ensures the cost of attendance matches the student's original plan of enrollment, and that any outside sources of aid, tuition discount, or employer tuition assistance, etc. have been included as resources for the student. The Office of Financial Assistance also reviews to ensure the student is enrolled for the specific session the grant and/or loan disbursement was received.

Remitting payment to BISK and Refunding Loan Disbursements

Bisk (formerly known as University Alliance) manages the billing of charges for the undergraduate online RN-BSN program. Any billing inquiries should be sent directly to Bisk. Students who receive Federal student aid funds or a private education loan will be able to view their disbursement of financial aid through the MyNova student portal; ALL financial aid disburses directly to Villanova University.

Villanova University will send the financial aid disbursement (federal and private educational loans) directly to the student who is then responsible for submitting payment to Bisk for tuition and/or book charges. In order to expedite the processing of a refund, it is highly recommended that students enroll in direct deposit through our e-Refund process. The e-Refund enrollment form can be found in your MyNova_account, in the Student's Tab under Bursar Links.

If a student still has a remaining balance with Bisk after the full financial aid disbursement has been remitted for a semester, then the student will need to seek additional payment arrangements to cover the remaining charges (such as applying for a Direct PLUS loan, a private loan etc.). Students should contact their Student Services Representative at 1-855-300-1473 or via email at studentservices@villanova.edu.

Upon the registration of courses, students will receive an intent to Enroll form from Bisk via email detailing their tuition and/or book charges for that term. Questions about the billing process should be directed to the Student Services Representative at Bisk at 1-855-300- 1473 or via email at studentservices@villanova.edu. Please note that if a student is not utilizing financial aid, all payment arrangements need to be made directly with Bisk.

Academic Policies

The following policies and regulations, along with those of the individual colleges and programs, govern academic life at the University. In order that the programs offered reflect current advances in and additions to knowledge and changes in professional requirements, the University and each of its colleges reserves the right to change program requirements without prior notice. Unless otherwise specified, students are bound by the policies and regulations in effect when their entering class begins its first year of study. *It is the responsibility of the student to know and comply with the academic policies and regulations of the University and their respective colleges.* Students should consult the individual college sections of this Catalog and the special publications and guidelines issued by the colleges and departments.

Academic Dismissal

1. An undergraduate student who has not met the academic standards of a college (as determined by the Academic Standing Committee and Dean of that college) will be dismissed from the college. The college dean will inform that student of the dismissal as soon as possible. Typically the student will be allowed to appeal that dismissal to the dean of the college. There is no additional process of appeal beyond the college dean. In some cases (e.g., when the student has had previous warnings or been on probation), the student may, at the determination of the college, be dismissed without right of appeal.

2. Once a student has been dismissed from the college without right of appeal or once the appeal process has been exhausted, the student may not enroll in additional credit-bearing classes at Villanova, and may not remain in a University Residence Hall. A student who is dismissed from a college is dismissed from the University effective with the sending of the college dismissal letter. The college that dismisses the student will send a list of the dismissed students to the Office of the Provost. The Office of the Provost will compile a list of all students dismissed by the colleges and remove the names of students who are accepted to another Villanova college before sending the list of dismissed students to the Registrar, the Bursar, Residence Life and other appropriate university offices.

3. A student who has been dismissed from a college is eligible to apply to that college for readmission after two semesters (including the summer) have elapsed. For example, a student who is dismissed at the end of the fall semester may apply to be admitted for the following fall semester. The college reviewing the application will include a review of past discipline at Villanova University as well as whether the student has been dismissed by another College within Villanova University. A student who has been dismissed and then returns to the University will be treated as a continuing student, not a transfer student, for purposes of policies regarding

courses taken elsewhere; in other words, such a student would not be permitted to transfer courses taken at a two-year institution.

4. If the student is already enrolled in spring semester courses when the dismissal letter is sent, the student must withdraw from those courses and leave his/her residence hall. Tuition for the spring semester will be refunded. Students enrolled in summer courses at the time the final dismissal letter is sent must also withdraw from those courses, with tuition for the summer semester refunded. If a student has formally applied to another Villanova undergraduate college (see #5 below), a student may remain in classes and residence halls until a final decision is made.

5. A student who has been dismissed from Liberal Arts and Sciences, School of Business, Engineering, Nursing or the College of Professional Studies may apply at any time (either immediately or at any subsequent date) for admission to another Villanova undergraduate college. Such a student does not have to go through the University admissions' process. The request for readmission will be handled by the college to which the student has applied. The college reviewing the application will include a review of past discipline at Villanova University as well as whether the student has been dismissed by another College within Villanova University. If the student is accepted in another college immediately (normally within ten business days) after dismissal from the first college, or if the dismissed student is a science student who is accepted into the Arts division of the College of Liberal Arts and Sciences, s/he may continue to take courses and continue to live in the Residence Halls without interruption. The college into which the student is accepted must immediately notify the Registrar, the Bursar, and Residence Life that the student has now been accepted into another college.

Approved Council of Deans via Email July 13, 2016; technical edit, September 29, 2022

Academic Integrity

academic integrity, n.: the process of maintaining honesty about ideas and their sources, and avoiding behaviors such as cheating on tests, plagiarizing papers, falsifying data.

Academic integrity is a primary value for any institution of higher education. Cheating on tests, plagiarism, and other forms of academic dishonesty and misconduct are completely unacceptable, especially at Villanova which prides itself on its commitment to the Augustinian values of truth, unity, and love.

Please use this site to view:

- [The Code of Academic Integrity](#)
- [Academic Integrity Policy](#)
- [Detailed Procedures for Appeals](#)
- [FAQs](#)
- [Flow Chart Summarizing Process](#)

Faculty should submit a violation using the **Report a Violation of the Academic Integrity Code** in MyNOVA. The link to the form can be found at: [Report a Violation of the Academic Integrity Code | MyNova \(villanova.edu\)](#)

Villanova University is a member of the [Center for Academic Integrity](#). Please visit their website for more information on Academic Integrity in general.

The Office of Academic Affairs and Falvey Library collaborated to create the [Academic Integrity Gateway](#), a website with information about academic integrity and avoiding plagiarism. Faculty and students are encouraged to visit the Gateway, complete the interactive quiz, and use the web site as resource for writing papers.

Individuals with questions about academic integrity may also contact me directly at the following address:

Craig M. Wheeland
Senior Vice Provost for Academics
Villanova University
800 Lancaster Avenue
Villanova, PA 19085-1699
Tel. 610/ 519 4525
Email: craig.wheeland@villanova.edu

Academic Standing

Villanova uses three related policies to define Academic Standing: Grade Point Average; Academic Progress and Academic Probation. The correct interpretation of all three policies is that all students who are making sufficient progress toward their degree and who are eligible or have been allowed to register and take academic course work at Villanova for the current term are considered in good academic standing. Students placed on "Academic Probation" are considered to be in good academic standing since they are making satisfactory progress toward a degree and are still authorized to continue studying toward their degrees. Academic Probation only serves as an academic warning that a student is in danger of not meeting minimum academic retention standards and being terminated from the University.

Quality Point Averages

In addition to passing all courses taken the student is also required to maintain a specified grade average leading to graduation with a college degree. The average is derived from the grades and credit hours of the courses taken and is known as the quality-point average. It is determined by multiplying the number of credits for each course attempted by the allotted quality points for the grades received and dividing the total quality points by the total credit hours attempted. Quality points for grades are as follows:

A=4.00; A-=3.67; B+=3.33; B=3.00; B-=2.67; C+=2.33; C=2.00; C-=1.67; D+=1.33; D=1.00; D-=.67.

Academic Progress

To qualify for a Bachelor's degree, a student, in addition to completing all the studies prescribed for the degree sought, must earn a cumulative quality point average of at least 2.00. Most Full-Time students earn their Baccalaureate degree in four years. Full-Time students who do not complete the Baccalaureate degree within six years and part-time students who do not complete the Baccalaureate degree within twelve years may need to take additional courses in order to meet degree requirements. Any student who has not completed the degree within twelve years must complete a degree through the College of Professional Studies. If the degree or major pursued by the full-time student is not

offered by the College of Professional Studies, then the former full-time student must choose a degree and/or major offered to College of Professional Studies students. In circumstances involving those students who have entered Villanova University through the Academic Advancement Program, satisfactory progress of the student will be determined by the Academic Standing Committee and/or Dean of the college in which the student is matriculated.

Academic Probation

The records of students whose cumulative or semester quality-point average falls below 2.00 will be reviewed by the Academic Standing Committee of their college for appropriate action. Students in business, science or engineering whose technical course quality-point average falls below 2.00 will also come before the committee. Typically, the student will either be placed on academic probation or dismissed. While on academic probation, students are limited to a schedule of courses determined by the Academic Standing Committee of their College. A student on academic probation will normally be allowed only one semester to achieve the required quality-point average.

Honors

At graduation students receive honors of three kinds — summa cum laude, magna cum laude, and cum laude — after being approved for such honors by the faculty and administration of the University. To be eligible for these honors, students must attain a minimum cumulative quality-point average of 3.90, 3.75, 3.50, respectively, and at least sixty credits of course work (not including Satisfactory/Unsatisfactory courses) must have been taken at Villanova University.

Repeat Freshman Year

The Academic Standing Committee may allow a freshman student to declare academic bankruptcy and repeat the semester or the year with a new start on the cumulative average (though a record of the year's work will remain on the transcript). Once a course is bankrupted the action is permanent and cannot be reversed.

Approved by Provost Nov. 8, 2016; Technical Correction Feb. 6, 2019; June 27, 2019

Class Attendance

Class Attendance

Class and laboratory attendance for first-year students is mandatory. A first-year student will receive a grade of "Y" (failure) whenever the number of unexcused absences in a course exceeds twice the number of weekly class meetings for the course.

For students beyond the first year, attendance policies are determined by the instructors of the various courses. The instructor's class attendance policy must appear in the syllabus and at a minimum must allow for the University's excused absences listed below. Enforcement of such attendance policies lies with those instructors. If the instructor thinks a student has too many absences (total of excused and unexcused), then the instructor should discuss the student's attendance with the appropriate Assistant or Associate Dean of the instructor's college in order to determine if the student should withdraw or receive an incomplete.

Where possible, students should inform their instructors if they plan to be late or absent from class. In all cases, students should be prepared to provide documentation to petition for excused absences to the appropriate Assistant or Associate Dean of their college. Excused absences do not count toward a failure in the course for first year students. Absence from class does not release the student from work assigned. Students who miss an in-class obligation (exam, presentation, etc.) due to an excused absence will not be penalized - the instructor may offer a make-up test, arrange an alternative time for a presentation, exempt a student from the assignment, or provide another arrangement.

The University's list of excused absences for all students includes the following:

- participation in NCAA athletic competitions
- participation in special academic events (e.g., conferences, field trips, project competitions)
- participation in official university business (e.g., student representatives attending meetings related to university governance)
- attendance at significant events involving the immediate family (e.g., funerals, weddings)

- religious holidays - see the University's policy on Religious Holidays
- college-approved participation in placement activities (e.g., job interviews, graduate school interviews, attending job fairs)
- legally required absence (jury duty, court appearance, short-term military service)
- documented serious illness or disability (see below how to document)

If instructors want to verify that the absence qualifies as an excused absence under the university list, or verify that the student is permitted to participate in the activity, they should contact the designated Assistant or Associate Dean of the student's College.

The College of Professional Studies has separate attendance policies for FastForward courses and the online degree programs. The College of Nursing has a separate attendance policy for the online RN to BSN program. Graduate Studies in the College of Liberal Arts and Sciences has separate attendance policies for online degree programs.

Documenting a Serious Illness or Disability

The Student Health Center does not provide notes to excuse absences for students missing class due to their visit to the Student Health Center, or to excuse class absences due to most common illnesses. The Student Health Center will also not provide notes to excuse absences for medical conditions that were not treated at the Student Health Center. The purpose of this policy is to eliminate unnecessary visits from students whose sole purpose is obtaining class absence notes for their professors.

Some illnesses may legitimately prevent a student from attending classes, but are not serious enough to require evaluation and treatment from the Student Health Center. Students often provide self-care, which is very appropriate for many common illnesses such as cold, viral infection, or uncomplicated flu. Students should inform their instructors if they are missing class for a common illness. Instructors have the discretion to decide if the absence due to a common illness is excused. If a student wishes to appeal the instructor's decision, the student may do so by contacting the instructor's Department Chair or Program Director, who will consult with the appropriate

Assistant or Associate Dean of the instructor's college, before deciding the outcome of the appeal.

If in the judgment of the Student Health Center staff, the student will be out of class due to a serious illness or medical condition, as opposed to a common illness, the Student Health Center staff will contact the appropriate Assistant or Associate Dean, who will then contact the instructor. The Student Health Center communication to the Assistant or Associate Dean will serve as the documentation needed by the Dean (see below). If the student is seeing an off-campus health care provider, the student will provide the documentation from that provider to the appropriate Assistant or Associate Dean, who will then contact the faculty member.

Examples of serious illnesses may include (but are not limited to):

- Mononucleosis, which may require bed rest and/or removal from campus
- Hospitalization and/or surgery
- Highly contagious diseases (e.g., chicken pox, measles)

Mental Health Concerns. The University Counseling Center will use clinical judgment as to whether there is a legitimate need for the student to miss class for reasons related to mental health. If in the judgment of the University Counseling Center staff, the student should be out of class due to a mental health condition, the Counseling Center staff will request a written release of information from the student. With a signed release, the Counseling Center staff may then contact the faculty member or the appropriate Assistant or Associate Dean, who may contact faculty accordingly. The University Counseling Center will not typically validate the legitimacy of a student having missed classes for mental health reasons retroactively, before the student has been to the Counseling Center. The fact that a student is in treatment at the Counseling Center or with an off campus mental health provider will not, in itself, justify the student missing classes. The recommendation for missing classes will occur only when the mental condition necessitates it. If the student is seeing an off-campus mental health care provider, the student will provide the documentation from that provider to the appropriate Assistant or Associate Dean, who will then contact the faculty member.

If the duration of the absence due to serious medical illness or mental health concern undermines the student's ability to complete the academic work required, the appropriate Assistant or Associate Dean will encourage the student to pursue a Medical Leave of Absence – see policy on *Medical Leaves of Absence*.

Documenting Disabilities. Students who are registered with Learning Support Services (LSS) or the Office of Disability Services (ODS) must provide accommodation letters from those offices to their instructors (in advance of absences) in order for subsequent disability-related absences to be considered excused. Students who are newly struggling should be encouraged to register with the appropriate office for any future concerns. Accommodations are not typically retroactive.

Students with learning disabilities, other neurologically-based disorders, and those disabled by chronic illnesses are encouraged to contact [Learning Support Services](#) (LSS). Students with physical disabilities, including but not limited to visual impairments, hearing loss, and mobility limitations, are encouraged to contact the [Office of Disability Services](#) (ODS). Depending on the type of disability, there are different processes for disclosing and documenting the disability with the University.

- For students with learning disabilities, neurologically-based disorders, and disability due to chronic illness, these guidelines, as well as certification forms for certain specific disabilities, please refer to the [University Policy for Students with Disabilities](#).
- Students with physical disabilities can refer to these [guidelines](#).

Provost September 17, 2016; Technical correction March 1, 2017; February 28, 2019; Approved by Board of Assistant and Associate Deans February 4, 2019

Course and Class Regulations

1. All courses are to be taught in accordance with guidelines established by the department and/or the dean of the college, as college policy may determine.

2. All class periods are to begin and close at the appointed time to permit students to be prompt in attendance.
3. If it is necessary for a faculty member to miss a class (for emergencies, religious holiday, illness, and University-related obligations such as professional conferences, external lectures, etc.), s/he must as soon as possible inform the department chair and, if possible, make other arrangements for the class. Faculty members should, if possible, notify the students of canceled classes by e-mail or voice mail, and they should make every effort to limit missed classes to a reasonable number.
4. If a faculty member is more than ten minutes late for class without a notice, the students may rightfully assume that the faculty member will be absent; students who leave may not be marked absent for that class, should it be conducted.
5. No student is to be admitted to any class who is not on the official class list. Faculty members need to be attentive to the class lists and report discrepancies to their chairs and/or the Registrar.
6. The instructor is required, however, to take record and report attendance for all classes as directed by the Registrar. (See Policy on [Class Attendance](#).)

6/1/10

Credit Hour Policy and Scheduling Guidelines

1. Policy

Except as otherwise described in the “Specific Guidelines” below, all credit courses offered by the College of Engineering, College of Liberal Arts and Sciences, College of Nursing, College of Professional Studies, and School Of Business are normally expected to meet for 50 minutes per credit hour per week during a fifteen-week semester; courses scheduled in shorter sessions (e.g. Summer Sessions; Fast Forward; Graduate Business; Online programs, etc.) must meet for an equal amount of time over the shorter period.

The Villanova School of Law has its own credit hour policy; however, courses offered by College of Engineering, College of Liberal Arts and Sciences, College of Nursing, College of Professional Studies, and School of Business as part of programs offered in partnership with the Villanova School of Law will comply with the

University's Credit Hour Policy. Consistent with the policies of the federal government and the Middle States Commission on Higher Education, credit courses are normally expected to include approximately two hours of out-of-class student work (or the reasonable equivalent) per credit hour per week during a fifteen-week semester; with reasonably equivalent amounts of out-of-class work for shorter sessions.

Exceptions to the credit hour requirements in this Policy will be allowed for academic activities that require reasonably equivalent work and are important to learning and teaching goals. Such exceptions to the credit hour requirements in this Policy must be approved by the Dean of the college or school and the Provost. Class schedules must be approved and developed in accordance with the following specific guidelines.

2. Specific Guidelines

- A minimum of two hours of science lab or clinical practice per week in a fifteen-week semester generally counts for one credit.
- Three-credit graduate courses and Senior Seminars normally will be expected to meet a minimum of 120 minutes per week rather than 150, because of the higher expectations for work outside of class time
- Courses offered entirely online and courses with online components may use viewing video lectures and participation in blogging, discussion boards, etc. that are relevant to the learning and teaching goals of the course to count as part of class time.
- Course meetings that are conducted as non-science labs, oral presentations, studio sessions, rehearsals or other course-based activities will generally be granted one credit for a minimum of 50 minutes of meeting time per week (or the cumulative equivalent over a semester) as long as they are central to the course's learning and teaching goals in the syllabus.
- Exceptions to the class time requirements in this Policy will be allowed only when (i) the course requires academic activity outside class meetings sufficiently in excess of the normal expectation (two hours per credit hour per week) to compensate for the reduced time in class; and (ii) the rationale for the exception is manifest in the course syllabus and clearly shown to be materially relevant to the course's learning goals. Such courses will typically be either research-

intensive (where students are undertaking an independent course of research over and above assigned reading) or have an experiential, clinical or service learning component or be an approved independent study; in any case, such courses will depend on close monitoring by the instructor of the nature, quality, and quantity of the work done outside scheduled classroom hours.

- A syllabus for each course should contain a clear description of class meeting times and any approved or required non-classroom activities.

3. Time and Day Patterns

Standard Daytime Sequences

3x/Wk	2x/Wk
MWF 0830-0920	or MW 0800-0915
MWF 0935-1025	
MWF 1040-1130	
MWF 1145-1235	
MWF 1250-1340	
MWF 1355-1445	OR MW 1355-1510
	MW 1520-1635
	MW 1645-1800
	TR 0830-0945
	TR 1000-1115
	TR 1130-1245
	TR 1300-1415
	TR 1430-1545
	TR 1600-1715

Standard Evening Sequences

UG 1 day/week
M/T/W/R 1815 - 2055

UG 2 day/week
MW or TR 1815 - 1930
MW or TR 1945 - 2100

Graduate 1 day/week
M/T/W/R 1720 - 1920
M/T/W/R 1930 - 2130
M/T/W/R 1815 - 2115
M/T/W/R 1815 - 2045
M/T/W/R 1815 - 2115

4. Departmental/Program Guidelines

Departmental Guidelines for Course Scheduling

- Departments must adhere to the standard time sequences. This ensures compliance with class time meeting requirements (50 minutes per credit per week).
- Departments should balance daytime course offerings evenly across the 14 standard time sequences. For example, a department should divide the total number of daytime courses they are offering by 14, the number of standard time sequences. Included in the total number of courses should be any graduate level courses offered during daytime sequences. To arrive at the maximum number of courses permitted in any one time sequence, round down to the nearest whole number. Once the department has filled all of the sequences with this number they would be allowed to add additional courses evenly across the sequences, as needed.

5. Implementation

- Each college or school is responsible for reviewing and monitoring existing courses and proposed new courses (including any online or hybrid courses offered by such college or school) to confirm compliance with the requirements of this Policy.
- Prior to submitting any course for which an exception is required to the University Registrar, the college or school will submit a written description of the course and a summary of the reasons for the requested suggestion to the Dean of such college or school for approval, and, if approved, to the Provost for approval. Approved exceptions will be submitted to the University Registrar with a copy of the approvals and the written course description and summary of reasons for the exception.
- In consultation with the Dean of the college or school, the Provost will approve exceptions to the credit hour requirements of this Policy.
- The University Registrar is responsible for monitoring the implementation of this Policy and these guidelines through the regular course scheduling process.

Recommended by the

- Credit Hour Task Force on April 13, 2015
- Academic Policy Committee on April 23, 2015
- Council of Deans on April 23, 2015

Approved by the VPAA on April 27, 2015

6. References

[Middle States Commission on Higher Education. October 30, 2012. Credit Hour Policy.](#)

Georgetown University. January 28, 2011. *Scheduling Policies and Guidelines*.

Title 22, Education, of the Pennsylvania Code, 22 Pa. Code §§ 31.21-31.22

Disclosure of Student Records

Villanova University, in accordance with the Family Educational Rights and Privacy Act (FERPA) of 1974, as amended, has adopted this Student Records Policy to address the following issues with respect to education records: (1) disclosure of directory information; (2) confidentiality of personally identifiable information; and (3) student rights to inspect, review and seek amendment of their records. In general, education records are defined as records maintained in any form by the University that are directly related to a student.

I. Disclosure of Directory Information

Information concerning the following items about individual students is designated by the University as directory information and may be released or published without the student's consent: full name; student identification number; address (local, home or electronic mail); telephone number; photograph or video; date and place of birth; major field of study; grade level; enrollment status (e.g., undergraduate or graduate, full- time or part-time); dates of attendance; degrees, honors and awards received (including Dean's List); most recent previous educational institution attended; participation in officially recognized University activities and athletics; and weight and height of members of athletic teams. Students who do not wish directory information to be released or made public must inform in writing the Office of the Registrar.

II. Confidentiality of Personally Identifiable Information

All personally identifiable information contained in student records other than directory

information is considered confidential information. This information includes, but is not necessarily limited to: academic evaluations; general counseling and advising records; disciplinary records; financial aid records; letters of recommendation; medical or health records; clinical counseling and psychiatric records; transcripts, test scores, and other academic records; and cooperative work records. "Personally identifiable information" means that the information includes: (a) the name of the student; (b) the address of the student; (c) a personal identifier such as social security number; or (d) a list of personal characteristics or other information that would make the student's identity easily traceable.

The University will generally not disclose personally identifiable information to third parties without the written consent of the student. The signed and dated consent should specify the records to be disclosed, the purpose of the disclosure, and to whom the records are to be disclosed. However, personally identifiable information may be disclosed, without the student's consent, to the following individuals or institutions, in accordance with FERPA, including in the following circumstances:

- To University officials (or office personnel ancillary to the officials) who require access for legitimate educational purposes such as academic, disciplinary, health or safety matters. University officials may include, without limitation, the Board of Trustees, the President, Vice Presidents, Deans, Directors, Department Chairs, Faculty Members, ROTC Commanding Officers, attorneys in the Office of the Vice President and General Counsel, Judicial Officers, Counselors, Resident Advisers, Coaches and Admissions Officers. University officials also include contractors, consultants, volunteers and other outside parties, such as an attorney or auditor providing services on behalf of the University for which the University would otherwise use employees.
- To the party(ies) who provided or created the record(s) containing the personally identifiable information.
- To officials of other educational institutions to which the student seeks or intends to enroll or where the student is already enrolled, for purposes related to the

student's enrollment or transfer (on condition that the student upon request is entitled to a copy of such records).

- To appropriate federal, state or local officials or authorities, consistent with federal regulations.
- To the U.S. Attorney General (or designee) pursuant to an ex parte order under the U.S. Patriot Act in connection with certain investigations or prosecutions.
- To organizations conducting studies for, or on behalf of, educational agencies or institutions.
- To accrediting organizations to carry out their accrediting functions.
- To parents of a dependent student as defined in Section 152 of the Internal Revenue Code of 1986.
- To parents of a student under the age of 21, where the information pertains to violations of any federal, state or local law or of any University rule or policy governing the use or possession of alcohol or a controlled substance, and the student has committed a disciplinary violation.
- In connection with the student's application for, or receipt of financial aid.
- To comply with a judicial order or lawfully issued subpoena (on condition that a reasonable effort is made to notify the student of the order or subpoena, if legally permitted to do so).
- In case of an emergency, to appropriate parties, including parents, to protect the health or safety of the student or other individuals, where the University determines that there is an articulable and significant threat to the student or other individuals.
- The disclosure of information concerning registered sex offenders provided under state sex offender registration and campus community notification programs.
- The outcome of a disciplinary proceeding to a victim of or alleged perpetrator of a crime of violence or non-forcible sex offense.
- The outcome of a disciplinary proceeding where a student is an alleged perpetrator of a crime of violence or non-forcible sex offense and is determined to have violated the University's rules or policies.

If required under FERPA, the University will inform a party to whom a disclosure of personally identifiable information is made that it is made

only on the condition that such party will not disclose the information to any other party without the prior written consent of the student.

III. Non-Education Records

The following are not considered education records, and thus are not protected by FERPA and this policy:

- Employment records of students as University employees.
- Campus law enforcement records created and maintained by the Public Safety Office, in accordance with the requirements of FERPA.
- Records that are made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in his or her professional capacity or assisting in his or her paraprofessional capacity, and that are made, maintained, or used only in connection with treatment of the student and are disclosed only to individuals providing the treatment. These records may be reviewed, however, by a physician or other appropriate professional of the student's choice.
- Records of instructional, supervisory, and administrative personnel and educational personnel ancillary to those persons, that are in the sole possession of the maker of the record and are not accessible or revealed to any other individual except a temporary substitute for the maker.
- Records that only contain information about a person after that person was no longer a student at the University and that are not directly related to the individual's attendance as a student (e.g., information collected by the University pertaining to accomplishments of its alumni).
- Grades on peer graded papers before they are collected and recorded by a faculty member.

IV. Inspection and Review Rights; Right to a Hearing

A currently or previously enrolled student has the right to inspect and review his or her educational records. This right does not extend to applicants, those denied admission, or those admitted who do not enroll. Offices may require that requests for access be submitted in writing, and may ask for, but not require, the reason for the request.

The University will comply with requests to inspect and review a student's records that it has determined to honor within a reasonable period of time, but in no case more than forty-five days after the request was made.

Records to which students are not entitled to access include:

- Confidential letters and statements of recommendation placed in a student's record before January 1, 1975, or confidential letters and statements of recommendation to which students have waived their rights of access.*
- Financial records of the parents of the student or any information contained in those records.
- Those portions of a student's records that contain information on other students.
- Those records listed in Section III above.

A student who believes that any information contained in his or her educational records is inaccurate or misleading, or otherwise in violation of his or her privacy rights, may request that the University amend the records. The student should first discuss his or her concerns with the individual responsible for the office where the records are maintained. If the student is not satisfied with the resolution, the student should contact the individual to whom that person reports. If still not satisfied, the student may contact the appropriate vice president or designee. The final level of appeal is a formal hearing. To obtain a hearing, the student should file a written request with the Vice President for Student Life. The hearing will be conducted in accordance with the requirements of FERPA.

The substantive judgment of a faculty member about a student's work (grades or other evaluations of work assigned) is not within the scope of a FERPA hearing. A student may challenge the factual and objective elements of the content of student records, but not the qualitative and subjective elements of grading.

If as a result of a hearing the University determines that a student's challenge is without merit, the student will have the right, and will be so informed, to place in his or her records a statement setting forth any reasons for disagreeing with the University's decision.

Students have a right to file complaints concerning alleged failures by the University to comply with the requirements of FERPA and the implementing regulations.

*Students may be invited but not required to waive their right of access to confidential letters of recommendation for admission, honors or awards, or employment. Failure to execute a waiver will not affect a student's admission, receipt of financial aid, or other University services. If a student signs a waiver, he/she may request a list of all persons making confidential recommendations.

Complaints should be addressed to the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, S.W., Washington DC 20202-5901. Students are encouraged to bring any complaints regarding the implementation of this policy to the attention of the Vice President and General Counsel.

Final Examinations and Final Week of Classes

Faculty members recognize their obligation to provide timely interim and final assessments of student performance in their classes. This may be done in a variety of ways, to be determined by each instructor. The assessment methodology should be spelled out clearly in the syllabus, with an explanation of the relative weight each item will contribute to the final grade.

The Registrar schedules a time for a final examination for each course. These times are available on the Registrar's website early in the semester, so students should have adequate time to make travel plans. It is permissible to omit the final examination, provided that other equivalently comprehensive assessment techniques are employed. If final examinations are given, they must be given at the time and place scheduled by the Registrar unless exemption has been authorized by the chair and dean.

In order to balance student workload during the final week of classes, the following describes prohibited times for administering examinations or other assessment instruments in undergraduate courses only.

Reading days: No exams or assessment instruments whatsoever may be administered, and no papers or other assignments may be due, on designated reading days.

Final day of class: With the exception of oral presentations or laboratory assessments, no exams or other student performance assessment instruments whatsoever may be administered, and no papers or other assignments may be due, on the final day of class. Faculty may administer the Course and Teacher Survey.

Other days of the final week of classes: No final examinations may be administered, and no take-home exams may be due, during the final week of classes. Other major examinations and tests may be administered only with the explicit written consent of the dean of the college (quizzes and minor assignments are permitted). No paper or other assignment may be due on other days of the final week of classes unless clearly scheduled for that week in the course syllabus that is distributed at the outset of the course.

The below section refers to both graduate and undergraduate courses:

*Tests or student learning assessment mechanisms are to be employed periodically. In the interest of fairness, faculty members should take steps to avoid situations where some students have access to previous examinations while others do not. This can be done in several ways: faculty members may collect examination papers from students so that these cannot be circulated in later semesters, or faculty members may make previous examinations available to students either electronically or by other means. Copies of semester examinations are to be filed with the chair of the department and/or the dean of the college.

*Occasionally students will encounter conflicts in the examination schedule such that two of a student's examinations are scheduled at the same time or three examinations are scheduled on the same day. In the event of such a conflict, the student must notify the instructor at least seven days in advance of the scheduled exam. The instructor will make alternative arrangements for the student to complete the examination. In resolving conflicts, multiple section exams should take precedence over exams for a single section, and courses in the major should take precedence over non-major courses. Extraordinary difficulties

encountered in effecting such an arrangement will be resolved by the dean of the student's college.

*If a student is absent from a final examination for any reason other than a conflict, he or she must contact the instructor within 24 hours of the scheduled beginning of the examination to request permission from the instructor to take a make-up examination. The instructor may, if he or she wishes, arrange a make-up examination at a mutually convenient time. If the faculty member has reservations about the legitimacy of the student's reasons for missing the examination, the faculty member may refer the student to the office of the college dean, who will evaluate the student's request for a make-up. If the office of the dean approves the request, the faculty member will arrange a make-up examination for the student or assign other work in place of the final examination. If the student does not contact the faculty member within 24 hours, the student must receive permission from both the office of the dean and the faculty member before being allowed to take a make-up examination.

*Faculty members should attend the administration of the final examination in order to answer any questions and ensure high standards of academic integrity. When they are unable to do so, department chairs are to see that sufficient proctors are provided for each examination room. Where there is a shortage in any department, assistance should be requested from other departments.

*Faculty members must retain in their possession all final exams and other unclaimed exams, papers, and student course projects and materials for a period of twelve months following the end of the semester in which they were used to establish grades.

Grades & Assessments

Faculty members must provide a series of graded assignments or assessments throughout the semester. In undergraduate classes, faculty members normally must assign enough graded work so that they can give a meaningful mid-term grade. If faculty members do not feel that a mid-term grade is appropriate for their course, they should consult with their department chair, providing a brief explanation of their decision. All courses that contain a significant number of freshmen must include a meaningful midterm

grade. Faculty members are expected to give students timely feedback on all graded assignments, so that students can know how they performed and how they may improve in the future. All mid-term and final grades are to be posted on the University's [NOVASIS](#) system within the time limits specified by the Registrar. Please refer to sections on **FINAL EXAMINATIONS** and **SYLLABI** in this *Faculty Handbook*.

Grading System

The grade report at the end of the semester is part of the student's permanent record. Any inaccuracy on this record must be reported to the Registrar according to the following deadlines; otherwise, the record will stand as it is.

- **Spring Semester grade errors:** Last Friday in June
- **Summer Semester grade errors:** Last Friday in August
- **Fall Semester grade errors:** Last Friday in January

Faculty members are responsible for maintaining the integrity of the evaluation and grading system. Presented below in the Undergraduate Grading System; the Graduate Grading System may be found in each college's Graduate Catalog:

- is the highest academic grade possible; an honor grade which is not automatically given to a student who ranks highest in the course, but is reserved for accomplishment that is truly distinctive and demonstrably outstanding. It represents a superior mastery of course material and is a
- A-** grade that demands a very high degree of understanding as well as originality or creativity as appropriate to the
- B+** nature of the course. The grade indicates that the student works independently with unusual effectiveness and often takes the initiative in seeking new knowledge outside the formal confines of the course.
- is a grade that denotes achievement considerably above
- B** acceptable standards. Good mastery of course material is evident and student performance demonstrates a high
- B-** degree of originality, creativity, or both. The grade indicates that the student works well independently and often
- C+** demonstrates initiative. Analysis, synthesis, and critical expression, oral or written, are considerably above average.
- indicates a satisfactory degree of attainment and is the
- C** acceptable standard for graduation from college. It is the grade that may be expected of a student of average ability who gives to the work a reasonable amount of time and effort. This grade implies familiarity with the content of the
- C-** course and acceptable mastery of course material; it
- D+** implies that the student displays some evidence of originality and/or creativity, works independently at an acceptable level and completes all requirements in the course.
- D** denotes a limited understanding of the subject matter, meeting only the minimum requirement for passing the
- D-** course. It signifies work which in quality and/or quantity

falls below the average acceptable standard for passing the course. Performance is deficient in analysis, synthesis, and critical expression; there is little evidence of originality, creativity, or both.

- indicates inadequate or unsatisfactory attainment, serious
- F** deficiency in understanding of course material, and/or failure to complete requirements of the course.
- N** Incomplete: course work not completed.
- S** Satisfactory: Assigned in Satisfactory/Unsatisfactory courses (work must be equivalent to C or better).
- SP** Satisfactory Progress.
- T** Transfer grade.
- WX** Approved withdrawal without penalty.
- W** Approved withdrawal with penalty.
- U** Unsatisfactory: Assigned in Satisfactory/Unsatisfactory courses.
- AU** Audit.
- Y** Unofficial withdrawal from course (or for freshmen, failure for excessive absences).
- NG** (Or Blank); no grade reported.

Policies

All grades are permanent, except **N** and **NG**, which are temporary grades used to indicate that the student's work in a course has not been completed. An **N** or **NG** grade must be removed and a grade substituted by the instructor according to the following schedule:

- *For the Fall Semester:* Students must submit all work to the instructor by the last Friday in January; grade changes must be submitted to the Registrar's Office by the second Friday in February.
- *For the Spring Semester:* Students must submit all work to the instructor by the last Friday in June; grade changes must be submitted to the Registrar's Office by the second Friday in July.
- Students should check the academic calendar for actual dates. If a change is not reported, the **N** or **NG** grade automatically becomes an **NF**.
- Without the approval of the instructor, the department chair, and the dean, no grade higher than **C** may replace the **N**.

The grade **WX** indicates an authorized withdrawal with the grade not considered in the calculation of the quality-point average. The grade **W** also indicates an authorized withdrawal, but the grade is calculated as an **F** in determining the quality-point average. Authorization for **WX** and **W** may be given only by the student's dean. The grade **Y** is given when a student unofficially withdraws from a course. It is reflected in the average as an **F**.

Required courses carrying a final grade of **F** must be repeated unless the student transfers to another college of the University where the course for which an **F** grade was received is not a requirement for the degree. The reasons for student deficiencies are reported by the faculty member at mid-semester and at the end of the semester to the dean of the student's college.

When a student who has failed in a course presents evidence of subsequently passing a like course in another institution, the University reserves the right to withhold credit for the course until the student shall have passed a qualifying examination given by the Faculty from which a degree is sought.

Students should recognize that failure in one course or more will usually make it impossible for them to graduate with the class in which they matriculated.

5/1/11

Incomplete or In-Progress Grades and Graduation

1. In the case where a student has an incomplete (N) or in progress (IP) grade for a course that is not required for degree completion in the graduation term the college who is conferring the degree must validate that the degree requirements are met without the completion of that course. Proof of completion of degree requirements should be sent to the Office of the Registrar. In addition to the completion of the courses required for graduation, the college must confirm that the student's overall GPA is at minimum a 2.0 (3.0 for graduate programs) using the grade of "F" in the incomplete/in progress non-required course in the GPA calculation. This GPA must be confirmed because all courses count towards a student's GPA which must be a minimum of 2.0 (3.0 for graduate programs) to graduate. In addition, undergraduate students in the VSB, Engineering, Nursing and the Sciences must attain a 2.0 technical GPA in order to graduate.
2. In the case where a student completes requirements for one degree/major, but has incomplete or in progress grades in the graduation term that impact the completion of another major, minor, or concentration,

that major, minor or concentration will be added to the degree record only when the work has been completed and the college notifies the Office of the Registrar that the new requirements have been met. If the requirements have been met by the diploma date (May 31, September 1, or December 31), the additional major/minor/concentration will be posted to the same graduation term record. If the course work is completed after the dates noted above, the additional major/minor/concentration will be added to the student's record with a notation that those requirements were completed in the appropriate subsequent term.

3. The Office of the Registrar reserves the right to withhold the computation of graduation honors (summa cum laude, magna cum laude, cum laude) for any undergraduate student with incomplete or in progress grades — regardless of whether or not the course is needed for graduation — since the *overall* final GPA for all coursework is what determines honors designation. If the grade in the course affects honors, the Office of the Registrar may not post honors to the student record until the incomplete or in progress grade is converted to a final grade. Since graduate students do not receive honors at graduation this policy is not applicable to them.

Language Use: Written and Oral Communications on Campus

All written and oral communications of administrators, faculty, staff, and students should be consistent with the University's belief that all persons are sacred.

Language used on campus should respect the dignity and inherent worth of every individual regardless of age, ethnic or racial identification, gender, mental or physical ability, religious persuasion, sexual orientation, and social class.

To be encouraged is language which does not perpetuate stereotypes or unfairly characterize any individuals on the basis of group identification.

Student Leaves of Absence

STUDENT LEAVE OF ABSENCE POLICY

Non-Medical Leave of Absence

Villanova recognizes that it is sometimes necessary for students to interrupt their enrollment for a period of time and take a leave of absence. Students may take a non-medical leave for a variety of reasons including, for example, to attend to academic, personal, or financial matters.

Non-Medical Leave of Absence Process

A student who wishes to take a non-medical leave of absence must take the following steps:

1. Submit a completed "[Request for Non-Medical Leave of Absence](#)" form to the Dean's office of the student's academic college or the Dean of Students office, or their designee; and
2. Meet with a designated staff or faculty member to review the request.

Students may request a non-medical leave at any time during the semester, but must complete such requests – including any requisite evaluation and related paperwork – no later than the last day of classes in a semester. If a student does not complete a non-medical leave request by the last day of classes, the University will deem the request late and consider it for the following semester.

If the University finds good cause, a leave may be granted. Because every student's situation is different, the terms of a non-medical leave will be determined individually, including the duration of leave, any restrictions from living in residence halls or coming on campus or attending University events, and any conditions for the student's eligibility to return to campus following the leave.

Medical Leave of Absence

Students may request a medical leave of absence (MLOA) if they experience health situations that significantly limit their ability to function successfully or safely in their role as students.

Medical Leave of Absence Process

A student seeking a MLOA must take the following steps:

1. Submit a completed "[Request for Medical Leave of Absence](#)" form to the Dean's office of the student's academic college or the Dean of Students office, or their designee; and
2. Meet with a designated staff or faculty member to review the request.

The student may be asked to schedule and undergo an evaluation by the Student Health Center and/or the University Counseling Center before a leave is granted. This evaluation will occur after the student has met with the Dean, Associate/Assistant Dean, or their designee. The student may be asked to sign a release allowing the Student Health Center and/or the University Counseling Center to discuss their evaluation of the student with the Dean, Associate/Assistant Dean, or their designee who is reviewing the request.

After evaluating the student, the Student Health Center and/or the University Counseling Center will determine whether a significant health issue has compromised the student's health, safety or academic success, and will submit an individualized recommendation to the Dean, Associate/Assistant Dean, or their designee regarding the student's request for a MLOA.

The Dean, Associate/Assistant Dean, or their designee reviewing the request will make the final determination whether to grant the MLOA and will notify the student of the decision in writing. Because every student's situation is different, the terms of a MLOA will be determined individually, including the duration of leave, any restrictions from living in residence halls or coming on campus or attending University events, and any conditions for the student's eligibility to return to campus following the MLOA.

Students may request a MLOA at any time during the semester, but must complete such requests – including any requisite evaluation and related paperwork for the Dean's office – no later than the last day of classes in a semester. If a student does not complete a MLOA request by the last day of classes, the University will deem the request late and consider it for the following semester.

Return Following a Leave

Some students who take a leave will have no requirements attached to their return to the University. However, students may be subject to specific requirements for their return based on the circumstances of their departure. Any conditions or requirements for return will be based on an individualized assessment of the student, including consideration of current medical knowledge and/or the best available objective evidence. The goal of these conditions is to prepare the student for a successful return to the University.

A student who is placed on a leave of absence for any reason, voluntary or involuntary, may apply to return to the University by writing to the Dean's office that granted the leave. The student must demonstrate that the student has met any conditions or requirements that were specified for the student's return to the campus community.

Students on leave must complete their request to return submissions by December 1 for the spring semester, April 1 for the summer semester, and July 1 for the fall semester. These deadlines ensure that the appropriate University officials have enough time to review the student's request. The University will attempt to be flexible and review requests completed within a reasonable time after the relevant deadline. Nevertheless, if there is information missing from the request, and/or the University needs additional time to contact the student's treating provider(s) (for health-related leaves), the University may consider the student's return for the following semester than the semester for which the student initially sought to return.

For more information about student leaves of absence, please see the full [Student Leave of Absence Policy](#).

Official Date of Graduation

The Academic Calendar for each year shall indicate the official graduation dates for the University. (These dates should not be confused with the dates for the annual commencement exercises). The deans shall send the registrar a list of all students in their college or school who have satisfactorily completed by the official date all

the requirements for graduation. The registrar shall issue diplomas only to those students whose names appear on the list.

The current graduation dates are May 31, September 1, and December 31. Students certified after any of those dates will graduate officially at the next commencement.

Approved by Council of Deans: December 8, 1978

Revised by Council of Deans: January 12, 1979

Religious Holidays

Villanova University's Mission Statement calls on the University "to reflect the spirit of St. Augustine...by respect for individual differences, and by adherence to the principle that mutual love and respect should animate every aspect of University life." As a Catholic and Christian University, Villanova seeks to respect and support the diverse religious traditions of the members of the University community. As part of this commitment, the University makes every reasonable effort to allow members of the community to observe their religious holidays, consistent with the University's obligations, responsibilities, and policies. Students who expect to miss a class or assignment due to the observance of a religious holiday should discuss the matter with their professors as soon as possible, normally at least two weeks in advance. Absence from classes or examinations for religious reasons does not relieve students from responsibility for any part of the course work required during the absence. Faculty, if possible, should try to accommodate students with make-up tests or exams if the absence falls on a day when these tests are being administered and/or provide students with reasonable alternative opportunities to complete their academic assignments.

Should a disagreement arise over the implementation of this policy, the matter should be taken to the chair of the department or the program director having jurisdiction over the class in question. If no resolution is reached at that level, the issue will be resolved by the Dean of the College having jurisdiction over the class, and his/her decision shall be final.

Approved at Council of Deans, Academic Policy Committee and Committee on Faculty June, 2006

Residence Requirement for Graduation

Residence Requirement for Graduation

Normally, a student must complete the final 30 credit hours of an academic program at Villanova. Exceptions may be made by the College Dean.

Change in Residence Requirement approved at Deans' Council on October 1, 2020 - by email.

Scholastic Load

A student must take a minimum of 12 credits a semester to be a full-time student. Permission to take fewer than 12 credit hours may be obtained in exceptional circumstances with the written approval of the Dean.

A normal scholastic load is defined by the program set forth in this catalog. In the Villanova School of Business and the College of Liberal Arts & Sciences, students with a G.P.A. over 3.0 may sign up for an overload with registration for the sixth course possible only after the main registration period is over. No special approval would be needed.

Snow/Inclement Weather Policy

Closing/Delay Opening Policy for Cancellation or Postponement of Classes

Villanova University intends to maintain its regularly scheduled classes and final examination periods, avoiding school closings due to inclement weather whenever possible. A delayed opening is preferable to closing for an entire day. In deciding whether to close or delay opening, several factors are considered: the character of the storm (onset time, intensity, and duration); the condition of travel routes to the University; and the condition of campus roads and walkways.

Policy:

If weather factors are unfavorable and not expected to improve, all in-person classes

normally will be cancelled for the day; in-person graduate classes may be offered remotely at the discretion of the professor. If there is a good chance that conditions will be acceptable by mid-morning, however, the opening of school will be delayed.

In such delayed opening circumstances, the first class will be cancelled on Tuesdays and Thursdays, and the school day will begin with the second regularly scheduled class at 10:00 A.M. On Mondays, Wednesdays, and Fridays, the first two classes will be cancelled, and the school day will begin with the third regularly scheduled class at 10:30 A.M.; for the Charles Widger School of Law (CWSL), the day will begin at 10:15 A.M. Occasionally, classes in the later afternoon and evening are cancelled when bad weather conditions develop during the day.

Because students come from various locations and distances, some of which may be more seriously affected by adverse weather than others, students must, as always, exercise their judgment on whether it is safe to drive to the University. If a student decides it is not safe to attend class, then they must inform their faculty in advance of the class and the student's absence will be excused. Because faculty also come from various locations and distances, some of which may be more seriously affected by adverse weather than others, faculty must, as always, exercise their judgment on whether it is safe to drive to the University. If they believe it unsafe or untenable, they may convert class to an online structure, but must contact students at least two hours prior to the class start time if they choose to do so and must inform their Department Chair/Program Director.

During final examination week, a delayed opening means that the first exam of the day is cancelled. It will be rescheduled in an appropriate manner. If weather conditions make it impossible for a student to come to campus for an exam, they should contact the professor in advance of the scheduled exam to explain the situation and to schedule a make-up examination. At the CWSL, students should contact the registrar.

Unless students are notified otherwise by their College, courses that meet fully online, or already have a previously scheduled online course meeting for the day of inclement weather, will continue as planned, even if the university is

closed. Instructors should make it clear to students if assignment due dates will be changed based on a school closure.

The Fitzpatrick College of Nursing has a special procedure for the closing of its clinical practicum courses; the procedure may be obtained from the Fitzpatrick College of Nursing. All other Nursing courses are subject to the standard University schedule, above.

NOTE: Check for the separate [policy](#) issued by the Human Resource Office covering staff obligations and University office operations in the case of closings and delayed openings. For information concerning the Executive MBA Program, contact the EMBA office directly or visit the [website](#).

Procedure:

The announcement concerning closing or delayed opening normally is made via NOVA ALERT, on the University snow and emergency number (610-519-4505), the Law School snow and emergency number (610-519-7744), the voice mailboxes of University telephones, and posted to the University website by 6:00 A.M. In the case of an announced delayed opening, if the situation should worsen and if a subsequent decision is made to cancel classes and close the University, a **closing** announcement normally would be made by 8:30 A.M. Villanova faculty, staff and students are therefore advised to **recheck** the announcements until 8:30 A.M., prior to departing for school.

Evening class closure announcements will be made in the same manner, normally prior to 2:00 P.M. University offices are notified via a telephone message chain.

Information for Friday evening and Saturday Class Cancellation or Postponement of Classes

For information concerning courses offered on weekends and at off-site locations by the College of Professional Studies (CPS), contact CPS directly or visit the [website](#).

Classes and workshops on Friday evening and Saturday offered by the Villanova School of Business, the Fitzpatrick College of Nursing, the College of Engineering and the College of Liberal

Arts & Sciences will be held as scheduled unless the instructor has notified the students otherwise.

Recommended by Academic Policy Committee, November 15, 2021.

Updated by Council of Deans November 17, 2021.

Approved by Provost, November 17, 2021.

Approved by President, November 18, 2021

Sports Wagering Restrictions

I. PURPOSE

Villanova University maintains an athletic program that promotes the educational experience of its student-athletes and sustains a clear line of demarcation between the collegiate and professional sports models. As a member institution of the National Collegiate Athletic Association (NCAA), Villanova University adheres to the NCAA Bylaws which provide that student-athletes and those who provide support to the athletic program are prohibited from engaging in sports wagering.

Recently, the Commonwealth of Pennsylvania Gaming Control Board issued temporary regulations by which the Commonwealth of Pennsylvania has authorized slot machine licensees to seek approval to conduct sports wagering. Under current Commonwealth of Pennsylvania law, sporting events that can be the subject of wagering include both professional and collegiate sports and athletic events.

This policy seeks to strike the necessary balance between the NCAA Bylaws that Villanova University and its student-athletes must follow and the Commonwealth of Pennsylvania Gaming Control Board's temporary regulations implementing permissible wagering activities. It is recognized that changes to this University policy may need to be made as the Gaming Control Board's temporary regulations are further refined and formalized.

II. Scope

This policy applies to all Villanova University students, faculty and staff. This policy also applies to any and all independent contractors

who provide services to the Villanova University Department of Athletics, its athletic teams and student-athletes.

III. DEFINITIONS

Under NCAA Bylaw 10.02.2, a wager is any agreement in which an individual or entity agrees to give up an item of value (e.g., cash, shirt, dinner) in exchange for the possibility of gaining another item of value. (NCAA Bylaw 10.02.2)

Under Pennsylvania Gaming Control Board Temporary Regulations (“Temporary Regulations”), sports wagering includes accepting wagers on sporting events or on the individual performance statistic of athletes in a sporting event or combination of sporting events by any system or method of wagering, including over the Internet through web sites and mobile applications. The term includes exchange wagering, parlays, over-under, moneyline, pools and straight bets. The term does not include pari-mutuel betting on the outcome of thoroughbred or harness horse racing, legislatively authorized lottery, ilottery, bingo and small games, and slot machine gaming, table games, Keno and fantasy contests.

“Nonpublic” or “exclusive” information is interpreted to mean information that could influence the outcome of an athletic event such as player availability, health status, academic eligibility status or other factor that only those in close proximity with the student-athlete or athletic team could readily ascertain.

IV. POLICY STATEMENT

A. Restrictions Applicable to ALL Villanova University Students, Faculty, Staff and Specified Independent Contractors:

Villanova University faculty, staff and students, who are 21 years of age or older, are not permitted to wager on any athletic event (e.g., practice) or contest in which a Villanova University athletic team or student-athlete participates. Similarly, Villanova University faculty, staff and students may not knowingly disclose nonpublic information regarding its athletic teams or student-athletes for the purpose of influencing wagering activities. These restrictions also apply to any independent contractors who provide services to Villanova University student-athletes or the Department of Athletics and, in doing so, may gain access to nonpublic

information. Examples include, without limitation, physical therapists, athletic trainers, health care professionals, referees, officials, sports equipment staffing, and contractors working on the construction or repair of athletic facilities such as carpenters and electrical personnel.

Sports wagering by individuals under the age of 21 is strictly prohibited under Pennsylvania law.

B. Additional Restrictions Applicable to ALL Villanova University Student-Athletes, Athletics Department Staff Members and Non-Athletics Department Staff Members who Have Responsibilities Within or Over the Athletics Department:

Under applicable NCAA Bylaws, student-athletes, members of the Villanova University Department of Athletics, and non-athletics department staff members who have responsibilities within or over the Department of Athletics are subject to broader restrictions and are prohibited from wagering on any athletic contests or teams, whether they are collegiate, amateur, or professional.

Student-athletes and Athletics Department staff members shall not knowingly:

1. Provide information to individuals involved in organized gambling activity concerning intercollegiate athletics competition;
2. Engage in activities designed to influence the outcome of an intercollegiate contest or in an effort to affect win-loss margins (“point shaving”);
3. Participate in any sports wagering activity, including soliciting or accepting a bet, involving Villanova University teams or contests;
4. Participate in any sports wagering activity involving intercollegiate, amateur, or contests, pools or fantasy leagues in which an entry fee is required and there is an opportunity to win a prize, or any other method employed by organized gambling.

Sports that **cannot** be bet on are:

1. All sports sponsored by the NCAA (including all NCAA Tournament Pools)
2. Intercollegiate Sports
3. Amateur Sports
4. Professional Sports
5. Fantasy Sports

The consequences for violations of this policy are explained in detail in **Section V. Procedure** below.

V. PROCEDURE

A. Violations of Restrictions Applicable to ALL Villanova University Students, Faculty, Staff and Specified Independent Contractors:

Any individual who violates this policy will be subject to disciplinary action in accordance with the applicable University procedures that implement sanctions for students, faculty, and staff. Independent contractors will be subject to suspension procedures through the Villanova University Procurement Department.

B. Violations of Additional Restrictions Applicable to ALL Villanova University Student-Athletes, Athletics Department Staff Members and Non-Athletics Department Staff Members who Have Responsibilities Within or Over the Athletics Department:

The sanctions for violations of NCAA Bylaw 10.3, Sports Wagering Activities, shall apply as follows:

1. A Villanova University student-athlete who engages in activities designed to influence the outcome of any intercollegiate contest or in an effort to affect win-loss margins (i.e., "point shaving") or who participates in any sports wagering activity involving Villanova University athletics teams shall be subject to sanctions up to and including permanent loss of all remaining regular season and postseason eligibility in all sports.
2. A Villanova student-athlete who solicits or accepts a bet or who participates in any sports wagering activity on any intercollegiate, amateur or professional team or contest, through the Internet, a bookmaker or parlay card, auctions in which bids are placed on teams, individuals or contests, and pools or fantasy leagues in which an entry fee is required and there is an opportunity to win a prize, or any other method employed by organized gambling, shall be subject to sanctions up to and including permanent loss of all remaining regular season and postseason eligibility in all sports.
3. A Villanova University Athletics Department staff member, or a Non-Athletics Department staff member who has responsibilities within or over the Athletics Department, who engages in activities

designed to influence the outcome of any intercollegiate contest or in an effort to affect win-loss margins (i.e., "point shaving") or who participates in any sports wagering activity involving Villanova University athletic teams shall be subject to sanctions up to and including termination of employment.

4. A Villanova University Athletics Department staff member, or a Non-Athletics Department staff member who has responsibilities within or over the Athletics Department who solicits or accepts a bet or who participates in any sports wagering activity, on any intercollegiate, amateur or professional team or contest through the Internet, a bookmaker or parlay card, auctions in which bids are placed on teams, individuals or contests, and pools or fantasy leagues in which an entry fee is required and there is an opportunity to win a prize or any other method employed by organized gambling, shall be subject to sanctions up to and including termination of employment.

VI. RELATED INFORMATION/FORMS

VII. HISTORY

Effective Date: November 12, 2018

VIII. RESPONSIBLE UNIVERSITY DIVISION/ DEPARTMENT

Athletic Director
800 East Lancaster Avenue
Jake Nevin Field House
Villanova, PA 19085

IX. RESPONSIBLE ADMINISTRATIVE OVERSIGHT

Assistant AD - Compliance
Athletics Compliance Office
800 East Lancaster Avenue
Jake Nevin Field House
Villanova, PA 19085

University Compliance Officer
University Compliance Office
205 Tolentine Hall
800 Lancaster Avenue Villanova, PA 19085
(610) 519-5466

Grade Appeals & Complaints Against Faculty

Student Grade Appeals Against Faculty

The purpose of these Guidelines is to provide a mechanism for the review of student grade appeals and complaints regarding faculty performance within the framework of existing University, college and department policies and rules. For this reason those policies and rules may not themselves be the proper subject matter of a complaint under these Guidelines.

Normally, the resolution of grade appeals or complaints will proceed by the following route: (1) to the chair of the department (program director of the program in the College of Nursing) involved, then if necessary, (2) to the committee constituted to handle complaints, and finally if necessary, (3) to the dean of the college or where appropriate the Graduate Dean of Liberal Arts and Sciences. The University, however, believes that each student and faculty member deserves to be treated as an individual with courtesy and respect. Consequently, it is impossible to develop a policy that will govern or control every situation. The following procedures were created to apply in most situations that may occur; however, where the faculty member, dean and the Provost (or designee) believe that the circumstances may require special consideration, e.g. where the complaint is of a very personal and sensitive nature, the procedures may not be followed or used in every respect. In no event, however, shall a deviation from these procedures be permitted with respect to the obligation of the committee under section III to rely in its decision making only upon information which has been communicated to the faculty member, thus permitting the faculty member the opportunity to respond. These procedures may be modified at the University's discretion according to the University's norms and procedures.

In the sequel, "chair" shall also imply program director and "dean" shall likewise imply Graduate Dean of Liberal Arts and Sciences where appropriate. These procedures apply to student grade appeals and complaints. Individuals who are not University students may not use these procedures.

A. Faculty Performance Complaints

1. Student complaints concerning an instructor's handling of a class, classroom presentation, professional demeanor, or course policies should be directed to the chair of the faculty member involved. If the complaint is against the chair, these procedures shall be modified such that the dean shall undertake the responsibility as the chair under the Guidelines and the Provost (or designee) shall undertake the responsibilities of the dean under these Guidelines. Normally, such complaints should be made within six months of the end of the course in which the complaint arose.
2. Identified Complaints: When a person makes a complaint and provides his or her name, the chair will advise the individual to approach the faculty member. The chair's goal will be to arrange a meeting of the parties to permit the issue to be resolved at the local level if at all possible. This also permits the faculty member the opportunity to address the matter directly with the student, which may eliminate the possibility that simple misunderstandings have contributed to the problem. If the Complainant does not agree to a joint meeting, the chair will advise the faculty member of the details. If the Complainant requests that his or her identity remain confidential or the chair considers it appropriate, the identity of the Complainant will remain confidential. The chair will inform the Complainant of the results of the meeting with the faculty member. For cases involving potential sexual harassment, please refer to the section on **SEXUAL HARASSMENT POLICY** in this *Faculty Handbook*.
3. Anonymous Complaints: The chair should express displeasure with any anonymous complaint and point out that such complaint (if made by telephone) will not be accepted. If an anonymous written complaint arrives, the chair should inform the faculty member of the details of the complaint.
4. The faculty member shall be presumed to have acted appropriately unless otherwise determined in accordance with these guidelines.
5. The chair shall make reasonable efforts to mediate the complaint. The chair may consult with others in connection with his or

her review of the complaint. In the event that the complaint cannot be amicably resolved in the chair's judgment, the chair may make such disposition of the complaint as the chair deems warranted. The chair shall ordinarily communicate his or her disposition of the complaint to the student initiating the complaint and the faculty member.

6. If either the student or the faculty member is dissatisfied with the chair's disposition of the complaint, she or he may contact the department committee constituted to handle complaints. This elected or appointed standing committee of the department should be duly constituted following the department's own policy. If a department has too few members to reasonably form such a committee the department, less the faculty member involved, shall constitute a committee of the whole. The student or faculty member should present her or his complaint via a formal written and signed statement to the committee within seven days of the chair's disposition of the matter. The committee shall consider the complaint in accordance with the procedures described in Section III below.

B. Grade complaints

1. Student complaints concerning a grade should be directed to the chair of the faculty member involved. The chair shall normally require, but do no less than urge, a student who brings a complaint about a grade in the first instance to try to resolve the matter with the course instructor. That failing, the chair should attempt to resolve the issue between the student and instructor. The chair may consult with others in connection with his or her review of the complaint. Such complaints should be made according to the following deadlines:
 - Spring and Summer Semester grade complaints: Last Friday in August
 - Fall Semester grade complaints: Last Friday in January
2. If the complaint is against the chair, it should be directed to the dean and these procedures shall be modified such that the dean shall undertake the responsibilities of the chair under these Guidelines and the Provost (or his or her designee) shall undertake the responsibilities of the dean under these Guidelines.

3. In the event that the complaint cannot be amicably resolved in the chair's judgment, the chair may make such disposition of the complaint as the chair deems warranted. The chair shall ordinarily communicate his or her disposition of the complaint to the student initiating the complaint and the faculty member.
4. In a particularly difficult case the chair may elect to refer the matter to the departmental committee for fact finding and recommendations. The committee shall consider the chair's referral of the matter in accordance with the procedures described in Section III and send its recommendations in writing to the chair. The chair shall be guided in his or her determination by widely accepted professional norms of academic freedom which normally recognize the instructor as the authority in determining grades. The chair shall communicate his or her determination of the complaint to the dean, the faculty member involved, and the Complainant. In general, the formal procedures described below will only take place after a final course grade has been given.

C. Department or College Committee

Upon a referral from the chair in the case of a grade complaint or upon a written complaint from a student or faculty member dissatisfied with a chair's disposition of a faculty performance complaint, the committee shall meet within a reasonable time to determine how best to handle the review of the particular matter. The committee may convene hearings appropriate in its judgment to the particular situation presented. The committee procedures may include by example and not by limitation, individual interviews, closed hearings, and review of documentation. The committee is not bound, however, by formal rules of evidence. All interviews and hearings shall be conducted in appropriate University facilities designated by the committee and shall be closed to the public. Every committee member need not attend every interview or hearing session. The University does not permit legal counsel to participate in hearings or interviews of the committee on behalf of the student or faculty member. Only information which has been communicated to the faculty member, thus permitting the faculty member an opportunity to respond thereto, shall

be relied upon by the committee in reaching its conclusions. The committee shall reach its decision by majority vote.

In the case of a grade complaint, the Committee shall provide its findings of fact and written recommendations to the chair for consideration in the chair's determination of the matter. In making its recommendation to the chair, the committee shall base its decision on clear and convincing evidence and on the principle that the locus of authority in determining grades normally is placed with the instructor, especially in those cases where the instructor is acting in accordance with principles that have been clearly delineated in the course syllabus. In the case of a faculty performance complaint, the committee shall provide its findings of fact and written decision to the student, faculty member and chair. The Committee shall make its decision based on the preponderance of evidence it has reviewed.

D. Appeals Process

In the extraordinary case when a student or faculty member is unwilling to accept the decision of the chair with respect to a complaint or the departmental complaint committee with respect to a faculty performance complaint, she or he may appeal the decision in writing to the dean within seven days of that decision but only on the following basis:

1. material procedural defect in the Committee, or
2. material procedural defect in the chair's handling of the matter, or
3. new material evidence not reasonably available at the time of the committee or chair's review of the matter.

All written deliberations concerning the complaint shall be forwarded to the dean to aid in the decision. In the course of his or her review of the appeal, the dean may, but shall not be required to, consult with others, interview the Complainant, faculty member, chair, committee members, or others. The decision of the dean shall be final.

E. Complaints Involving Discrimination and Harassment

For cases of grade complaints or faculty performance complaints which may involve sexual harassment or discrimination in violation

of University policies. Please refer to the sections on **SEXUAL HARASSMENT POLICY and DISCRIMINATION AND HARASSMENT POLICIES** in this *Faculty Handbook*.

July 1, 2016

University Policy for Students with Disabilities

Villanova University strives to provide an environment for personal and intellectual growth of all its students, and also complies with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. In order to meet these commitments, Villanova offers educational opportunities and reasonable academic accommodations for the needs of qualified students with disabilities. The standards for academic credit should not be modified for students with disabilities. Students with disabilities have fulfilled the same entrance requirements, have the same range of backgrounds and experiences as other students at Villanova, and should be fully capable of meeting Villanova's standards. The University's goal is to provide access and reasonable accommodations in helping the students achieve those expectations.

Students with Physical Disabilities

Services for students with physical disabilities are coordinated through the [Office of Disability Services](#).

If you have any questions about access issues, contact:

- stephen.mcwilliams@villanova.edu or call 610-519-4095
- gregory.hannah@villanova.edu or call 610-519-3209

Students with Learning Disabilities, Neurologically Based Disorders, and Chronic Illnesses

Services for students with learning disabilities, other neurologically based disorders, and those disabled by chronic illnesses that impact learning are provided by [Learning Support Services \(LSS\)](#). Students who choose to self-identify and ask for academic accommodations must complete a

registration process with LSS. Please refer to the LSS policies and procedures regarding [Accessing Accommodations](#).

If you have any questions about academic accommodations, contact learning.support.services@villanova.edu or call 610-519-5176

Important Information for Faculty

Students who have not registered with LSS will sometimes approach professors to ask for accommodations. These students should be referred to LSS, so that appropriate accommodations can be worked out in conjunction with LSS. Instructors should not make special accommodations for students who have not registered with LSS.

Please refer to our guidelines on creating a [Syllabus Statement](#) and our suggestions for how to [Work with Students with Disabilities](#). Visit the [Faculty Section](#) on the LSS webpage or contact the LSS office with any questions or concerns at 610-519-5176.

Transfer Credits from Another Institution

Once a student has matriculated in a degree program at Villanova University, credit for courses from other universities may only be transferred to Villanova under certain circumstances.

1. **With the approval of the Dean of the student's college or his/her designee, students who are matriculated at Villanova and** new transfer students either from other four year institutions or from two year institutions may seek to transfer credits from two year institutions.
2. **International Studies.** Courses taken in colleges and universities in other countries will be transferred for credit, assuming that they are approved by Villanova's International Studies Office and the Dean of the student's college or his/her designee.
3. **Summer courses.**
 - No summer course may be taken at another institution, domestic or foreign, for transfer of credit back to Villanova without pre-approval by the Dean of the student's college or his/her designee.

- Villanova normally does not approve transfer of credits for courses taken during the summer at other colleges and universities if the same or comparable (for purposes of filling requirements) courses are available at Villanova in a distance education mode during the summer.

4. **Leave of Absence.** Normally, Villanova will not pre-approve courses, or transfer credits back to Villanova, for students who will be on a University leave of absence when they enroll in such courses.
5. **Withdrawals and dismissals.** Students who have withdrawn from the University or who are dismissed from the University for academic reasons frequently continue their academic work at other colleges and universities. Villanova does not pre-approve courses to be taken at another University after a student has been dismissed or has withdrawn. If these students apply for readmission to the University, courses taken at other colleges and universities will be evaluated for transfer credit by the Dean of the college to which the student is seeking readmission. Acceptance of any such credits is at the sole discretion of the Dean.
6. **Suspension.** Normally, Villanova will not pre-approve courses, or transfer credits back to Villanova, for students who have been suspended for violations of the Student Code of Conduct when they enroll in such courses.

Reviewed at Council of Deans 1-26-07 and later approved 1-31-07.

Reviewed at Council of Deans and approved on 08-05-2020.

Unauthorized Withdrawal

Students who leave the University without authorization will be treated as having withdrawn from the University. They may not return to the University without reapplying directly to one of Villanova's colleges.

Policy on Undergraduates Enrolling in Graduate Courses

1. Undergraduates may take graduate courses, provided they meet the standards set down

by each college: e.g., senior standing (in terms of credits, not in terms of years at Villanova), grade point average, and appropriate permissions (advisor, dean, chair, course instructor). The College of Nursing may exempt certain students from the “senior standing” requirement for a limited number of courses that juniors may take. Colleges are urged to compile a list of graduate courses that may and may not be taken, and this list should be available to students upon request. Colleges will ensure that proper advising is provided to undergraduate students with respect to taking graduate courses.

2. Undergraduates may take a maximum of two graduate courses in any semester. If an undergraduate takes a graduate class, in that semester s/he is limited to taking a maximum of 16 credit-hours of work. The deans of the individual college approval procedures may impose more restrictive limits if that is deemed necessary. In the Colleges of Nursing and Engineering, because of scheduling needs, students may, with permission, slightly exceed the 16 hour limit.
3. If allowed by the graduate program, up to nine hours or nine credits of graduate courses taken by undergraduates may double count – both for the bachelor’s degree and for the master’s degree, whether or not a student is formally enrolled in a five year bachelor’s-master’s program. If an undergraduate student completes additional graduate courses beyond the three, the additional course(s) will count toward the undergraduate degree and be included in the student’s undergraduate record unless the Graduate Dean in CLAS, or the appropriate Associate Dean responsible for graduate programs in the other colleges, approves the additional course(s) counting toward the graduate degree only.
4. All graduate courses taken by an undergraduate student will appear and remain on the undergraduate transcript, and will be calculated in the undergraduate GPA. When additional graduate courses beyond the three that will double count are taken, and if the additional graduate courses are allowed to count toward a subsequent graduate degree, then the undergraduate college will need to manage the student’s undergraduate degree audit so that the

additional graduate course(s) is/are excluded from fulfilling undergraduate degree requirements. If/when a student becomes a graduate student, and graduate courses taken as an undergraduate student apply to that program, the Graduate Dean in CLAS, or the appropriate Associate Dean responsible for graduate programs in the other colleges, will notify the Registrar’s Office of all graduate courses to be applied to graduate degree requirements, so record adjustments can be made.

*Approved by Provost and Council of Deans
October 31, 2017*

Walkers at Commencement

“Each year there are a small number of students who have not fulfilled all of the requirements for May graduation but who wish to participate in commencement exercises with their entering class. Students who have only three or fewer courses remaining to fulfill the requirements for graduation, or who can complete the degree requirements before the beginning of the next Fall Semester, may petition to participate in the graduation ceremony. The names of all such students throughout the University will not be included in the commencement program until the following May, after they have in fact been graduated. Students may participate in only one commencement ceremony.”

<https://villanova.policytech.com/dotNet/documents/?docid=204&public=true>

Approved at Council of Deans’ Meeting 5/10/04; effective date May, 2005 commencement; modified and reissued at Council of Deans’ Meeting 4/26/06; effective date May, 2006 commencement; Modified and reissued by Council of Deans April 7, 2011

Withdrawal from a Course

Until the final day for authorized withdrawal from courses, (for an exact date, see the [academic calendar](#)), a student may withdraw from a course without penalty and will receive the grade of “WX.” After that date, a student seeking authorized withdrawal without penalty must petition the Dean of his or her college, who has sole authority to grant withdrawals without penalty. Examples of valid reasons for a petition

include unexpected emergency situations, significant medical concerns (documentation required).

Note that withdrawals without permission will receive a "W" grade, which is calculated as an "F" in computing one's quality point average.

Withdrawal from University

Students who wish to leave and who do not plan to return to the University should request a Withdrawal. Official withdrawal from the University must be authorized by the Dean of the appropriate college. In order to affect an official withdrawal, a student must submit to the Dean a formal letter, or the appropriate college form, and then have an interview with the Dean. The letter of withdrawal may be countersigned by the student's parents or legal guardian. The parents or guardians may, if they wish and if authorized by the student, submit the official letter of withdrawal. Students who request an official withdrawal during the semester may be eligible for refund of some or all of the tuition paid for that semester. A student who has withdrawn from the University who wishes to return, must apply directly to the college the student wishes to attend (admission is granted at the sole discretion of the dean of that college).

University Leadership

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Dean of Graduate Studies, Liberal Arts and Sciences	Emory H. Woodard IV, PhD.
Dean, Enrollment Management	J. Leon Washington, MA
Affirmative Action Officer	Raymond Duffy, MS, SPHR, SHRM-SCP, CBP

College of Liberal Arts and Sciences

College of Liberal Arts and Sciences

College of Liberal Arts and Sciences Directory

Adele Lindenmeyr, Ph.D., Dean

Emory Woodard, Ph.D., Dean, Graduate Studies

Crystal J. Lucky, Ph.D., Associate Dean for Baccalaureate Studies

Barry Selinsky, Ph.D., Associate Dean for Research and Faculty Development

Joseph Lennon, Ph.D., Associate Dean for International & Interdisciplinary Studies

Edward Fierros, Ph.D., Associate Dean for Diversity and Inclusion

Rebecca Rebalsky, Assistant Dean for External and College Relations

Susan Jacobs, M.A., Assistant Dean for Undergraduate Students

Seth Matthew Fishman, Ph.D., Director of Curriculum and Assessment

Colleen Hinds, Assistant Dean for Finance & Operations

Office: 105 Saint Augustine Center for the Liberal Arts

Phone: 610-519-4600

E-mail Associate Deans:

artssciences@villanova.edu

E-mail Dean: asdean@villanova.edu

Website: <https://www1.villanova.edu/university/liberal-arts-sciences.html>

Set love as the criterion of all that you say, and whatever you teach, teach in such a way that the person to whom you speak, by hearing, may believe, by believing hope, and by hoping love.

The Instruction of Beginners - St. Augustine

History

The College of Liberal Arts and Sciences of Villanova University was founded by the Augustinian Order in 1842. The College traces its origins to old St. Augustine's Church in Philadelphia, which the Augustinians founded in 1796, and to its parish school, St. Augustine's Academy, established in 1811.

In 1842 the Augustinians purchased "Belle Air," the country estate of John Rudolph, a Revolutionary War officer and Philadelphia merchant. There they established the "Augustinian College of Villanova," under the patronage of St. Thomas of Villanova, a 16th century Augustinian educator and Bishop of Valencia, Spain. Eventually the College came to be known as Villanova and gave its name to the town which grew up around it.

Classes for the new college began on September 18, 1843, when 13 students embarked on a traditional liberal arts curriculum. At the outset, however, difficulties plagued the new college. The anti-Catholic "Know Nothing" riots in Philadelphia in 1844 resulted in the burning of St. Augustine's Church. The need to rebuild the church and maintain the new college created a financial crisis for the Order. As a result, the College closed its doors on February 20, 1845. It was able to reopen in September, 1846, with a student population of 24; the first commencement took place on July 21, 1847. The following year, on March 10, 1848, the Governor of Pennsylvania, Francis R. Shunk, signed the Act of Legislature incorporating the College.

In 1857, Villanova College closed for a second time. Demands on the services of priests through the expansion of parishes in the area created staffing problems for the Augustinians, while the "Panic of 1857" brought on hard economic times. The onslaught of the Civil War in 1860 affected student enrollment, and the College was not reopened until September 1865.

In the years that followed, the College prospered, increasing its student population and adding significantly to its physical facilities. Although in the first 50 years of its existence the College concentrated exclusively on the liberal arts, it nevertheless remained open to the changes in curriculum which were required to meet the needs of the time and the demands for specialization.

Today, the College continues to offer a variety of educational programs that are aimed at the total growth of the individual and which prepare students for viable careers. Graduates of the College have taken their place in almost every field of endeavor, serving in education, business, government, law, medicine, and research, where they make vital contributions to the communities and the world in which they live.

Academic Mission

The College of Liberal Arts and Sciences exists to provide an atmosphere of responsible learning to a varied group of students who are called to intellectual, moral, and professional leadership. To fulfill these goals, the College seeks to promote intellectual curiosity and rigor within the university; to instill the fundamentals of critical insight, mature judgment, and independent thinking; and to awaken in its students a sense of the importance of values and the moral responsibility of caring for others and working for the betterment of society.

Villanova has always openly and proudly declared that it is a Catholic institution of higher learning. The University maintains a strong respect for the beliefs of its diverse community of faculty, students, and staff. In keeping with its central place in a Catholic university, the College of Liberal Arts and Sciences has a special commitment to the Christian belief that creation is an expression of the divine truth through the redemptive life, death, and resurrection of Jesus Christ, the incarnate Word of God. It also seeks to provide a Christian intellectual and moral environment, and believes that it is the common right of all to participate in creation, to seek truth, and to apply such truth attained to protect and enrich personal and communal life.

Villanova's special Augustinian heritage enables the College to draw upon the dynamic legacy of St. Augustine, whose passionate pursuit of wisdom, understood through the metaphor of one heart and one mind, inspires its own quest for knowledge in open, intelligent, responsible, and mutually respectful interaction of points of view. This legacy is classically illustrated by the Augustinian Order's impact on the medieval universities, its distinguished cultivation of Renaissance art, and its fostering of the scientific discoveries of Gregor Mendel. It is further expressed in the conviction that all authentic human wisdom is ultimately in harmony with Divine Wisdom, and it invites collaboration with other Christians and peoples of other traditions who might share at least the general features and dynamics of this Augustinian vision.

In light of this legacy, the College has developed a diversified academic program and a core curriculum that provide students with a scale of well-defined universal values that equips them to be wise critics of the society in which they live,

and which sustains a moral base and social consciousness that transcends economic barriers and questions of race, gender, and creed.

The academic mission of the College is intimately connected with its Core Curriculum. The courses in the Core Curriculum treat a broad range of disciplines from a variety of approaches; at the same time, the Core strives to ensure depth of study and intellectual sophistication while recognizing that learning implies different modes of inquiry. The goals of the Core are to:

- Achieve a synthesis of knowledge that provides a basis for informed judgment, not simply "fact finding." This includes learning to think and process information in a critical manner.
- Promote literacy as a foundation for intelligent discourse and the articulation of informed views. This goal acknowledges that literacy spans all disciplines, and undergraduates should demonstrate an ability to understand and utilize a wide variety of information (e.g., scientific, quantitative, cross-cultural, etc.) to articulate said views.
- Define culture in a broad sense, educating students to understand and to appreciate the interrelated patterns of customary beliefs and practices, social forms, aesthetics, and material traits that act to define a culture and its position within a larger historical and intellectual framework. Students should develop an understanding and appreciation of the diversity of cultures and experiences as well as the development of a multicultural and international perspective.
- Acknowledge that our world is vibrant and continuously redefined, not simply a static version of the past. Thus, we challenge students to understand that the present is recognizably formed from past influences. In order to assess the present and arrive at a view of its future, students must be educated to scrutinize and bring into perspective the relationship of the present day with that of the past.
- Prepare students to become active and responsible participants within society, developing an understanding of ethical responsibilities and valuing communal responsibilities.

- Encourage personal development in preparing students to regard themselves as citizens living in society, who have respect for the individual as well as the feeling of belonging to a world community.

The College of Liberal Arts and Sciences is committed to sustaining, improving, and monitoring the effectiveness of our academic programs, guided by a comprehensive assessment plan focused on student learning outcomes. Each academic department has developed their own assessment plan for evaluating your learning experience. Please see your department/program chair or contact Dr. Seth Matthew Fishman (Office of the Dean, SAC 105) for more information. For more information on learning outcomes assessment, please visit <https://www1.villanova.edu/university/liberal-arts-sciences/about/outcomes.html>.

Mission to Students, Faculty, and Staff

The College strongly adheres to the principles of the University Mission Statement that commits Villanova to “developing and sustaining an academic environment in which the potentialities of its members may be realized.” In so doing, the College is guided by the teachings of Vatican II, which emphasized that “the human spirit must be cultivated in such a way that there results a growth in its ability to wonder, to understand, to contemplate, to make personal judgments, and to develop a religious, moral, and social sense” (Pastoral Constitution on the Church in the Modern World, 59).

In order to fulfill its academic mission of transmitting, pursuing, and discovering knowledge, the College commits itself to the hiring and retaining of outstanding teacher-scholars and dedicated staff personnel whose academic and professional interests will develop and foster the goals of the University’s mission. In hiring faculty and staff personnel, the College further commits itself to the goal of maintaining a richness of diversity by actively recruiting women and minorities. In all hiring strategies and decisions, the College strives to utilize procedures that will reliably determine the best qualified applicants.

While the College is committed to maintaining its Catholic identity, it does not seek a particular religious affiliation within its personnel. Rather, as formulated in the University’s mission, it asks that all respect its “attempts to develop an environment in which students, faculty, and staff may experience a Christian intellectual and moral perspective,” and have a willingness to enter into the conversation that gives its mission life and character.

The College is strongly committed to academic freedom that makes open discussion and inquiry possible. It believes open discussion among scholars and students is a self-correcting process that is intrinsic to academic freedom and that this process is in accord with responsible freedom, a central value of the Christian tradition, and of the thought of St. Augustine, the great theologian of Christian freedom.

The College seeks to encourage and equitably reward the valuable performance of its faculty and staff by offering competitive salaries and by making available opportunities that will enhance their professional development. It also seeks to promote a congenial work environment that is conducive to self-motivation. In recruiting students, the College seeks to ensure the best applicant pool possible. It strives to retain students by offering excellent academic programs and by providing them with quality campus activities.

The University’s LEARNING GOALS may be found on the Provost’s website under ‘[University Learning Goals](#)’.

Office for Undergraduate Students

Office for Undergraduate Students Directory

Susan Jacobs, M.A., Assistant Dean for Undergraduate Students

SaraBeth Baker, M.A., Graduation Certification Specialist

Linda Boettcher, M.A., Director for Academic Advising

Andy Bove, M.A., Associate Director for Academic Advising

Stephanie Stefanik, M.A., Retention and Student Support Specialist

Charles Francisco, Outreach Specialist

Charlotte Holmes, Coordinator for Professional Development

Kathleen Matkowski, Administrative Coordinator

Paige Matzerath, M.A., Assistant Director of Professional Development

Kate Melony, M.S.S, M.L.S.P., Director Villanova's Program at SCI Phoenix

Charisma Presley-Dougherty, M.A., Director of Retention and Student Success

Louise Russo, Ph.D., Director of Health Professions Advising

Jennifer Shendock Gannon, M.A., Health Professions Advisor

Drew Stackhouse, Assistant Director, Systems Management

Kate Szumanski, M.A., M.S., Director of Professional Development

Jordan Toy, M.S., Director of Student Services

Office: 107 St. Augustine Center for the Liberal Arts

Telephone: 610-519-3900

Website: <http://ous.villanova.edu>

Vision

The Office for Undergraduate Students aspires to be at the forefront in student support by continuously improving our services and advising in academics, professional development, and experiential education. We strive to create a welcoming and supportive environment for an increasingly diverse student population. We seek to foster collaborative relationships between University community members to promote student growth in mind, body, and spirit.

Mission

The Office for Undergraduate Students guides and supports students from orientation to graduation as they explore the many experiential possibilities that the College of Liberal Arts and Sciences provides. We empower students to begin a process of self-discovery, providing them with the resources to forge their own educational and professional direction.

The Office for Undergraduate Students collaborates with other University resources, enabling students to realize their full potential personally, educationally, and professionally.

Academic Advising

Linda Boettcher, M.A., Director

Andrew Bove, M.A., Associate Director

Kathleen Matkowski, Administrative Coordinator

107 St. Augustine Center for the Liberal Arts

610-519-3900

Academic Advising provides individual attention and guidance to students as they transition into the University and begin to explore their educational interests. Faculty Advisors encourage students to reflect on their course selections and experiential learning opportunities, enabling them to make informed choices about their educational and professional direction. By connecting students to a wide variety of support services, we seek to promote students' development and to facilitate their success.

Through our first-year *Academic Advising* course, we teach students how to obtain the most from their education. Topics include understanding the value of a liberal arts education and the core requirements, conveying professionalism, assessing and strengthening study skills, learning time management, making informed educational and professional choices, and maintaining student wellness.

Exploratory Science Advising

Christina Winterton, Ph.D., Faculty Advisor,
Exploratory Sciences

107 St. Augustine Center for the Liberal Arts

610-519-3900

Exploratory-Science affords students who have a genuine interest in the natural sciences, but who are somewhat uncertain as to which discipline to pursue, an opportunity to explore a variety of options during their first year at Villanova University. During their freshman year, students enroll in one or two natural science courses with laboratory and mathematics. The Exploratory-Science option provides students with the opportunity to make a considered and data-based decision as to which discipline they wish to pursue for their four years.

Health Professions Advising

Louis Russo, Ph.D., Director Health Professions Advising

Jennifer Shendock Gannon, M.A., Advisor

143 Mendel Science Center
610-519-4822
hpa@villanova.edu

Those students planning to apply to any health professional degree program (Medical, Dental, Physician Assistant, Veterinary, Optometry, Physical Therapy, etc.) should contact the Health Professions Advising Office for information on prerequisite coursework, pre-admittance examinations, experiential opportunities, and application procedures. Information sessions related to career exploration, program specifications, and application preparation are held throughout the academic year to enhance applicant knowledge and application quality.

Internship Program

Kate Szumanski, M.A., M.S., Director of Professional Development
Paige Matzerath, M.A., Assistant Director of Professional Development
Charlotte Holmes, Coordinator of Professional Development
107 St. Augustine Center for the Liberal Arts
610-519-4232

The Internship Program provides resources to students, which include individual professional development one-on-one meetings and brainstorming sessions, professional development workshops, and other special events, to assist students as they explore experiential educational opportunities. Through internships, students refine their career interests, develop their professional skills, network with working professionals, and gain valuable experience in a variety of fields. The Internship Program allows students to earn academic credit toward their major or minor, or earn general elective liberal arts credits. Students are required to submit an internship-for-credit application to seek academic credit for their internship experiences. The application is available on the OUS Web site.

Leadership and Professional Development

Kate Szumanski, M.A., M.S., Director of Professional Development
Paige Matzerath, M.A., Assistant Director of Professional Development
117 St. Augustine Center for the Liberal Arts
610-519-3942

The Professional Development area within OUS offers programming, mentoring support, and courses that enable students to identify their strengths, explore professional and educational options, and develop the skills necessary to prepare them for professional life. Through this process, we empower students to pursue their aspirations. The Professional Development curricular component provides students with a foundation for learning how their academic knowledge and skills transfer into the professional world. Students learn how to create a professional résumé, research careers and industries, identify internships, answer job interview questions, and network with alumni. Additional courses offered to enhance professional growth include the Legal Profession, Professional Communication, Networking for Success, Social Networking, Creativity and Innovation, and Introduction to Professional Writing.

Retention and Student Support

Charisma Presley, M.A., Director of Retention and Student Success
Stephanie Stefanik, M.A., Retention and Support Specialist
107 St. Augustine Center for Liberal Arts
610-519-7429 or ousretention@villanova.edu

OUS Retention & Student Support promotes student persistence and retention, with an emphasis on factors that may affect a student's academic progress. In the areas of mental health, unforeseen events, a lack of academic resources such as books or technological issues, or food or housing instability, we respond to concerns and provide leadership. In order to promote academic performance, we also obtain data, give leadership, professional development, web resources, and assistance to students, faculty, staff, and parents. We oversee the Resource Pantry, which offers a variety of programs aimed at removing or reducing barriers to degree completion. The office's mission is furthered by strong collaborative partnerships.

We manage the College's Academic Early Alert Systems, Faculty Feedback Request, and Attendance Verification, all of which are designed to provide feedback on academic performance to advisors and students with the goal of assisting students in successfully completing their courses

and connecting them with important campus resources. All Leave of Absences and CLAS Withdrawals are also handled by us.

The Bridge Society

Kate Szumanski, Advisor
107 St. Augustine Center for the Liberal Arts
610-519-4232

The BRIDGE Society in the College of Liberal Arts and Sciences is designed to: build relationships among students and alumni in the College of Liberal Arts and Sciences; inspire both student professional development and alumni institutional development; provide a forum for students to gain the experiences necessary to forge their future direction. The BRIDGE Society: provides an opportunity for students to identify with the College, in addition to their major; creates the opportunity for student leadership within the College of Liberal Arts and Sciences; gives Arts & Sciences students the opportunity to explore potential career paths and meet alumni & employers in their fields of interest.

The Core Curriculum

Core Curriculum Overview

Every degree program in the College of Liberal Arts and Sciences is made up of three components: the Core Curriculum, courses in the major, and free electives. **Free electives** are required for all students in the College of Liberal Arts and Sciences and are often used to explore academic interests and determine educational directions. They may also be used to fulfill minors, concentrations, or additional majors.

Courses in the Core Curriculum treat a broad range of disciplines from a variety of approaches; at the same time, the Core Curriculum strives to ensure depth of study and intellectual sophistication while recognizing that learning implies different modes of inquiry. An essential component of the Core Curriculum is a focus on writing. In the pursuit of their degrees, students take a number of courses in which writing requirements play a central role, from the Foundation Courses, including the Augustine and Culture Seminars and the Core Ethics course, to the Core Literature and Writing Seminar. In addition, each major program includes a required research course, normally taken during junior or

sophomore years, and a senior capstone course, which is a significant culminating experience that leads students to reflect on the various components of their major curriculum.

The Core aims to advance culture in a broad sense, training students to understand and to appreciate the interrelated patterns of customary beliefs and practices, social forms, aesthetics, and material traits that act to define a culture and its position within a larger historical and intellectual framework. This educational program does not simply look to the past, but acknowledges that culture is vibrant and continuously redefined. The Core Curriculum challenges students to understand how the present is recognizably formed from past influences, and that in order to assess our culture and arrive at a view of its future, students must be trained to scrutinize and bring into perspective the relationship of the present culture with that of the past.

In fostering active participation in learning, the Core prepares students to become active participants within society, to engage in the process of informed political debate, and to encourage an understanding and appreciation of the diversity of cultures and experiences, a respect for the individual, and the development of a multi-cultural and international perspective. The Core thus encourages personal development in preparing students to regard themselves as citizens living in a democratic society, as belonging to a world community, and as therefore having communal responsibilities.

Summary of Core Curriculum Course Requirements

1. Foundation Courses
 - a. Augustine and Culture Seminar (ACS 1000/1001) (2 courses)
 - b. Theology and Religious Studies (THL 1000) (1 course)
 - c. Philosophy (PHI 1000) (1 course)
 - d. Ethics (ETH 2050) (1 course)
2. Language Requirement (Proficiency)
3. Mathematics or Statistics (1 course)
4. Natural Sciences (2 courses w/ labs)
5. Literature and Writing Seminar (1 course)
6. History (1 course)
7. Social Sciences (2 courses)
8. Fine Arts (1 course)
9. Theology and Religious Studies – Upper Division (1 course)

Diversity Requirement

Two of the courses counting towards degree requirements must have a Diversity attribute. Select one course from two of the three possible areas of diversity as indicated by the Diversity 1, Diversity 2, or Diversity 3 attributes. (See detailed explanation below)

Fulfilling Core Curriculum Course Requirements

Foundation Courses

Augustine and Culture Seminar (ACS) Sequence (2 courses)

ACS is a humanistic exploration of St. Augustine and of his and our world that focuses on the question: Who am I? The heart of ACS 1000: Ancients is a reading of Augustine's *Confessions*, and contains readings from the Hebrew and Christian scriptures, Greek and Roman antiquity, and cross-cultural texts from Islamic, Buddhist, Confucian, or other traditions. In ACS 1001: Moderns we explore our diverse modern world and give special attention to the modern Catholic intellectual tradition and its ongoing mission to defend the dignity of the human person, to foster human solidarity, and to serve the common good.

ACS is reading- and writing- intensive, and consequently this two-semester course sequence must be taken by all students during the first year of study. Because it is important that students take ACS early in their college careers, students are permitted to drop or withdraw from the courses without academic penalty only under special circumstances. Requests to drop or withdraw must be made to the Assistant Dean for Undergraduate Students. If a student receives permission to drop or withdraw, he or she must take the course at the next possible opportunity.

Theology and Religious Studies (1 course)

THL 1000 involves students of every religion, culture, and worldview in examining the Augustinian vision of "understanding what we believe" (*On Free Choice of the Will* 1.4). Students investigate Christian and non-Christian religious practices, beliefs, and traditions that have developed over time in diverse cultural and religious contexts as they explore faith, reason, and culture in their many, textured relationships.

The course may examine Catholicism theologically, historically, and culturally (Catholic Studies track); explore Christian theological

traditions in their cultural contexts (Faith, Reason, and Culture track); or survey religiosity in general and global religions, including Christianity, in particular as well as their commonalities, differences, and cultural expressions (Global Religious Experience track).

With these foci, the course introduces students to the sources and major thinkers that have shaped responses to the fundamental human questions that underlie all religions and shape the human search for meaning. Students engage religious truth claims, themes, values, and witness as resources for analyzing and critically evaluating contemporary cultural challenges.

Philosophy (1 course)

Knowledge, Reality, Self (PHL 1000) explores the philosophical responses to the questions of how we can know, what is real, and what is the nature of the human person.

Ethics (1 course)

The Good Life: Ethics and Contemporary Moral Problems (ETH 2050) provides critical reflection on distinctive and viable visions of the moral life, with particular focus on Christian, especially Roman Catholic, Augustinian accounts, and explores the significance of different visions through an examination of various contemporary moral questions. ETH 2050 is the capstone of the foundation courses. Normally students should take ETH 2050 by the end of their junior year, after taking the other four foundation courses.

Language Requirement (Proficiency)

Language proficiency is required either: 1) through the intermediate level in French, Italian, Spanish, or Latin; or 2) through the introductory level in Ancient Greek, Arabic, Chinese, Irish, Japanese, or Russian. Students who are already proficient in other languages may petition for an exemption from the Core Curriculum Language Requirement subject to the conditions under F below.

Students may satisfy the Core Curriculum Language requirement in one of the following ways:

Option A: Advanced Placement Examination

Students may satisfy the requirement by attaining a score of 4 or 5 on the applicable Advanced Placement exam. Exams that fulfill the

requirement and the course equivalency are listed on the Advanced Placement table in Part III of this handbook.

For any language not offered at Villanova (such as German), students will not receive course credit for the AP exam in that language. As with other languages, however, students who attain a score of 4 or 5 will satisfy the language requirement. Students who satisfy the requirement without receiving course credit may need to take additional free elective courses to meet the required number of credits for degree completion. Any questions regarding Advanced Placement credit should be directed to the Office for Undergraduate Students in SAC 107.

Option B: Comprehensive Examination (Proficiency exam)

Students may satisfy the requirement through satisfactory performance on a proficiency exam administered by the appropriate department. Proficiency exams are administered on specific dates and students must register in advance. Students deemed proficient by achieving a grade of C or better on the proficiency examination may need to take additional free elective courses to meet the required number of credits for degree completion.

Option C: Credit by Exam

Students who would like to pursue credit for language fluency may do so through the Credit by Exam program for any language taught at Villanova other than their native language. Students must meet all conditions in place through the College of Liberal Arts and Sciences to be eligible for the Credit by Exam program. There is an associated fee per credit. Arrangements for Credit by Exam should be made in the Office for Undergraduate Students in SAC 107. Information about Credit by Exam is available under the policies section of this handbook.

Option D: Latin Alphabet Languages - Latin and Romance Languages (French, Italian, Spanish)

Students selecting this option must take courses through the intermediate II level in the language they have chosen. Students who studied French, Italian, Latin, or Spanish in high school must complete an online language placement exam (French, Italian, Spanish) or questionnaire (Latin) to be placed into the appropriate level. Because placement tests provide only a rough indicator of a student's level, students who are placed into

the intermediate II level or higher must complete the course to fulfill the requirement. Students who are placed directly into an intermediate II course or higher may need to take an additional course to meet the required number of credits for degree completion.

Option E: Non-Latin Alphabet Languages - Irish And Critical Languages (Ancient Greek, Arabic, Chinese, Japanese, Russian)

Students selecting this option must take courses through the introductory II level for the language they have chosen. These courses are typically four to six credits and meet four to five days per week, depending on the language. Students should contact individual departments with any questions regarding placement in these languages. Because placement tests provide only a rough indicator of a student's level, students who are placed into the introductory II or higher must complete the course to fulfill the requirement. Students who are placed directly into an introductory II course or higher may need to take an additional course to meet the required number of credits for degree completion.

Option F: Petition for Exemption Due to Documented Language Proficiency

Students who are fluent in languages for which no proficiency exam is offered through the College of Liberal Arts and Sciences may petition for an exemption from the Core Curriculum Language requirement by submitting the Petition for Core Language Requirement Exemption in MyNOVA along with documentation of proficiency from an accredited institution. International students may submit Test of English as a Foreign Language (TOEFL) scores as documentation of proficiency for the purposes of the petition process. Students deemed proficient through the petition process may need to take additional courses to meet the required number of credits for degree completion.

NOTES:

- Placement tests are used to place students only and are not to be confused with a proficiency exam.
- Students seeking accommodations for documented learning disabilities should contact the Office of Learning Support Services in Falvey 212.
- Additional questions regarding the Core Curriculum Language requirement should be addressed to a student's faculty advisor or

to the Office for Undergraduate Students in SAC 107.

Mathematics or Statistics (1 course)

Students must take one course in either Mathematics or Statistics. Any course offered by the Department of Mathematics and Statistics fulfills the Core Curriculum requirement. Certain courses offered by other departments (e.g., Computer Science and Philosophy) also fulfill the requirement. These courses are designated by the Mathematics A & S Core attribute.

Natural Science (2 courses with laboratory)

Non-science majors meet the Core Curriculum Natural Science requirement by taking two semesters of Mendel Science Experience (MSE), thematically-based lecture/laboratory courses designed for non-science majors; or two semesters of lecture/laboratory courses designed for science majors.

Science (AST, BIO, BIOC, CHM, CBN, CSC, ENV, MAT, PHY - B.S. only, PSY - B.S. only) majors meet the science requirement through the regular program of study in their major.

Literature and Writing Seminar (1 course)

All students take a thematic literature and writing seminar course. Courses designated with the Core Lit & Writing Sem attribute fulfill the requirement.

History (1 course)

This requirement is met by taking a specifically designed course designated by the Core History attribute.

Social Sciences (2 courses)

Students satisfy the requirement by taking two courses designated by the Core Social Sciences attribute.

Students majoring in Cognitive and Behavior Neuroscience, Criminology, Economics, Geography, Political Science, Psychology, or Sociology fulfill the Core Social Science requirement through the regular program of study in their major.

Fine Arts (1 course)

The requirement is met by taking a course that focuses either on the creative processes that go into making a work of art, or on analysis and interpretation of the products of that artistic creativity. All courses designated with the Fine Arts Requirement attribute fulfill the Core Curriculum requirement.

Theology and Religious Studies - Upper Division (1 course)

The upper division Theology and Religious Studies Core Curriculum requirement develops the theme of faith seeking understanding, engaging culture from a specific disciplinary perspective. Students must take THL 1000 before taking an upper division course designated by the Core Theology attribute.

Diversity Requirement (2 courses)

Consistent with the University's Mission Statement and its implementation of the new Core Curriculum in the College of Arts and Sciences, students will take at least two courses designated as "diversity." Learning to see through the eyes of other peoples and cultures is essential to becoming a citizen of the world. Beyond introducing students to the contextual study of diverse groups, diversity education must foster understanding of how individuals are affected within systems of power, oppression, deprivation, marginalization, and privilege.

Students are required to select two courses, covering two out of the three areas below:

Diversity 1: Courses that focus on populations (often named as non-dominant, minority, or impoverished groups) in the U.S. or Western Europe, and the systems or mechanisms that give rise to the experiences of power, privilege, and marginalization.

Diversity 2: Courses that focus on women's experiences and/or highlight the relationship between gender, culture, and power.

Diversity 3: Courses that focus on the culture, economics, politics or ecology of societies and nations other than those of Western Europe and the United States and that emphasize power, privilege, and marginalization or a critical analysis of how these cultures define and express themselves.

NOTES:

- Service-learning courses, internships, and other experiential or community-based learning courses may be applied toward the Diversity requirement, provided they include a significant reflective component and have been pre-approved for diversity course credit.
- Study abroad courses may be applied toward this requirement; such courses will be assessed the same way as Villanova courses.
- Although some courses have more than one Diversity attribute, all students must take two different courses; a single course with multiple attributes may not be used to fulfill both Diversity course requirements.
- The Diversity Requirement cannot be fulfilled by independent study or a senior thesis.
- Language courses cannot fulfill the requirement, although literature courses in another language may fulfill the requirement if they are designated with a Diversity attribute.
- A student may fulfill one Diversity course requirement (DIV 1) by taking three 1-credit IGR workshops.

Learning Outcomes and Assessment

The College of Liberal Arts and Sciences is committed to sustaining, improving and monitoring the effectiveness of our academic programs, guided by a comprehensive assessment plan focused on student learning outcomes. Approximately 45 faculty assessment liaisons assist their respective departments in improving the academic experience for our students. Several of our liaisons and Seth Fishman, PhD, have presented at academic conferences based on our student outcomes work.

Each department has implemented an assessment plan with an emphasis on incorporating the findings to make evidence-based curricular decisions. Every year, departments and academic programs complete an annual report highlighting their use of assessment findings to enhance and improve their curricula.

In addition, the Core Curriculum Committee is responsible for evaluating the [Core Curriculum](#). A highlight of its work is an interdisciplinary e-portfolio for the Foundation courses, a five-course shared intellectual experience that all undergraduates in the College of Liberal Arts and Sciences complete early in their Villanova career.

Our College Assessment Committee, composed of faculty, academic staff and student representatives, advises and assists Seth Matthew Fishman, PhD, assistant dean, Curriculum and Assessment. For the example, the committee supports the College's overall assessment initiatives, communicates the value of these activities to the faculty of the College, and reviews initial drafts of College assessment reports for our Middle States Accreditation and other outlets as needed.

CLAS Policies

Unless otherwise noted, the College of Liberal Arts and Sciences follows the general University academic policies and regulations listed in the University Catalog. It is the responsibility of the student to know and comply with all academic policies and regulations of the University and the College of Liberal Arts and Sciences. Such policies may change without prior notice. The policies in this handbook are a sample of University and College policies that are frequently referenced by students and are intended for summary purposes only.

Academic Bankruptcy

The Academic Standing Committee may allow a freshman student to declare academic bankruptcy and repeat the semester or academic year with a new start on the cumulative average (though a record of the year's work will remain on the transcript).

Internal transfer students and students who have switched degree programs within the CLAS may be permitted to bankrupt individual courses from their previous program that do not apply to their new curriculum. Students must successfully complete two consecutive semesters in the CLAS and attain a minimum GPA of 2.50 each semester before they are eligible to request bankruptcy for specific courses. Bankrupted courses will remain on the student's transcript but will be excluded from the calculation of the GPA and earned

credit hours. Students must petition the Assistant Dean for Undergraduate Students for the exclusion.

All requests for Academic Bankruptcy are granted at the discretion of the Assistant Dean for Undergraduate Students. Once a course has been bankrupted the action is permanent and cannot be reversed. In no case will tuition be refunded.

Academic Probation

Any student with a cumulative or technical GPA below 2.0 or who fails to make satisfactory academic progress (i.e., successful completion of at least 12 credits per semester) will be placed on academic probation by the CLAS Academic Standing Committee. Students who have been placed on academic probation are required to contact their faculty advisor immediately to discuss their probationary status and develop an academic success plan.

While on academic probation, students are required to earn a grade of C or higher in all courses and may be restricted to taking 13 credits. Any F, U, W, or Y grades may lead to academic dismissal. Students on probation are not eligible for N (incomplete) grades. Students on academic probation will normally be allowed only one semester to raise their GPA to the required minimum of 2.0.

Academic Progress

To qualify for a bachelor's degree, a student must earn a cumulative grade point average of at least 2.00 (in addition to completing the studies prescribed for the degree sought). Students must also advance in their studies by successfully completing a minimum of 12 credits per semester. Students who fail to make satisfactory academic progress are subject to review by the Academic Standing Committee. Those students may be placed on Academic Probation. In circumstances involving those students who have entered Villanova University through the Academic Advancement Program, satisfactory progress of the student will be determined by the Academic Standing Committee and/or Assistant Dean for Undergraduate Students. In the event that, due to poor high school preparation, additional time is necessary for the student to complete the

requirements towards graduation, the student will be viewed as being in a five year program. Satisfactory progress will be viewed accordingly.

Advanced Placement and International Baccalaureate Credit

Students who wish to receive Advanced Placement (AP) credit should request that the College Board send their AP scores to Villanova University (code #2959). AP scores are received by the Registrar's Office and forwarded to the Office for Undergraduate Students (OUS), which determines course credit according to the criteria in the tables below. AP scores for incoming freshmen usually reach Villanova by mid-July. If scores are received before Fall Semester classes begin, the OUS will communicate with the student and authorize the Registrar's Office to add the appropriate course credit to the student's academic record. If scores are received after classes begin, the OUS will direct the Registrar to add any further course credit for which students are eligible. AP credits appear in the Transfer Credit area of the student's academic transcript. All AP/IB scores must be accepted and approved before a student completes two semesters at Villanova.

New students who have taken AP or International Baccalaureate Higher Level (IB) exams should check with their academic advisor during the first week of classes to verify Villanova's receipt of official scores and ensure that proper adjustments have been made to their academic record and course schedule.

Except for Language, AP and IB credit may not be used to fulfill Core Curriculum requirements. AP and IB credit may be used to fulfill requirements for majors, minors, concentrations, and certificates. AP/IB credit will be treated as transfer credit and all transfer credit policies will apply. Students who wish to remove any AP/IB credit from their record should complete the "Request to Remove AP Credit" form available on MyNova. Once this request has been completed, it cannot be reversed.

[Core Math Options may be viewed here.](#)

Academic Placement Equivalency Chart

Advanced Placement	Score of 3	Score of 4 or 5		
Subject-Test Number	Courses	Credits	Courses	Credits
			AAH	
			1101	3
Art History- (13)		or	AAH	
			1102	
			BIO	
Biology- (20)			2105	4
			BIO	4
			2106	
Calculus AB- (66) or			MAT	4
Calculus Subgrade- (69)			1500	
			MAT	
			1500	4
Calculus BC- (68)			MAT	4
			1505	
			CHM	
			1103	1
			CHM	1
Chemistry- (25)			1104	4
			CHM 1151	4
			CHM	
			1152	
Chinese Language & Culture- (28)			CHI 1111	6
			CHI 1112	6
Computer Science A- (31)			CSC	4
			1051	
Computer Science Principles- (32)			CSC	3
			1020	
Economics: Macro- (35)			ECO	3
			1002	
Economics: Micro- (34)			ECO	3
			1001	
English Language & Composition- (36)				
or			ENG	3
English Literature & Composition- (37)			1050	
Environmental Science (40)			GEV	3
			1052	
French Language & Culture- (48)			FFS 1121	3
			FFS	3
			1122	
Government and Politics: Comp- (58)			PSC	3
			1300	
Government and Politics: US- (57)			PSC	3
			1100	
History, European- (43)			HIS 1021	3
			HIS	
			1002	
History, U.S.- (07)		or	HIS	3
			1003	
			HIS	
			1040	
History, World- (93)		or	HIS	3
			1050	
Human Geography- (53)			GEV	3
			1002	
Italian Language & Culture- (62)			ITA 1121	3
			ITA 1122	3

Japanese Language & Culture- (64)		JPN 1111	6
		JPN 1112	6
		LAT 1121	3
Latin- (60)	Placement Only	LAT 1122	3
		PHY	
Physics C: Mechanics- (80)		1100	3
		PHY 1101	1
		PHY	
Physics C: Electricity and Magnetism- (82)		1102	3
		PHY 1103	1
Psychology- (85)		PSY 1000	3
Spanish Language- (87) or		SPA 1121	3
Spanish Literature & Culture- (89)		SPA 1122	3
		MAT	
Statistics- (90)		1230 or	3
		CSC	
		2300	

International Baccalaureate Credit and Course Equivalence

Subject	Score of 5	Credit	Score of 6 or 7	Credit
Biology			BIO 2105	4
			BIO 2106	4
			CHM 1103	1
Chemistry			CHM 1104	1
			CHM 1151	4
			CHM 1152	4
Computer Science HL	CSC 1051	4	CSC 1051	4
Information Technology	CSC 1930	3	CSC 1930	3
	ECO 1001	3	ECO 1001	3
Economics	ECO 1002	3	ECO 1002	3
English	ENG 1050	3	ENG 1050	3
French A2 or B		0	FFS 1121	3
			FFS 1122	3
Geography	GEV 1002	3	GEV 1002	3
History Americas			HIS 4495	3
History Europe			HIS 1021	3
Italian A2 or B		0	ITA 1121	3
			ITA 1122	3
Latin	Placement	0	LAT 1121	3
			LAT 1122	3
Mathematics: Applications and Interpretation	MAT 1500	4	MAT 1500	4
			MAT 1505	4
Mathematics: Analysis and Approaches	MAT 1500	4	MAT 1500	4
			MAT 1505	4
Music			SAR 3030	3
Philosophy			PHI 2990	3
Physics			PHY 1100/01	4
			PHY 1102/03	4
Psychology			PSY 1000	3
Spanish A2 or B		0	SPA 1121	3
			SPA 1122	3

** Sample of lab work needed.*

Note: Credit is Only Given for Higher Level Exams

Apply for Re-Admission

Students applying for re-admission to the full-time undergraduate day program should complete the "Application for Re-Admission to the College of Liberal Arts & Sciences" form. Generally, a degree program should be completed within six years of original start date. However, students may return to full-time day student status within approximately ten years of their original date of enrollment. Once more than twelve years have passed from original start date, former students **must** apply to complete their degree through the College of Professional Studies.

If fewer than ten to twelve years have passed, and you wish to take classes in person on a full-time basis, please forward this form and the accompanying items to the Office for Undergraduate Students (SAC 107) via email at as-ous@villanova.edu, fax at (610) 519-6322 or the address below:

Office for Undergraduate Students
Attn: Susan Jacobs
800 E. Lancaster Avenue
SAC 107
Villanova, PA 19085

Applications take several weeks to be reviewed since we may need to access old records. Please submit the application no later than November 15 for a possible spring start, April 15 for a summer start and July 15 for a possible fall start. Applications received less than one month prior to the start of a new semester will be considered for the following semester.

Auditing a Course

A student may elect to audit a course to reinforce and strengthen his/her current knowledge or to explore new areas without the pressure of tests and grades. No academic credit is earned for auditing a course; however, the audited course is noted on the student's official record. Permission to audit a course must be obtained from the course instructor. Forms to request to audit the course are available online. Visit MyNova and search for OUS Forms.

CLAS Students Taking College of Professional Studies Courses

Students in the College of Liberal Arts & Sciences are not permitted to enroll in courses restricted to the College of Professional Studies. Course restriction information is available through searching the master schedule in MyNova.

Closed Section

Students will not be permitted to enroll in closed sections. Exceptions to this rule will be made only by the chairperson of the academic department offering the course. If other sections or other courses are available to satisfy the degree requirements, then the exception will not be granted. Student employment conflict is not a legitimate reason for admittance to a closed section.

Credit by Exam

To encourage independent study and recognize personal knowledge and mastery of subject matter, Villanova University provides qualified matriculated students with the opportunity to "test out" of certain courses. The student who successfully passes such an examination satisfies the requirements of and earns the credit for the respective course. For more information, [see the webpage located here](#).

Limitations

Participation in the program is not automatically given, and is contingent upon the following limitations:

1. The student must be matriculated, and offer evidence of sufficient background to the department offering the exam to have a reasonable command of the subject matter;
2. If the student has previously taken the exam to waive course requirements, the student may not take an exam for credit in the same course;
3. A student cannot use this program to pass a course for which the student has failed, either at Villanova or any institution;
4. A student on probation, or who is suspended, may not take an exam for credit;

Conditions

The granting of credit is contingent upon the following conditions:

1. A student may not challenge a language requirement in their primary language. Once a sequence of language has begun, a student may not revert to a lower-level course.
2. A fee of \$130 per credit hour will be levied
3. Credit granted will not exceed that assigned to the course as listed in the University Catalog
4. The maximum credit allowed the student through this program is 30 hours
5. Credit for no more than three courses may be applied to a student's major
6. A passing grade of "CE" will appear on the student's transcript; a failing grade will not be recorded
7. The test dates, determined by the Director of Student Services, will take place shortly after the mid-semester break and before the pre-registration period in the Fall and Spring. The exam is also given in July.

Procedure

1. The application process is the responsibility of the student and must be completed one month before the date of the exam. The student begins the application process with the director who will provide them with the appropriate forms and directions for completion.
2. The form is then taken to the Bursar's Office for validation once the appropriate fee is paid. A "no show" student forfeits all fees.
3. During the week prior to the exam, the department will provide the director with a copy of the exam for each candidate. This will be in a sealed envelope properly identified with the student's name, Banner ID, department, and exam title on its front.
4. Notification of students of time and place of the exam, and other arrangements, are the responsibility of the Director.
5. Students who fail the exam have the right to review it with the faculty in question. Exams are destroyed in the semester in which they are administered.
6. The Director will notify the students and the Registrar's Office of the exam results.

Credit Increases

Students should complete the "Request for a Credit Increase" form if trying to register for five courses of three or more credits (and additional 1 to 2 credit courses) and need more than 17 credits, if an Arts student, or 19 credits, if a Sciences student. The form should be completed prior to the assigned registration time and submitted it to the Office for Undergraduate Students.

Note: If a student's cumulative GPA is at least 3.0 and she/he/they would like to take a sixth course with credits totaling to 19 credits, the credit limit is raised after the final registration period for students with a cumulative GPA of 3.0 or higher for arts students. Students that fall under this category do not need to fill out a form.

Cross College Majors

Students in the College of Engineering, M. Louise Fitzpatrick College of Nursing, and the Villanova School of Business may pursue a second major in the College of Liberal Arts and Sciences. The CLAS major will be considered a second major added to the student's primary degree program; the student will not be required to complete CLAS Core or Free Elective requirements and will not be awarded a second degree. The second major will be noted on the student's official transcript. Students who wish to pursue this option must complete the appropriate form (available in the Office for Undergraduate Students, SAC 107) and obtain all required signatures.

Dean's List

At the end of the fall and spring semesters, the College of Liberal Arts and Sciences officially recognizes its high-achieving students by including their names on the Dean's List. Inclusion on this list recognizes a student's commitment to an intellectually rigorous education in the liberal arts and sciences, one that fosters critical insight, mature judgment, and independent thinking. Students must complete at least 12 credits of letter grade courses each semester with a minimum GPA of 3.50. No S, WX, or N grades are permitted in these 12 credits.

Declaring or Changing a Major for CLAS Students

Students wishing to declare or change their major/program should complete the "Application to Change or Declare Major" available on MyNova. The department will review and if approved will assign an advisor to the student and forward the form to the Office for Undergraduate Students. Once received, the Office for Undergraduate Students will notify the student of the status of their request.

Declaring a CLAS Minor or Concentration

To declare a concentration or minor within the College of Liberal Arts and Sciences, complete the "Application to Add or Remove a CLAS Minor or Concentration" available on MyNova. Some CLAS departments have additional requirements to apply to the minor. Consult with the department for additional information.

Degree Requirements

Every degree program in the College of Liberal Arts and Sciences is made up of three components: the Core Curriculum, Courses in the Major, and (in most cases) Free Electives. The Baccalaureate degree is awarded when the curriculum prescribed by the College for one or more of the various degree programs has been satisfied. Candidates for graduation must meet all of the following seven requirements:

1. A minimum of 122 credit hours;
2. The successful completion of the Core Curriculum, academic major requirements, and free electives*;
3. A cumulative GPA of at least 2.00. (Science students must also have a minimum technical grade point average of at least 2.00);
4. A minimum of half of the Core Curriculum requirements must be fulfilled at Villanova University;
5. A minimum of half of the requirements for the major must be fulfilled at Villanova University;
6. The final 30 credits of the degree program must be earned at Villanova University or a Villanova University approved program;
7. At least 61 credits must be earned at Villanova University.

**Please note that a maximum of 10 credits in courses fewer than 3-credits may be applied to a student's free-elective area. Neither SBI nor Lab courses count toward the 10-credit limit. Further restrictions regarding the subject of these courses apply.*

See the College of Professional Studies Catalog for information on the Bachelor of Interdisciplinary Studies Degree (BIS), the Bachelor of Arts in General Arts, etc.

Double Majors/Primary & Secondary Majors

By default, the first major that a student declares is treated as their primary major. A student may not declare a secondary major without first declaring their primary major.

Students may declare a secondary major by completing the "Application to Declare/Change/Drop Major" form available on MyNova. Students may not double major in both Comprehensive Science and another science OR Liberal Arts and another major.

Drop/Add

During the first five (5) class days of a semester, students are given the option of dropping or adding courses by using their pin number and going online through MyNOVA, or by completion of a paper form available in the Office for Undergraduate Students without incurring academic penalty or affecting the student's official transcript. After this period, students may withdrawal (WX) from courses but may not add a course.

Dual Degree Policy

Normally, a student may receive only one degree, regardless of how many majors the student earns. Students who have completed all the requirements for two or more degrees – e.g., B.B.A. and B.S.A., or B.B.A. and B.A., or B.A. and B.S. – must choose which degree to take – unless they have completed 43 or more additional credits beyond the greater of the two program credit requirements, in which case they may receive two degrees and two diplomas. Multiple majors, regardless of college, will appear on a student's transcript.

Fast Forward Courses

Transfer Credit will not be awarded for Accelerated or Fast Forward courses. In order for a non-professional three-credit course to be considered for transfer credit, the course must have met on at least 15 different days and with a minimum total meeting time of at least 37 hours. For courses in question, the student must provide documentation stating the manner in which the course was taught along with the official transcript. Courses in professional studies will be evaluated on a case- by-case basis. The College reserves the right to test students to assess course outcomes.

Grade Definitions and Values

A (4.00), A- (3.67)

The highest academic grade possible; an honor grade which is not automatically given to a student who ranks highest in the course, but is reserved for accomplishment that is truly distinctive and demonstrably outstanding. It represents a superior mastery of course material and is a grade that demands a very high degree of understanding as well as originality or creativity as appropriate to the nature of the course. The grade indicated that the student works independently with unusual effectiveness and often takes the initiative in seeking new knowledge outside the formal confines of the course.

B+ (3.33), B (3.00), B- (2.67)

A grade that denotes achievement considerably above acceptable standards. Good mastery of course materials evident and student performance demonstrates a high degree of originality, creativity, or both. The grade indicates that the student works well independently and often demonstrates initiative. Analysis, synthesis, and critical expression, oral or written, are considerably above average.

C+ (2.33), C (2.00), C- (1.67)

Indicates a satisfactory degree of attainment and is the acceptable standard for graduation from college. It is the grade that may be expected of a student of average ability who gives to the work a reasonable amount of time and effort. This grade implies familiarity with the content of the course and acceptable mastery of course material; it implies that the student displays some

evidence of originality and/or creativity, and works independently at an acceptable level and completes all requirements.

D+, (1.33), D (1.00), D- (0.67)

Denotes a limited understanding of the subject matter, meeting only the minimum requirement for passing the course. It signifies work which in quality and/or quantity falls below the average acceptable standard for passing the course. Performance is deficient in analysis, synthesis, and critical expression; there is little evidence of originality, creativity, or both. Note: D- is the lowest passing grade awarded.

F (0.00)

Indicates inadequate or unsatisfactory attainment, serious deficiency in understanding of course material, and/or failure to complete requirements of the course.

N Incomplete: Course work not completed.

S Satisfactory: Assigned in Satisfactory/Unsatisfactory courses.

SP Satisfactory: Progress (for use at Mid-Term Only)

U Unsatisfactory: Assigned in Satisfactory/Unsatisfactory courses.

WX: Approved withdrawal without penalty.

W: Approved withdrawal with penalty.

AU: Audit.

Y: Unofficial withdrawal from course (or for freshmen, failure for excessive absences)

NG (Or Blank): no grade reported. All grades are permanent except for N and NG, which are temporary grades and must be replaced with grades submitted by the instructor. If a change is not submitted, the N or NG automatically becomes an NF. Students must submit all work to instructors by the last Friday in January (Fall semester) or June (Spring semester). Instructors must submit replacement grades by the second Friday in February (Fall semester) or July (Spring semester).

View the full policy and grading information on [the Office of the Registrar's website here](#).

Grade Point Average (GPA)

In addition to passing all required courses, a cumulative grade point average (GPA) of at least 2.0 is necessary for graduation. For science students, a Technical GPA of at least 2.0 is also required. For Arts students, some majors may

also require a minimum GPA for all courses that are used to meet the major requirements. Grades for all courses taken at Villanova University (except S/U grades and WXs) are calculated in the GPA. If a course is repeated, then both grades are included in the computation. If a transfer course is accepted to fulfill a requirement for a failed Villanova University course, then the failed Villanova course is still included in the GPA computation. The grade point average is determined by taking the number of credits for each course times the quality points earned and dividing the total quality points by the total credit hours attempted. For more information on grade point average, [view the Office of the Registrar's policy here](#).

Example of GPA Calculation

GPA= Total Quality Points /Total Attempted Credits

	Course Grade	Credits	Quality Points
Course #1	B	3	9.00
Course #2	C	3	6.00
Course #3	C	3	6.00
Course #4	C	3	6.00
Course #5	F	3	0.00

Total Attempted Credits: 15 Total Earned Credits: 12 Total Quality Points: 27

GPA = 27/15= 1.80

Grade Reports

Grade reports are computed at the middle and end of each semester. However, only the grade report at the end of the semester is part of the student's permanent record. These reports are available to students online through their MyNOVA account. Students are directed to [the University Catalog](#) for a complete description of the University Grading System. Any inaccuracy in this record must be reported to the Office of the Registrar within two weeks of its receipt; otherwise, the grade will stand as it is.

Graduation Honors

Graduation honors will be noted on the degrees of graduating students meeting the following requirements:

1. Summa cum laude.....minimum cumulative GPA of 3.90

2. Magna cum laude.....minimum cumulative GPA of 3.75
3. Cum laude.....minimum cumulative GPA of 3.50

Grade Extensions on Incomplete Grades

Students who have taken an incomplete (i.e., "N") grade and need additional time to complete the work due to further extenuating circumstances must first gain the professor's approval. If the professor grants the request, the student and professor must agree upon a completion date for the work, complete a "Request for Grade Extension on an Incomplete Grade" form, and submit it to the Office for Undergraduate Students for the Assistant Dean's approval prior to the initial deadline for the submission of incomplete work, which is posted on the online academic calendar. Students may only extend the deadline for courses in which an incomplete was taken once with the Assistant Dean's approval. Students may be required to submit supporting documentation.

The remaining coursework must be completed and submitted by the established deadline or the grade will convert to an "NF" grade, which is calculated as an F in the student's GPA. No further grade extensions are possible. Any discrepancies for an Incomplete N grade must be resolved before the completion of the following semester.

Students requesting an extension can complete the "Request for a Grade Extension on an Incomplete Grade" form available on MyNova.

Incomplete Grades for Undergraduate Students

Requests for incompletes are considered for extenuating circumstances only (illness, family emergencies, etc.). Students who request an "N" grade must have completed the majority of their work and must establish with the instructor a plan and a timeline for completing outstanding requirements. Incomplete grades might have an impact on a student's financial aid, so students should consult with their financial aid counselor regarding incomplete grades. Undergraduate students who have two or more incomplete grades at the end of a semester will be reviewed by the Academic Standing Committee. Students

who have multiple incomplete grades over the course of an academic year may be placed on academic probation for failure to make satisfactory academic progress.

Laboratory Science Accommodation for Student with Disabilities

Villanova University recognizes its responsibility to provide alternatives to the laboratory experience for those students who have documented physical disabilities and are unable to perform laboratory work. Mendel Science Experience courses are a part of the Core Curriculum in the College of Liberal Arts and Sciences, and each of these courses is coordinated lecture/laboratory. In the event that a student has a proven disability, verified by a physician, the student should meet with the course professor at the start of the semester to discuss alternative to the co-requisite laboratory. In lieu of a laboratory, an appropriate alternative experience may be obtained by performing library research on a specific topic agreed upon by the student and the professor – one relevant to the course material and equivalent in rigor to a three hour laboratory.

The student and faculty member should fill out a form designating, the topic to be researched, the expectations of the faculty member in terms of coverage, rigor, and due date. Both the faculty member and student should sign and date the form prior to sending it to Dr. Crystal Lucky, Associate Dean for Baccalaureate Studies, SAC 105.

Mathematics Placement

The Core Curriculum requirement for all students in the College of Liberal Arts and Sciences is one course. Science majors and some others are required to take a two-semester sequence or more. Incoming students in the College of Liberal Arts and Sciences will normally take a Math or Statistics course in either the fall or spring semester of their first year. A student's potential choice of major and career plan affects his or her choice of Mathematics courses.

Medallion of Excellence

Each department in the College of Liberal Arts and Sciences may nominate one graduating

senior each year to receive a Medallion of Excellence. Generally, to be eligible for nomination, students must have earned a minimum of three fourths of their degree at Villanova in the College of Liberal Arts and Sciences and must have a minimum cumulative GPA of 3.50.

Each department has named its medallion either for a luminary from the past who has deeply affected the discipline or an outstanding person who helped to shape the course of study at Villanova University.

Medical Leave of Absence

A student may experience physical or psychological conditions that significantly impair the student's ability to function successfully or safely in his or her role as a student. In such cases, the student may decide that time away from the University for treatment and recovery can help restore functioning to a level that will enable the student to return to the University and perform successfully in and out of the classroom. Students interested in pursuing a Medical Leave of Absence should contact the Office for Undergraduate Students to review the process and make an appointment with Ms. Charisma Presley, Director of Retention and Student Success.

Overload Policy

The normal course load each semester for full-time students is five courses of three credits or more (excluding labs and other 1-credit courses). The credit limit set by the Registrar during the pre-registration period is 17-credit hours for Arts students and 19-credit hours for Science students. In order to be granted permission for an overload, a student must have a cumulative grade point average of at least 3.0 (2.75 for the summer), or have achieved senior status and need a sixth course to fulfill graduation requirements.

After all students have had the opportunity to register for five courses, credit limits will be raised by the Registrar for students with a GPA of 3.0 or higher and for seniors in order to allow them to register for a sixth course through MyNOVA using their semester PIN. In no case will permission be granted for a student to take 7 courses or more than 21 credits.

Students with a GPA lower than 3.0 that need to enroll in more than 17 credits a semester to achieve the normal course load for full time students of five courses will need to have their credit limit raised prior to the registration period. Students with this circumstance should complete a "Request for Credit Increase" form available on MyNova.

Phi Beta Kappa (ΦBK)

Phi Beta Kappa (FBK) is a National Honors Fraternity for Colleges of Liberal Arts and Sciences. It was founded at the College of William and Mary in 1776. Since that time, its rigorous and comprehensive standards have made election to it a premier sign of excellence. The Sigma of Pennsylvania Chapter of Phi Beta Kappa was founded at Villanova University in April 1986.

Phi Beta Kappa standards reflect the highest ideals of liberal arts education at Villanova: education that is concerned with values and facts, as well as wisdom and knowledge; education that seeks freedom from ignorance, alienation, and inhumanity; education that values intellectual integrity and tolerance over expediency, and breadth of scholarly achievement over specialized expertise.

Juniors and seniors who are candidates for a degree in the College of Liberal Arts and Sciences, whose academic achievements reflect the goals of Phi Beta Kappa, and who meet the following specific criteria shall be eligible for consideration for election to Phi Beta Kappa.

1. Candidates must have a GPA of at least 3.50 (3.80 to be elected as a junior).
2. At least three-fourths of a candidate's academic work must have been taken in the liberal arts and sciences, as distinct from applied or professional work.

The Chapter chooses candidates with evidence of academic achievement that is of exceptional distinction and gives weight to the breadth and the quality of the overall program of courses taken by each candidate.

Election to membership in Phi Beta Kappa is wholly within the discretion of the members of the Chapter, subject only to the limitations

imposed by its Constitution and By-Laws. Fulfillment of the minimum qualifications does not assure election to membership.

President

Lauren Shohet, Ph.D. (English), Professor

Vice President

Valentina DeNardis, Ph.D. (Classical Studies), Teaching Professor and Director

Secretary/Treasurer

Douglas Norton, Ph.D. (Mathematics and statistics), Associate Professor and Chair

Refunds/Tuition Reversal

Refunds as a result of official withdrawal will be made according to the schedule [posted here by the Bursar's office](#). Excluded from the refund calculation will be the costs related to on-campus housing and university meal plans. Activity, library, and medical fees are not refundable. There will be no refund for unauthorized withdrawals. Students who do not register or who notify the Registrar's Office prior to the first day of class that they will not enroll are entitled to a full refund. Students should consult the [full policy on the Bursar's website here](#).

Removal of AP Course Credit

Students requesting to remove credit for AP courses should complete the "Request to Remove AP Credit" form available on MyNova to remove credit previously earned through an advanced placement test and submitted to Villanova University. Submitting this request finalizes the removal of the credits from your transcript which cannot be reversed.

Repeat Course Request

Students may request to repeat a course that they have previously taken while at Villanova. The following conditions are in place:

1. The previous course will still be listed on the official transcript; repeating a course does not eliminate the previous attempt taken.
2. A combination of the two course grades will factor into the GPA; getting a different grade on the second attempt of a course does not replace the first attempt's grade with the second attempt's grade.

3. The course repeated will only count for credit once on the transcript; taking a course a second time does not mean a student receives credit for both attempts.
4. No course can be taken a third time; a student may only repeat a course once.

To request to repeat a course, students should complete the "Request to Repeat a Course" form available on MyNova.

Required Units for Admission

Although individual consideration is given to each applicant, it is expected that all applicants, except in the most unusual circumstances, will minimally satisfy the unit requirements listed below. A unit represents a year's work.

For Arts Curricula:

English	4	Mathematics	3
Foreign Language	2	Science	1
History or Social Science	2	Electives	3

For Science and Mathematics Curricula:

English	4	Foreign Language	2
Chemistry	1	Physics	1
Mathematics	4	Electives	4

Satisfactory/Unsatisfactory Grades

Grades of Satisfactory (equivalent to a "C" or better) and Unsatisfactory (equivalent to a "C-" or worse) are shown on the transcript but not included in the quality point average.

Sophomores, juniors, and seniors may take one elective course a semester on a satisfactory/unsatisfactory basis. The Satisfactory/Unsatisfactory (S/U) option may not be used for courses that fulfill core, major, or minor requirements, but individual departments may offer the major seminar on a S/U basis.

Credits for courses with Satisfactory grades are included in credits earned. Students must opt for Satisfactory/Unsatisfactory by the end of the Drop/Add period.

Unsatisfactory grades need not be repeated. Each college may have additional regulations governing the satisfactory/unsatisfactory option, available from the college dean.

Transfer Credit Hours

Transferring Courses from Full-Time Enrollment

Students who wish to receive credit for college courses taken at another institution prior to attending Villanova must present an official transcript, course descriptions, and other documentation as needed to the Office for Undergraduate Students. Transfer credit may be awarded for college-level courses used to meet high school graduation requirements (subject to the criteria listed below). Courses will be considered for transfer credit only upon receipt of an official transcript and copies of official course descriptions. In some cases, it may be necessary to review the course syllabus to determine whether credit may be granted. It is the responsibility of the student to supply all necessary documentation.

Please note the following policies concerning transfer courses:

- In order to receive credit for a course taken at another institution, a student must have earned a grade of C or higher, and there must be an equivalent Villanova course.
- Grades earned in courses taken at other institutions are not factored into a student's Villanova grade point average.
- Transfer credits may be used to fulfill no more than half of courses for each of the following: CLAS degree, major, minor or concentration, and CLAS Core Curriculum.
- Courses taken at two-year institutions, including community colleges, are eligible for transfer credit.
- Students may transfer a maximum of five non-CLAS courses that have equivalents in the other Villanova academic colleges (Business, Engineering, and Nursing). Students who wish to have such courses evaluated for transfer credit must submit course descriptions and/or syllabi to the appropriate college for review.
- Courses should be presented for evaluation prior to a student's first semester at Villanova. Courses presented after the student's first year at Villanova will no longer be eligible for credit.

College Courses Taken Prior to High School Graduation

College-level work completed prior to high school graduation, including college courses that fulfill high school graduation requirements, may be awarded transfer credits upon receipt of the following:

1. an official letter from the high school principal, secondary school counselor or other educational professional describing the college-level program of study.
2. an official letter from the college/university stating that the courses were taught by members of the regular faculty, open to enrollment by and graded in competition with regularly matriculated undergraduates at the college and a regular part of the normal curriculum published in the college catalog;
3. a course syllabus; and
4. an official, seal-bearing transcript from the college/university showing a grade of C or better. Credit or advanced standing for courses taught at the high school will not be accepted.

With respect to courses taught in a distance learning format, and for other requirements, each academic program will review on a case by case basis. Each supporting document is to be sent to the Dean of the College in which the student is enrolling.

All pre-matriculated credit must be accepted and approved before the completion of two semesters at Villanova.

Enrolling in Courses at Another Institution as a Villanova Student

Once a student has matriculated in a degree program at Villanova University, credit for courses from other universities may only be transferred to Villanova under certain circumstances. Students may request to enroll in courses at another institution through filling out the "Request to Enroll in Courses at Another Institution" online form. The Office for Undergraduate Students must receive official transcripts for approved courses taken elsewhere before the completion of two subsequent semesters at Villanova. Credits will not be

accepted for courses that take place during terms that do not align with Villanova's academic calendar.

Transfer Students

External Transfer Students

Students wishing to transfer to the College of Liberal Arts and Sciences after having attended a college or university other than Villanova must submit a formal application to the Office of University Admission. Candidates for transfer admission ordinarily will have completed a minimum of five college courses of three credits or more with a grade of C or better in each course and earned a grade point average (GPA) of at least 3.0. Students who previously applied to the College of Liberal Arts and Sciences and were placed on the waiting list will be considered for transfer admission. External transfer applicants must indicate if they are applying to another Villanova academic college in addition to the CLAS. Students who have transferred from another institution to the CLAS are not eligible to transfer internally to any of the other Villanova academic colleges. If you intend to earn a degree from the School of Business, College of Nursing, or College of Engineering, you must apply directly to that college. Transfer applications must be received by June 1 for Fall Semester applicants and November 1 for Spring Semester applicants. Offers of admission are contingent upon successful completion of the current semester's courses and may be rescinded. Applicants must present appropriate documentation in order to receive credit for courses taken at their previous institution (see above criteria). Students intending to transfer more than fifteen courses must apply to and be accepted into a major prior to enrollment.

Internal Transfer Students

Students who wish to transfer to the CLAS from other Villanova academic colleges CLAS must complete the Application to Enter the College of Liberal Arts and Sciences and must read and sign the CLAS Internal Transfer Policy form. (These forms are available on-line and in the Office for Undergraduate Students.) Applicants will be notified of an admissions decision at the end of the semester during which the application was submitted. The minimum criterion for admission to the CLAS is a GPA of 2.33 for all Arts courses

taken at Villanova. Students are not permitted to transfer from the College of Liberal Arts and Sciences to the College of Professional Studies.

W Grade

Withdrawal after the official deadline is indicated by a W grade, withdrawal with academic penalty. The grade is calculated as an F in determining the GPA.

WX Grade

The grade WX indicates an authorized withdrawal; the grade is not considered in the calculation of the GPA and tuition will not be refunded. The last day for Authorized Withdrawal Without Academic Penalty (WX grade) is published on the official University calendar and usually occurs after mid-term grades have been submitted and during the academic advising and course selection period for the upcoming semester. Authorization for such withdrawal may be given only by the Assistant Dean for Undergraduate Students.

Y Grade

The grade Y is given when a student unofficially withdraws from a course (usually stops attending class). It is reflected in the grade point average (GPA) as an F. If a course is repeated, then the grades in both courses will be included in the GPA calculation. A first-year student will receive a grade of Y (failure) whenever the number of unexcused absences in a course exceeds twice the number of weekly class meetings for the course.

Academic Programs

College of Liberal Arts and Sciences

Aerospace Studies (Air Force ROTC)

Aerospace Studies Program (Air Force ROTC)

Program offered through St. Joseph's University

About

Villanova students are eligible to participate in the Air Force Reserve Officer Training Corps (AFROTC) through a cross-enrollment agreement with Saint Joseph's University. All Aerospace Studies courses will be held on the Saint Joseph's campus. The AFROTC program enables a college student to earn a commission as a Second Lieutenant in the U. S. Air Force while concurrently satisfying requirements for his/her baccalaureate degree.

Detailed information may be obtained from the Professor of Aerospace Studies, AFROTC Det 750, Saint Joseph's University, Philadelphia, Pennsylvania 19131, (610) 660-3190. Go to <http://www.afrotc.com/> for further details.

Type: Program

Africana Studies

Africana Studies Minor

Contact: Olukunle Owolabi, PhD
Director, Africana Studies Program
Location: St. Augustine Center 258

Villanova's Africana Studies Program connects faculty, students, and community members interested in the academic study of Africa and the African diaspora. With 25 faculty affiliates, about 20 courses offered each semester, a robust calendar of public events, and a major and a minor, the Program has grown significantly since its founding in 1994. Whether the topic is politics in Africa, the literature of the Black diaspora in France, the history of the US civil rights movement, or Black theology, the Africana Studies Program encourages critical thinking, crossing disciplinary boundaries, and connecting academic work with lived reality. The Africana Studies Program pursues knowledge that has

often been overlooked or undervalued as we strive to develop deeply inclusive community. Indeed, as an Augustinian Catholic university, Villanova is oriented to its core by the vision of an African diasporic faith leader.

A B.A. in Africana Studies is offered through the G.I.S. program. Information on that major may be found at this location.

Type: Minor

MINOR (15 credits)

The Africana Studies program consists of 15 credits.

Program Notes:

- Students may combine three 1-credit IGR courses to count as one of the undesignated Africana courses.
- Courses taken as a part of a study abroad program may also be counted toward completion of the requirements.

Required Minor Courses:

Item #	Title	Credits
AFR 3000	Constructs of Blackness	3
	Africana History or Literature Elective	3
	AFR Elective	9

Category Descriptions

Africana History or Literature Elective

Credits: 3

Choose one course of three or more credits in History (HIS) or English (ENG) with the Africana Studies (AFR) attribute. Other courses may be taken with approval of the program advisor. Below are examples of eligible courses.

Item #	Title	Credits
HIS 2291	African Amer His during Slaver	3
HIS 2292	African Amer His since Emancip	3

AFR Elective

Credits: 9

Select any three courses of three or more credits with the AFR attribute.

Arab and Islamic Studies

Arab and Islamic Studies Minor (GIS)

Program Director: Catherine Warrick, Ph.D.
Office Location: 264 Saint Augustine Center
Telephone: (610) 519-7712
[Website](#)

About

The Arab and Islamic Studies program offers a major and minor within the Department of Global Interdisciplinary Studies (GIS). The major and minor provide an interdisciplinary and comparative approach to deepen students' understandings of the history, politics, culture, religion, and literature of Arab and Islamic societies. The Arab and Islamic Studies major provides outstanding preparation for careers in government, the military, business, and nonprofits, as well as essential training for graduate education. Villanova's Center for Arab and Islamic Studies, created in 1983, offers not only the AIS major and minor, but a range of programs and events on campus every semester.

A B.A. in Arab and Islamic Studies is offered through the G.I.S. program. Information on that major may be found at this location.

Type: Minor

MINOR (15 credits)

A minor is open to all students and requires 5 courses and 15 credits.

Program Notes:

- The minor requirements can be fulfilled without the need to take Arabic language courses, but Arabic does count toward the minor.
- Courses taken abroad may count toward the minor requirements with pre-approval from the director of the program.
- Certain topics courses listed under departments (ARB, COM, GIS, HIS, HUM, PSC, THL, etc.) with significant content relevant to AIS may qualify as an elective with the permission of the Director of the Arab and Islamic Studies Program

Required Minor Courses:

Item #	Title	Credits
	AIS Capstone Elective	3
	AIS History, Political Science or Theology Courses	6
	AIS Elective	6

Category Descriptions

AIS Capstone Elective

Credits: 3

One capstone course with an AIS attribute with the approval of the AIS director.

AIS History, Political Science or Theology Courses

Credits: 6

Any two of the courses below.

Item #	Title	Credits
HIS 4041	Hist Modern Middle East	3
HIS 4365	Modern India and Pakistan	3
PSC 2340	Politics of the Arab World	3
THL 5150	Islam:History,Thought,Culture	3

AIS Elective

Credits: 6

Choose any course of three or more credits with the Arab and Islamic Studies (AIS) attribute.

Art History

Art History Major

Program Director: Timothy McCall, Ph.D.

Office Location: Saint Augustine Center, Room 403

Telephone: (610) 519-3897

About

The Art History Program at Villanova provides students with the knowledge and skills to interpret and critically evaluate art – and its production, reception, and materiality – from the perspectives of different societies across time. We encourage students to investigate art not only as cultural artifacts that record and reflect particular aspects of the human experience, but also as a dynamic force that has shaped complex interactions of social, political, and economic processes both in the past and the present.

In harmony with the university's Augustinian mission and unique identity, the Art History Program emphasizes the benefits of a broader, liberal arts education. More particularly, art history students can expect to leave Villanova as sophisticated viewers and critical consumers of the visual imagery that surrounds us.

Type: Bachelor of Arts

MAJOR (33 credits)

The Art History major consists of 33 credits.

Required Major Courses

Item #	Title	Credits
AAH 1101	His West Art: Ancient-Med	3
AAH 1102	His West Art: Renaiss - Cont	3
	AAH Pre-1700 Elective	9
	AAH Post-1700 Elective	6
AAH 4010	Interpreting Art	3
	AAH Senior Research Seminar	3
	Non-AAH Elective	3-4
	Upper-Level AAH Elective	3

Category Descriptions

AAH Pre-1700 Elective

Credits: 9

Choose three courses from the following list.
AAH 4003 also satisfies this requirement.

Item #	Title	Credits
AAH 2000	Ancient Art	3
AAH 2001	Medieval Art	3
AAH 2002	Early Renaissance Art in Italy	3
AAH 2003	Age of Rembrandt & Bernini	3
AAH 2012	High Renaissance Art in Italy	3
AAH 3007	The Art of Ireland	3

AAH Post-1700 Elective

Credits: 6

Choose two courses from the following list:

Item #	Title	Credits
AAH 1103	Visual Arts in US 1607-1876	3
AAH 1104	Visual Arts in US 1877-Present	3
AAH 2004	Modern Art	3
AAH 2005	Modern Architecture	3
AAH 2009	Contemporary Art	3
AAH 3001	Women in Art	3
AAH 3002	Art of Philadelphia	3
AAH 3003	Romantic to Post-Impress	3
AAH 3005	Gender Sexuality Visl Culture	3
AAH 3006	History of Photography	3
AAH 4005	Picasso and Friends	3

AAH Senior Research Seminar

Credits: 3

Choose a Senior Research Seminar option from those listed:

Item #	Title	Credits
AAH 5010	Senior Research Seminar	3
AAH 5515	Independent Research	3

Non-AAH Elective

Credits: 3-4

From the following list, choose one course related to art history in another discipline; or:

- A team-taught interdisciplinary course with one Art History faculty member (GIS, History, etc.)
- Occasionally courses offered in various departments meet this requirement at the discretion of the Program Director.
- This list also includes PHI 2750.

Item #	Title	Credits
CLA 2051	Cities of Ancient Greece	3
CLA 2052	Rome: The Ancient City	3
COM 1300	Film Analysis	3
COM 3340	Film History	3
COM 3341	Gender and Film	3
COM 3243	Performance Art	3
COM 3342	International Cinema	3
COM 3343	Contemporary Cinema	3
ENG 2350	Narrative Television	3
ENG 2360	Adaptation:Film as Literature	3
FFS 2075	Introduction to French Cinema	3
FFS 2076	Intro To Francophone Cinema	3
HIS 2309	Artifacts in History	3
HUM 3600	Amer Architecture since 1865	3
ITA 3075	Visual History of Italy	3
MSE 2303	CHM:The Science of Art	4
PHI 4150	Philosophy & Film	3
SAR 2010	Intro to Calligraphy	3
SAR 2020	Basic Watercolor Techniques	3
SAR 2021	Basic Drawing Techniques	3
SAR 2022	Basic Oil Painting	3
SAR 2150	Intermediate Watercolor	3
SAR 3031	Special Topics in Studio Art	3
SAR 4007	Painting of Icons	3
SAR 5004	Basic Printmaking	3

Upper-Level AAH Elective

Credits: 3

Choose an upper-level Art History course from AAH 2000 to AAH 4999.

Art History Minor

Program Director: Timothy McCall, Ph.D.
Office Location: Saint Augustine Center, Room 403
Telephone: (610) 519-3897

The Art History Program at Villanova provides students with the knowledge and skills to interpret and critically evaluate art – and its production, reception, and materiality – from the perspectives of different societies across time.

We encourage students to investigate art not only as cultural artifacts that record and reflect particular aspects of the human experience, but also as a dynamic force that has shaped complex interactions of social, political, and economic processes both in the past and the present.

In harmony with the university's Augustinian mission and unique identity, the Art History Program emphasizes the benefits of a broader, liberal arts education. More particularly, art history students can expect to leave Villanova as sophisticated viewers and critical consumers of the visual imagery that surrounds us.

Type: Minor

Minor (18 credits)

The Art History Minor consists of 18 credits and 6 courses.

Program Notes:

- One of the art history courses could be substituted for one course related to art history in another discipline from the following list: ENG 2350, 2360, CLA 2051, 2052, COM 1300, COM 3340, 3341, 3342, 3343, FFS 2075, 2076, HIS 2309, HUM 3600, ITA 4075, MSE 2303, PHI 2750, 4150, SAR 2010, 2020, 2021, 2022, 2023, 2150, 2151, 3031, 4007, 5004.
- Art history minors are encouraged to take AAH 4010 in the fall of their senior year. With approval from the program director, students may satisfy this requirement with another upper-level course.

Item #	Title	Credits
	AAH 1101 or AAH 1102	3
AAH 4010	Interpreting Art	3
	Art History Minor Elective	12

Category Descriptions

AAH 1101 or AAH 1102

Credits: 3

Item #	Title	Credits
AAH 1101	His West Art: Ancient-Med	3
AAH 1102	His West Art: Renaiss - Cont	3

Art History Minor Elective

Credits: 12

Select 4 courses of 3 or more credits in with the AAH subject code.

Asian Studies

Asian Studies Minor

Program Director: HaiLin Zhou, Ph.D.

Office Location: Gary Hall 34

Telephone: (610) 519-6996

[Website](#)

About

Asia is a dynamic world region and its cultures and societies are a complex mix of both ancient traditions and modern ideas. Asia has the fastest growing economy in the world and is the birthplace of many of our new technologies. Asia is rapidly changing, democratizing, and internationalizing in ways that present both perils and possibilities for people across the globe.

In the Villanova Asian Studies Program, we offer a Major in Asian Studies as Global Interdisciplinary Studies specialization as a way for undergraduates to learn to examine the world — and themselves — through the lens of another language and culture.

The Asian Studies program offers a major and minor within the Department of Global Interdisciplinary Studies (GIS) that helps students understand the diverse histories, politics, economies, cultures, religions, arts and literatures of Asia. The program encourages in-depth study while also promoting more general inquiry into fundamental issues, such as cultural differences among Asian nations and their social and political implications, as well as learning critical thinking and problem solving to prepare students to be responsible global citizens. The program offers them not only specialized knowledge and appreciation of a region that has had, and will undoubtedly continue to have, a profound impact on the material and spiritual well-being of

humanity, but also prepares them to play their own roles in a globalized world in the “Asian Century.”

Type: Minor

Minor (15 credits or 5 courses)

Program Notes

- Up to two Asian language (intermediate or above) courses may count.
- Courses with the ASN attribute may count towards the minor.
- The courses must cover at least 2 countries or areas, and no more than 3 may focus on a single country. For example, if a student takes two Japanese-language courses, then only one Japanese-culture course may count; the other two courses must focus on cultures other than Japanese.
- Courses taken as part of a Study Abroad program and one internship done abroad may count towards the minor.

Item #	Title	Credits
	3 Asian Cultural Elective Courses	9
	2 Asian Cultural Elective or Asian Language Courses	6

Category Descriptions

3 Asian Cultural Elective Courses

Credits: 9

3 Asian cultural elective courses with the ASN attribute.

2 Asian Cultural Elective or Asian Language Courses

Credits: 6

2 Asian cultural elective courses with the ASN attribute **OR** 2 Asian language elective courses at any level.

Astrophysics and Planetary Science

Astronomy & Astrophysics Major

Chair: Edward L. Fitzpatrick, Ph.D.

Office Location: 456A Mendel Science Center

Telephone: (610) 519-4820

[Website](#)

About

The APS Department offers a major in Astronomy & Astrophysics, leading to a Bachelor of Science degree. The major combines rigorous academic preparation with a strong research component, which usually culminates in the presentation of original research results at national astronomical conferences. The program is designed to prepare students for graduate studies in astronomy and related fields. In addition, and due to the strong and balanced Liberal Arts education, the Astronomy & Astrophysics major provides outstanding preparation for careers in science journalism and science education, as well as for essentially any technically based career.

Research facilities utilized by staff and students in the APS Department include a high-speed computing facility and a suite of computer-controlled telescopes located on the roof of Mendel Science Center. In addition, the Department is a member of the Robotically Controlled Telescope consortium, which operates a 1.3 meter telescope located at Kitt Peak National Observatory. Students also have access, via faculty research programs, to state-of-the-art astronomical data from NASA-supported facilities such as the Hubble Space Telescope and the Spitzer Space Telescope, and a variety of national and international ground-based facilities.

Type: Bachelor of Science

MAJOR (86 credits)

The major consists of 86 credits, including courses in astronomy, physics, mathematics, and computer science. Students completing the major will also qualify for a minor in physics.

Required Major Courses

Item #	Title	Credits
AST 2120	Sun and Stars	3
AST 2121	Solar System Astronomy	3
AST 2122	Understanding Our Universe	3
AST 2123	Astrodynamics:Kepler & Beyond	3
AST 2133	Observational Lab I	2
AST 2134	Observational Lab II	2
AST 3141	Galactic Astronomy	3
AST 3142	Intro to Astrophysics	3
AST 3143	Astrobiology, Planets, & Life	3
AST 3148	The Princpl of Scientific Model	3
AST 4121	Undergrad Research I	3
AST 4122	Undergrad Research II	3
CSC 4630	Software Dev and Systems	3
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
MAT 2705	Diff Equation with Linear Alg	4
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1
PHY 2416	Modern Physics	3
PHY 2417	Lab:Modern Physics	1
PHY 2601	Computational Phy Lab I	1
PHY 2603	Computational Phy Lab II	1
PHY 4100	Mechanics I	3
PHY 4200	Mathematical Physics I	3
Upper-Level Physics Elective		9

Category Descriptions

Upper-Level Physics Elective

Credits: 9

Select 3 Classes of three or more credits in PHY 3000:9999.

Astronomy & Astrophysics Minor

Chair: Edward L. Fitzpatrick, Ph.D.
Office Location: 456A Mendel Science Center
Telephone: (610) 5019-4820
[Website](#)

About

The APS Department offers a major in Astronomy & Astrophysics, leading to a Bachelor of Science degree. The major combines rigorous academic preparation with a strong research component, which usually culminates in the presentation of original research results at national astronomical conferences. The program is designed to prepare students for graduate studies in astronomy and related fields. In addition, and due to the strong and balanced Liberal Arts education, the Astronomy & Astrophysics major provides outstanding preparation for careers in science journalism and science education, as well as for essentially any technically based career.

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Type: Minor

MINOR (24 credits)

A minor is open to all students and requires 9 courses and a minimum of 24 credits.

Required Minor Courses

Program Notes:

- Students may fulfill the Calculus requirement (normally MAT 1500 and 1505) with any Calculus I & II courses offered within the University.

Item #	Title	Credits
AST 2120	Sun and Stars	3
AST 2121	Solar System Astronomy	3
AST 2122	Understanding Our Universe	3
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
	Astrophysics PHY Electives	6
	Astrophysics Elective	3
	Astrophysics Elective	3

Category Descriptions

Astrophysics PHY Electives

Credits: 6

Select one two-course sequence for six credits.

Item #	Title	Credits
PHY 1100	General Physics I	3
PHY 1102	General Physics II	3
Item #	Title	Credits
PHY 2400	Physics I Mechanics	3
PHY 2402	Physics II Elec & Magnet	3

Astrophysics Elective

Credits: 3

Choose one course from the following list:

Item #	Title	Credits
AST 2123	Astrodynamics:Kepler & Beyond	3
AST 3141	Galactic Astronomy	3
AST 3142	Intro to Astrophysics	3
AST 3143	Astrobiology, Planets, & Life	3
AST 3148	The Prncpl of Scientific Model	3

Biochemistry

The biochemistry program is designed for students who are interested in life at the molecular level. In our program, you will study the chemical processes involved in DNA replication, transcription, and translation. The structure of biomacromolecules and the structural implications on cellular processes will also be emphasized.

Most of the biochemistry faculty use their biochemistry training to understand disease at the molecular level, including breast cancer, lung cancer, African sleeping sickness, and pain management. Biochemistry also supports the studies of students majoring in the chemistry and life-sciences by offering introductory courses for students interested in medicine or the allied health fields.

Biochemistry Major

Program Directors: Jennifer Palenchar, PhD.,
James W. Wilson, PhD
Office Location: Mendel Science Center Rm. 215
Telephone: (610) 519-4840
[\[Website\]](#)

About

Biochemistry is an interdisciplinary major requiring comprehensive coursework in both Biology and Chemistry. The biological relevance of chemical concepts is stressed throughout the curriculum. Students are encouraged to pursue one of the many available research experiences.

Type: Bachelor of Science

MAJOR (69 credits)

Students are accepted into the major as incoming freshmen, or upon consultation with a program director when achieving a 2.0 or better in required courses.

Required Major Courses

Program Notes:

- Students may substitute the sequence of MAT 1500 and MAT 1505 for MAT 1312 and STAT 1313 with permission from the program directors.
- The Biochemistry program offers three mechanisms for participation in research by undergraduate majors. Competitive fellowships for 8-10 weeks of summer research are funded by University, government, or industrial sources. Recipients of these fellowships carry out a research program under the direction of a faculty member. Students may also enroll in research mentored by a faculty member for academic credit during the school year, which fulfills the elective requirement in the relevant department (CHM 4801, 4802, 4803, 4851, 4851 or BIO 6509, 6609). Students may also volunteer in research laboratories. In each case, students should discuss participation in research with Program of Biochemistry faculty members. **A student must find a faculty mentor prior to enrolling in these courses.**

Item #	Title	Credits
CHM 1000	Profesl Development Sem	1
	CHM 1151 or CHM 1611	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
	CHM 2201/2211 or CHM 3201/3211	4
	CHM 2202/2212 or CHM 3202/3212	4
CHM 3417	Biophysical Chemistry	3
CHM 3514	Bioanalytical Chemistry	3
CHM 3503	Bioanalytical Chem Lab	1
CHM 4603	Biochem Tech. and Pract.	1
CHM 4604	Biochem Tech. and Pract II	1
CHM 4621	Biochemistry I: Structure	3
CHM 4622	Biochemistry II:Metabolism	3
CHM 4623	Biochemistry III	3
BIO 2105	General Biology I	4

BIO 3351	Genetics	4
BIO 4505	Molecular Biology	4
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
	PHY 2410/2411 or PHY 1100/1101	4
	PHY 2412/2413 or PHY 1102/1103	4
	Approved Chemistry Elective	3
	Approved Biology Elective	2-3

Category Descriptions

CHM 1151 or CHM 1611

Credits: 4

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1611	Gen'l Chem I for BIOC Majors	4

CHM 2201/2211 or CHM 3201/3211

Credits: 4

Choose one sequence.

- Typically Biochemistry students will take CHM 2201/2211. CHM 3201/3211 are restricted to Chemistry majors.

Item #	Title	Credits
CHM 2201	Organic Chemistry Lab I	1
CHM 2211	Organic Chemistry I	3
Item #	Title	Credits
CHM 3201	Organic Chemistry Lab I	2
CHM 3211	Organic Chemistry I	3

CHM 2202/2212 or CHM 3202/3212

Credits: 4

Choose one sequence.

- Typically Biochemistry students will take CHM 2202/2212. CHM 3202/3212 are restricted to Chemistry majors.

Item #	Title	Credits
CHM 2202	Organic Chemistry Lab II	1
CHM 2212	Organic Chemistry II	3
Item #	Title	Credits
CHM 3202	Organic Chemistry Lab II	2
CHM 3212	Organic Chemistry II	3

PHY 2410/2411 or PHY 1100/1101

Credits: 4

Choose 1 pair of lecture + lab courses from the following:

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
Item #	Title	Credits
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1

PHY 2412/2413 or PHY 1102/1103

Credits: 4

Choose 1 pair of lecture + lab courses from the following:

Item #	Title	Credits
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
Item #	Title	Credits
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

Approved Chemistry Elective

Credits: 3

Chemistry Elective (3000 level or above) (3 cr)
– Select 1 course of three or more credits from CHM 3000:9999.

Approved Biology Elective

Credits: 2-3

Biology Elective (3000 level or above) (3 cr)
– Select 1 course of three or more credits from BIO 3000:9999 or BIO 6509 (2 cr).

Biochemistry Minor

Program Directors: Jennifer Palenchar, PhD.,
James W. Wilson PhD
Office Location: Mendel Science Center Rm. 215
Telephone: (610) 519-4840
[\[Website\]](#)

About

Biochemistry is an interdisciplinary major requiring comprehensive coursework in both Biology and Chemistry. The biological relevance of chemical concepts is stressed throughout the curriculum. Students are encouraged to pursue one of the many available research experiences.

Type: Minor

MINOR (23 credits)

The Biochemistry minor requires 23 credits not including pre-requisite coursework.

Program Notes:

- The Biochemistry program offers three mechanisms for participation in research by undergraduate majors. Competitive fellowships for 8-10 weeks of summer research are funded by University, government, or industrial sources. Recipients of these fellowships carry out a research program under the direction of a faculty member. Students may also enroll in research mentored by a faculty member for academic credit during the school year, which fulfills the elective requirement in the relevant department (CHM 4801, 4802, 4803, 4851, 4851 or BIO 6509, 6609). Students may also volunteer in research laboratories. In each case, students should discuss participation in research with Program of Biochemistry faculty members.
- Chemistry courses listed below for the minor may have additional pre-requisite not listed on this page.

Required Minor Courses:

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 3351	Genetics	4
BIO 4505	Molecular Biology	4
CHM 4603	Biochem Tech. and Pract.	1
CHM 4604	Biochem Tech. and Pract II	1
CHM 4621	Biochemistry I: Structure	3
CHM 4622	Biochemistry II: Metabolism	3
CHM 4623	Biochemistry III	3

Biology

Biology Major

Chair: Dennis D. Wykoff, Ph.D.
Office Location: 147 Mendel Science Center
Telephone: 610-519-4830
[Website](#)

About

Biology is a broad-based program designed for students interested in life sciences. The program fulfills entry requirements for medical and other allied health programs as well as for graduate work in many areas of biology and related fields. The program also provides excellent preparation for careers in health sciences, research, and/or education.

Type: Bachelor of Science

MAJOR (37 credits)

The biology major requires a minimum of 70 credits in biology and cognate courses with at least five biology laboratory courses at the 3000-level and higher.

Program Notes:

- Combined BS/MS in Biology: Five-year double degree program. See departmental website for details regarding admission, requirements, the program of study, etc.
- Research opportunities: Undergraduate majors may opt to work with faculty to complete undergraduate research either informally or more formally in a senior or honors thesis project.

Required Biology Courses:

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3351	Genetics	4
BIO 5300	Biology Capstone	3
	Organismal Biology Elective	4
	Ecology/Evolutionary/ Population Biology Elective	4
	Cellular/Molecular Biology Elective	4
	Upper-Level BIO Lab Elective	8
	Additional BIO Elective	2

Required Cognate Courses:

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
CHM 2211	Organic Chemistry I	3
CHM 2201	Organic Chemistry Lab I	1
CHM 2212	Organic Chemistry II	3
CHM 2202	Organic Chemistry Lab II	1
MAT 1312	Biocalculus	4
	Biology Math Elective	3
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

Category Descriptions

Organismal Biology Elective

Credits: 4

Choose 1 BIO laboratory course above the 3000 level in Organismal Biology from the list below.

7205, 7905; BIO 4251 + 4252, BIO 8251 + 8252; Or any course with the Bio Organismal [BIOO] attribute of 4 or more credits may also count toward fulfillment of this requirement.

Item #	Title	Credits
BIO 3055	Human Physiology	4
BIO 3155	Comparative Anatomy	4
BIO 3405	Higher Vertebrates	4
BIO 3455	Histology	4
BIO 3525	Entomology	4
BIO 3905	Vascular Plants	4

Ecology/Evolutionary/Population Biology Elective

Credits: 4

Choose 1 BIO laboratory course above the 3000-level in Ecology/Evolutionary/Population Biology from those listed below.

BIO 7555, 8455, BIO 4451 + 4452, BIO 7151 + 7152, or any course with the EcoEvoPop [BIOE] attribute of four or more credits may also count toward fulfillment of this requirement.

Item #	Title	Credits
BIO 3015	Animal Behavior	4
BIO 3255	Evolutionary Ecology	4
BIO 3385	Global Change Ecology	4
BIO 3485	Marine Biology	4
BIO 4305	Evolution	4

Cellular/Molecular Biology Elective

Credits: 4

Choose 1 BIO laboratory course above the 3000 level in Cellular/Molecular Biology from the list below.

BIO 7905; BIO 7321 + 7322; BIO 7960 + 7962; BIO 8051 + 8052; BIO 8171 + 8172; BIO 8295,

8555, 8705; or any course with the CellMolecular [BIOCM] attribute may also count toward fulfillment of this requirement.

Item #	Title	Credits
BIO 3595	General Microbiology	4
BIO 4105	Medical Microbiology	4
BIO 4205	Cell Biology	4
BIO 4285	Developmental Biology	4
BIO 4355	Experimental Genetics	4
BIO 4505	Molecular Biology	4
BIO 4605	Neurobiology	4

Upper-Level BIO Lab Elective

Credits: 8

Choose 2 additional BIO laboratory courses. Select from: BIO 3000:9999 (with the exception of BIO 6509), CHM 4603, 4621, HON 5000, 6000.

Additional BIO Elective

Credits: 2

Two additional credits fulfilled either through a research experience or another approved course. Select from BIO 2000:9999, CHM 4611; 4622, 4621

Biology Math Elective

Credits: 3

Choose one additional MAT course from the following:

Item #	Title	Credits
MAT 1314	Modeling for the Life Sciences	3
MAT 1505	Calculus II	4
STAT 1313	Statistics for Life Sciences	3
STAT 4310	Stat Methods	3

Biology Minor

Chair: Dennis D. Wykoff, Ph.D.
Office Location: 147 Mendel Science Center
Telephone: 610-519-4830
[Website](#)

About

Biology is a broad-based program designed for students interested in life sciences. The program fulfills entry requirements for medical and other allied health programs as well as for graduate work in many areas of biology and related fields. The program also provides excellent preparation for careers in health sciences, research, and/or education.

Type: Minor

MINOR (23 credits)

A minor is open to all students and requires a minimum of 23 credits in Biology. Minors must complete at least 12 of their Biology credits at Villanova and achieve a minimum GPA of 2.0.

Required Minor Courses:

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
	Upper-Level BIO Lab Elective for Minor	12
	Upper-Level BIO Elective	3-4

Category Descriptions

Upper-Level BIO Lab Elective for Minor

Credits: 12

Biology Electives with Lab [3000 level or above] (12 cr) – Select any course from BIO 3000:9999.

Upper-Level BIO Elective

Credits: 3-4

Choose 1 additional Biology elective course numbered 3000 or above. (3-4cr)

Business

Business Minor Options

Villanova School of Business
Associate Director Business Minor Programs:
Patricia (Trish) Burdo

Office Location: Bartley Hall Rm. 1054 [The Clay Center at VSB]
Telephone: (610) 519-5532
[Website](#)

ABOUT

VSB offers two application-based business minor programs: The Summer Business Institute (SBI) and The Academic Year Business Minor. Students considering either of these programs should meet with their primary academic advisor before applying to determine if/how business minor courses may apply to degree or major requirements. Completion of either program may allow students to pursue a discipline-specific business minor or enroll in other VSB courses; VSB approval is required and additional pre-requisite coursework may be necessary.

SUMMER BUSINESS INSTITUTE (SBI)

The Summer Business Institute (SBI) is a 10 week, full-time, 16-credit program created exclusively for non-business majors. SBI, using a cohort-based model, is an accelerated program designed to be completed in one summer. The admission process for the program is competitive; students are admitted on a rolling basis. The application period is January 5 – April 15. Additional Information, including the application, can be found at business.villanova.edu/sbi

ACADEMIC YEAR BUSINESS MINOR

The Academic Year Business Minor is designed for full-time undergraduates enrolled in other Villanova colleges. This traditional-year program typically requires four semesters to complete; required courses are part of the VSB core curriculum and are taken alongside VSB students. The admission process for the program is competitive*; students must attend an info session prior to applying and are admitted on a yearly basis after spring semester grades are posted. Criteria is comparable to those of students accepted as first-year students in VSB. The deadline for applications is May 1; program and application requirements can be found at business.villanova.edu, search Business Minors for Non-Business Students. **There is an great level of demand for a limited number of spaces, please bear this in mind when considering this program.*

Type: Minor

Center for Irish Studies

Irish Studies Minor

Director: Joseph Lennon, Ph.D.
Office Location: Saint Augustine Center, 105E
Telephone: (610) 519-4647
[\[Website\]](#)

About

Irish Studies explores the history and culture of the Irish people in Ireland and the Irish diaspora from a variety of disciplines—art, economics, folklore, history, language, literature, music, philosophy political science, and theater. Students can major in Irish Studies through the department of Global Interdisciplinary Studies, culminating in a rigorous multidisciplinary thesis. The minor is open to students from all colleges and can be completed by taking five courses, two required and three electives, either on campus and abroad. For students in the College of Arts and Science, two four-credit courses in the Irish language may be taken to complete the College language requirement.

The Center works with local organizations and hosts a lively series of readings, academic lectures, performances, and receptions, also welcoming cultural, political, and business leaders to campus for networking. Interested students may also study in Ireland in a Semester Abroad program or through the Villanova Summer in Ireland Program or apply for one of several professional internships abroad or in Philadelphia. Details are available through the Center for Irish Studies.

Type: Minor

MINOR (15 credits)

A minor is open to all students. Completion of any two Irish Studies courses may allow students to begin the minor.

Required Minor Courses:

Item #	Title	Credits
	Irish Literature Survey for Minor	3
	HIS 3216 or HIS 2286	3
	IS Elective	3
	IS Elective	3
	IS Elective	3

Major (21 credits)

The Department of Global Interdisciplinary Studies (GIS) offers a major with a specialization in Irish Studies, please see [that page](#) for detailed requirements of the major.

Category Descriptions

Irish Literature Survey for Minor

Credits: 3

Choose one course from those listed below.

Item #	Title	Credits
ENG 3181	Irish Epics, Visions&Hauntings	3
ENG 3617	Irish Revivalism	3
ENG 3680	Top: 20th-21st C Irish Lit&Cul	3
ENG 3682	Contemporary Irish Literature	3

HIS 3216 or HIS 2286

Credits: 3

Choose one history survey.

Item #	Title	Credits
HIS 3216	Ireland since 1800	3
HIS 2286	Irish-American Saga	3

IS Elective

Credits: 3

Choose a course with IS attribute.

Chemistry

The Department of Chemistry at Villanova University offers masters and bachelors degrees, including an American Chemical Society accredited degree program for undergraduates. Our faculty actively conduct research in diverse areas such as environmental chemistry, protein biochemistry, fuel cell research, and computational chemistry. We recognize that undergraduate research provides a unique opportunity to work closely alongside a faculty mentor, gaining an experience that extends far beyond typical classroom learning, and we encourage all undergraduates to participate in undergraduate research.

Chemistry Major

Chair: Daniel Kraut, Ph.D.

Office Location: Mendel Science Center Rm. 215A

Telephone: (610) 519-4840

[Website](#)

About

The Department of Chemistry at Villanova University offers masters and bachelors degrees, including an American Chemical Society accredited degree program for undergraduates. Our faculty actively conduct research in diverse areas such as environmental chemistry, protein biochemistry, fuel cell research, and computational chemistry. We recognize that undergraduate research provides a unique opportunity to work closely alongside a faculty mentor, gaining an experience that extends far beyond typical classroom learning, and we encourage all undergraduates to participate in undergraduate research.

Type: Bachelor of Science

MAJOR (68 credits)

The Chemistry major, certified by the American Chemical Society, provides comprehensive classroom and laboratory training in all areas of chemistry. Students receive extensive training in laboratory techniques using modern chemical instrumentation.

Required Major Courses:

Item #	Title	Credits
CHM 1000	Profesl Development Sem	1
CHM 1000	Profesl Development Sem	1
CHM 1311	Inorganic Chemistry I	3
CHM 1301	Inorganic Chemistry Lab I	2
CHM 1512	Quantitative Analysis	3
CHM 1502	Quant Anal Lab	2
CHM 3211	Organic Chemistry I	3
CHM 3201	Organic Chemistry Lab I	2
CHM 3212	Organic Chemistry II	3
CHM 3202	Organic Chemistry Lab II	2
CHM 3311	Inorganic Chem II	3
CHM 3301	Inorganic Chem Lab II	2
CHM 3413	Molecular Thermodynamics	3
CHM 3405	Physical Chem Lab II	2
CHM 3412	Quantum Chemistry	3
CHM 3404	Physical Chem Lab I	2
CHM 3511	Instrumental Analysis	3
CHM 3501	Instrumental Analysis Lab	2
	CHM 4611 or 4610: Biochemistry	3
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
	CHM Elective	3
	CHM Elective	3
	CHM Lab Elective	1

Category Descriptions

CHM 4611 or 4610: Biochemistry

Credits: 3

Choose 1:

Item #	Title	Credits
CHM 4611	Survey of Biochemistry	3
CHM 4610	Principles of Biochemistry	3

CHM Elective

Credits: 3

Choose 1 Chemistry course level 3000 or above.

CHM Lab Elective

Credits: 1

Choose 1 Chemistry lab elective.

Chemistry with Biochemistry Concentration Major

Chair: Daniel Kraut, Ph.D.

Office Location: Mendel Science Center Rm. 215A

Telephone: (610) 519-4840

[Website](#)

About

The Department of Chemistry at Villanova University offers masters and bachelors degrees, including an American Chemical Society accredited degree program for undergraduates. Our faculty actively conduct research in diverse areas such as environmental chemistry, protein biochemistry, fuel cell research, and computational chemistry. We recognize that undergraduate research provides a unique opportunity to work closely alongside a faculty mentor, gaining an experience that extends far beyond typical classroom learning, and we encourage all undergraduates to participate in undergraduate research.

Type: Bachelor of Science

Major (81 credits)

Item #	Title	Credits
CHM 1000	Profesl Development Sem	1
CHM 1000	Profesl Development Sem	1
CHM 1311	Inorganic Chemistry I	3
CHM 1301	Inorganic Chemistry Lab I	2
CHM 3311	Inorganic Chem II	3
CHM 3301	Inorganic Chem Lab II	2
CHM 1512	Quantitative Analysis	3
CHM 1502	Quant Anal Lab	2
CHM 3211	Organic Chemistry I	3
CHM 3201	Organic Chemistry Lab I	2
CHM 3212	Organic Chemistry II	3
CHM 3202	Organic Chemistry Lab II	2
CHM 3412	Quantum Chemistry	3
CHM 3404	Physical Chem Lab I	2
CHM 3413	Molecular Thermodynamics	3
CHM 3405	Physical Chem Lab II	2
CHM 3511	Instrumental Analysis	3
CHM 3501	Instrumental Analysis Lab	2
CHM 4621	Biochemistry I: Structure	3
CHM 4603	Biochem Tech. and Pract.	1
CHM 4622	Biochemistry II: Metabolism	3
CHM 4604	Biochem Tech. and Pract II	1
	Biochemistry Biology Courses	8
PHY 2410	University Phy: Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics: Elec & Mag	3
PHY 2413	Lab: Elec & Magnetism	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
	Molecular Based Biology Course	4
	Biochemistry Chemistry Elective	3

Category Descriptions

Biochemistry Biology Courses

Credits: 8

Choose two biology courses from the course below.

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 4205	Cell Biology	4
BIO 4505	Molecular Biology	4

Molecular Based Biology Course

Credits: 4

Item #	Title	Credits
BIO 3351	Genetics	4
BIO 3595	General Microbiology	4

Biochemistry Chemistry Elective

Credits: 3

Choose any 3-credit course with the CHM subject code numbered 3000:9999.

Chemistry Minor

Chair: Daniel Kraut, Ph.D.

Office Location: Mendel Science Center Rm. 215A

Telephone: (610) 519-4840

[Website](#)

Students must complete a year of general chemistry (or equivalent), a year of organic chemistry, two additional chemistry courses with associated laboratories, and one additional chemistry course (7 courses total). All course prerequisites and co-requisites apply¹. Biochemistry majors need to complete 2 CHM courses at the 3000 level or above that are not otherwise required for the biochemistry degree to fulfill the requirements for the Chemistry minor.

Program notes

- 1. Or with approval of the Chemistry Advisor.

Type: Minor

Required Courses

Item #	Title	Credits
	General Chemistry Requirement	8
	Organic Chemistry Requirement	8
	CHM Elective & Lab	8
	Upper-division Chemistry Course	3

Category Descriptions

General Chemistry Requirement

Credits: 8

1 year of general chemistry (6 credits) & Lab (2 or more credits). Choose one sequence.

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1156	General Chemistry II for Egr	4
Item #	Title	Credits
CHM 1311	Inorganic Chemistry I	3
CHM 1301	Inorganic Chemistry Lab I	2
CHM 1512	Quantitative Analysis	3
CHM 1502	Quant Anal Lab	2

Organic Chemistry Requirement

Credits: 8

Choose one sequence.

Item #	Title	Credits
CHM 2211	Organic Chemistry I	3
CHM 2201	Organic Chemistry Lab I	1
CHM 2212	Organic Chemistry II	3
CHM 2202	Organic Chemistry Lab II	1
Item #	Title	Credits
CHM 3211	Organic Chemistry I	3
CHM 3201	Organic Chemistry Lab I	2
CHM 3212	Organic Chemistry II	3
CHM 3202	Organic Chemistry Lab II	2

CHM Elective & Lab

Credits: 8

Additional Laboratory Chemistry requirement (choose two of the following lecture/lab combos)

Choice A

Item #	Title	Credits
CHM 3311	Inorganic Chem II	3
CHM 3301	Inorganic Chem Lab II	2

Choice B

Item #	Title	Credits
CHM 3413	Molecular Thermodynamics	3
CHM 3405	Physical Chem Lab II	2

Choice C

Item #	Title	Credits
CHM 4622	Biochemistry II:Metabolism	3
CHM 4604	Biochem Tech. and Pract II	1

Choice D

Only one of these two options can be used:
CHM 3412 and 3404 OR CHM 3416 and 3402.

Item #	Title	Credits
CHM 3412	Quantum Chemistry	3
CHM 3404	Physical Chem Lab I	2
CHM 3416	Physical Chem for Engineers	3
CHM 3402	Physical Chem Lab II	1

Choice E

Only one of these two options can be used:
CHM 3511 and 3501 OR CHM 3514 and 3503.

Item #	Title	Credits
CHM 3511	Instrumental Analysis	3
CHM 3501	Instrumental Analysis Lab	2
CHM 3514	Bioanalytical Chemistry	3
CHM 3503	Bioanalytical Chem Lab	1

Choice F

Only one of these two options can be used:
CHM 4611 and 4601 OR CHM 4621 and 4603.

Item #	Title	Credits
CHM 4611	Survey of Biochemistry	3
CHM 4601	Survey Biochemistry Lab	1
CHM 4621	Biochemistry I: Structure	3
CHM 4603	Biochem Tech. and Pract.	1

Upper-division Chemistry Course

Credits: 3

One additional upper-division chemistry course (with approval of the Chemistry Advisor)

- One additional course with lab from other requirements.
- CHM 3417: Biophysical Chemistry*
- CHM 5633: Nanomaterials & Surface Science
- Any 4000 level course
- Any 7000 level or higher course (*EXCEPT* 7693 or 8662)

**Cannot be used in combination with other Physical Chemistry courses and laboratories.*

Classical Studies

Classical Studies Major

Program Director: Valentina DeNardis, Ph.D.
Office Location: Saint Augustine Center Rm. 304
Telephone: (610) 519-6165
[Website](#)

About

The Classical Studies Program explores the cultures of ancient Greece and Rome, from the beginnings of Greek civilization to the fall of the Roman empire. Our program is interdisciplinary, embracing the study of classical languages, literatures, history, art and archaeology, philosophy and religion. The program offers courses which may satisfy requirements for the Core Curriculum of the College of Liberal Arts and Sciences.

Type: Bachelor of Arts

MAJOR (30 credits)

The major requires 10 courses and at least 30 credits.

Required Courses:

- Select one course of three or more credits: GRK 1000:9999 or LAT 1000:9999 (3 cr)
- Select eight courses of three or more credits from among the following: AAH 1101, CLA 1000:9999, GRK 1000:9999, LAT 1000:9999, or any course with the CLST attribute (24 cr)
- CLA 6001: Senior Classics Capstone (3 cr)

FIVE YEAR B.A./M.A PROGRAM

The five-year B.A./M.A. program allows exceptional students to complete a bachelor's and a master's degree with a focus in Classical Studies in five years. In the last year of undergraduate study students take three graduate courses that count towards both their undergraduate and graduate degrees.

Classical Studies Minor

Program Director: Valentina DeNardis, Ph.D.
Office Location: Saint Augustine Center Rm. 304
Telephone: (610) 519-6165
[Website](#)

About

The Classical Studies Program explores the cultures of ancient Greece and Rome, from the beginnings of Greek civilization to the fall of the Roman empire. Our program is interdisciplinary, embracing the study of classical languages, literatures, history, art and archaeology, philosophy and religion. The program offers courses which may satisfy requirements for the Core Curriculum of the College of Liberal Arts and Sciences.

Type: Minor

MINOR (18 credits)

The minor requires a minimum of 18 credits. Language classes are not required.

Required Courses:

- Six courses of three or more credits in any combination of courses in the classical languages and/or courses taught in English on classical civilization. (18 cr) This includes:
 - Courses with the Subject codes GRK, LAT, CLA
 - Courses with the CLST attribute

Cognitive Science

Cognitive Science Minor

Program Director: Joseph Toscano, Ph.D.

Office Location: Tolentine Hall Rm M52

Telephone: (610) 519-4755

[Website](#)

About

The Cognitive Science Program offers a course of study in the interdisciplinary field of Cognitive Science, bringing together perspectives from cognitive psychology, computer science, philosophy, and biology to understand how intelligent systems function. An undergraduate concentration and an undergraduate minor are available to all students in undergraduate colleges of the University. The program is particularly well suited to students majoring in Psychology, Computing Sciences, Philosophy, and Cognitive & Behavioral Neuroscience.

Type: Minor

MINOR (15 credits)

Program Notes:

- The five courses used to fulfill the Minor must span at least three different disciplines.
- Choose two courses from the first three listed items. Select three electives from the list. Five courses in total are required to fulfill the minor requirements.
- Special topics, research, and independent study electives (BIO 6409, BIO 6509, CSC 5900, CSC 5930, CSC 5993, PHI 2990, PHI 4990, PSY 2900, PSY 5900) require approval of the Cognitive Science Program.
- For courses that have prerequisites, Cognitive Science students should apply to have the prerequisites waived. Decisions will be made on a case-by-case basis by the course instructor, or in some cases, the Director of the Cognitive Science Program, after considering the particular student's background. In most cases, it is expected that the prerequisites will be able to be waived.
- Students may take CSC 1010 in place of CSC 1051 for the purpose of fulfilling the elective.

Required Minor Courses:

Item #	Title	Credits
PHI 4610	Philosophy of Mind	3
PSY 4500	Cognitive Psychology	3
	CSC 4500 or CSC 4510 or MSE 2400	3-4
	Cognitive Science Electives	9

Category Descriptions

CSC 4500 or CSC 4510 or MSE 2400

Credits: 3-4

Choose one:

Item #	Title	Credits
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
MSE 2400	CSC:Evol Lrng Cmp Robtcs Agnts	4

Cognitive Science Electives

Credits: 9

Choose three Cognitive Science approved electives from the list below.

Other accepted electives which may be accepted include: BIO, 6409, 7921, ECE 3420, 5445.

Biology

Item #	Title	Credits
BIO 3011	Animal Behavior Lecture	3
BIO 3015	Animal Behavior	4
BIO 4605	Neurobiology	4
BIO 6509	Directed Research	2

Cognitive Science

Item #	Title	Credits
CGS 2000	Linguistics as a Cognitive Sci.	3
CGS 4000	Bilingualism	3
CGS 5900	Cognitive Science Seminar	3
CGS 5910	Psychology of Language	3
CGS 5990	Special Topics	3

Computer Science

Item #	Title	Credits
CSC 1051	Algorithms & Data Struct I	4
CSC 4170	Theory of Computation	3
CSC 4380	Info Visualization	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
CSC 4730	Human Computer Interaction	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3
MSE 2400	CSC:Evol Lrng Cmp Robtcs Agnts	4
ECE 2620	C++, Algorithms & Data Struct	4

Philosophy

Item #	Title	Credits
PHI 2020	Symbolic Logic	3
PHI 2710	Information Knowledge Inquiry	3
PHI 2990	Topics in Philosophy	3
PHI 4200	Philosophy of Language	3
PHI 4610	Philosophy of Mind	3
PHI 4990	Independent Study & Research	3

Psychological and Brain Sciences

Item #	Title	Credits
MSE 2701	PSY:The Sounds of Human Lang.	4
PSY 2050	Research Methods in Psy.	3
PSY 2800	Human Factors	3
PSY 2900	Special Topics	3
PSY 3300	Perception	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
PSY 4600	Animal Learning & Cognition	3
PSY 5900	Independent Research Project	3

Spanish

Item #	Title	Credits
SPA 3214	Intro to Spanish Linguistics	3

Cognitive Science Concentration

Program Director: Joseph Toscano, Ph.D.

Office Location: Tolentine Hall Rm M52

Telephone: (610) 519-4755

[Website](#)

About

The Cognitive Science Program offers a course of study in the interdisciplinary field of Cognitive Science, bringing together perspectives from cognitive psychology, computer science, philosophy, and biology to understand how intelligent systems function. An undergraduate concentration and an undergraduate minor are available to all students in undergraduate colleges of the University. The program is particularly well suited to students majoring in Psychology, Computing Sciences, Philosophy, and Cognitive & Behavioral Neuroscience.

Type: Concentration

Concentration Required Courses (21 credits)

Program Notes:

- Students may take CSC 1010 to fulfill the CSC 1051 requirement.
- Special topics, research, and independent study electives (BIO 6409, BIO 6509, CSC 5900, CSC 5930, CSC 5993, PHI 2990, PHI 4990, PSY 2900, PSY 5900) require approval of the Cognitive Science Program.
- For courses that have prerequisites, Cognitive Science students should apply to have the prerequisites waived. Decisions will be made on a case-by-case basis by the course instructor, or in some cases, the Director of the Cognitive Science Program, after considering the particular student's background. In most cases, it is expected that the prerequisites will be able to be waived.

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
	CSC 4500 or CSC 4510 or MSE 2400	3-4
PHI 4610	Philosophy of Mind	3
PSY 4500	Cognitive Psychology	3
CGS 5900	Cognitive Science Seminar	3
	Cognitive Science Concentration Electives	6

Category Descriptions

CSC 4500 or CSC 4510 or MSE 2400

Credits: 3-4

Choose one:

Item #	Title	Credits
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
MSE 2400	CSC:Evol Lrng Cmp Robtcs Agnts	4

Cognitive Science Concentration Electives

Credits: 6

Choose two Cognitive Science approved electives from the list below.

Other accepted electives which may be accepted include: BIO 6409, 7921, ECE 3420, 5445.

Biology

Item #	Title	Credits
BIO 3011	Animal Behavior Lecture	3
BIO 3015	Animal Behavior	4
BIO 4605	Neurobiology	4
BIO 6509	Directed Research	2

Cognitive Science

Item #	Title	Credits
CGS 2000	Liguistics as a Cognitive Sci.	3
CGS 4000	Bilingualism	3
CGS 5900	Cognitive Science Seminar	3
CGS 5910	Psychology of Language	3
CGS 5990	Special Topics	3

Computer Science

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
CSC 4170	Theory of Computation	3
CSC 4380	Info Visualization	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
CSC 4730	Human Computer Interaction	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3
MSE 2400	CSC:Evol Lrng Cmp Robtcs Agnts	4
ECE 2620	C++, Algorithms & Data Struct	4

Philosophy

Item #	Title	Credits
PHI 2020	Symbolic Logic	3
PHI 2710	Information Knowledge Inquiry	3
PHI 2990	Topics in Philosophy	3
PHI 4200	Philosophy of Language	3
PHI 4610	Philosophy of Mind	3
PHI 4990	Independent Study & Research	3

Psychological and Brain Sciences

Item #	Title	Credits
MSE 2701	PSY:The Sounds of Human Lang.	4
PSY 2050	Research Methods in Psy.	3
PSY 2800	Human Factors	3
PSY 2900	Special Topics	3
PSY 3300	Perception	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
PSY 4600	Animal Learning & Cognition	3
PSY 5900	Independent Research Project	3

Spanish

Item #	Title	Credits
SPA 3214	Intro to Spanish Linguistics	3

College of Liberal Arts & Sciences

Disability and Deaf Studies Minor

Director: Dr. Christa Bialka
Telephone: 610-519-4733

MINOR (17 credits)

Students enrolled in the Disability and Deaf Studies Minor must complete 17 credit hours across one of two tracks: Disability Studies Track or Deaf Studies Track. All students will take two foundational 1 credit courses: EDU 3100: Disability and Deaf Studies Seminar and COM 5300: IGR (Ability). Students enrolled in the Disability Studies Track will complete two required courses and select from three additional elective courses. Students enrolled in the Deaf Studies Track will complete three required courses and choose from two additional elective courses.

Type: Minor

Foundation Courses

All students must complete these two foundation courses for the minor.

Item #	Title	Credits
EDU 3100	Disability & Deaf Studies Semi	1
COM 5300	Topics in Intergroup Dialogue	1

Disability Studies Track

Item #	Title	Credits
	Required Courses for Disability Studies	6
	Elective Courses for Disability Studies	9-10

Deaf Studies Track

Item #	Title	Credits
	Required Courses for Deaf Studies	9
	Elective Courses for Deaf Studies	6-7

Category Descriptions

Required Courses for Disability Studies

Credits: 6

Students focusing on the Disability Studies track must take these two courses.

Item #	Title	Credits
EDU 3264	Intro to Disability Studies	3
ETH 3210	The Ethics of Disability	3

Elective Courses for Disability Studies

Credits: 9-10

Students focusing on the Disability Studies track must take three electives from the list below.

Item #	Title	Credits
COM 3240	Performance for Social Change	3
SOC 3400	Health, Medicine & Society	3
SOC 4000	Special Topics	3
ENG 1975	Core Lit and Writing Seminar	3
PJ 2500	Education & Social Justice	3
PHI 2990	Topics in Philosophy	3
COM 3201	Rhetoric & Social Justice	3
COM 1400	Introduction to Deaf Studies	3
ASL 1111	Intro to Amer Sign Language I	3
ASL 1112	Intro to American Sign Lang II	3
MSE 2701	PSY:The Sounds of Human Lang.	4

Required Courses for Deaf Studies

Credits: 9

Students focusing on the Deaf Studies track must take these three courses.

Item #	Title	Credits
COM 1400	Introduction to Deaf Studies	3
ASL 1111	Intro to Amer Sign Language I	3
ASL 1112	Intro to American Sign Lang II	3

Elective Courses for Deaf Studies

Credits: 6-7

Students focusing on the Deaf Studies track must take two electives from the list below.

Item #	Title	Credits
MSE 2701	PSY:The Sounds of Human Lang.	4
PHI 4200	Philosophy of Language	3
CGS 5910	Psychology of Language	3
PSY 3300	Perception	3
COM 3240	Performance for Social Change	3
PJ 2500	Education & Social Justice	3
COM 3201	Rhetoric & Social Justice	3
EDU 3264	Intro to Disability Studies	3
ETH 3210	The Ethics of Disability	3

Individually Designed Major

Program Director: Joseph Lennon, Ph.D.

Office Location: 105E Saint Augustine Center

Telephone: 610-519-4647

[IDM Application](#)

About

An individually designed major (IDM) is motivated by the learner's own goals and guided by a roadmap that the student develops in close consultation with faculty. Unlike an independent study, where a faculty member takes the lead in preparing a set of readings and assignments, an IDM places the primary responsibility on the learner to identify the goals, explicitly define periodic assessment benchmarks, and construct a long-term plan of study.

An objective of IDM is to foster a more explicit pursuit of interdisciplinary study, providing a mechanism for you to design a major that will intentionally integrate different methodologies, topics, disciplinary cultures, and learning styles.

Faculty members and the established programs and departments within the College of Liberal Arts and Sciences (CLAS) serve as resources for the students. Students must be highly motivated and independent learners in order to pursue this course of study, which is only viable if existing majors and minors do not provide a pathway to the learner's goals. Lastly, and crucially, these goals must be articulated early in the student's college career by the end of the first semester of sophomore year.

MAJOR (33 credits)

An Individually Designed Major (IDM) is motivated by students' own learning goals, and guided by a curriculum map that you will develop in consultation with faculty mentors, the Associate Dean, and the IDM committee.

This is not a series of Independent Study courses, wherein a faculty member takes the lead in developing a reading and writing program for students. Rather, faculty members and the established programs and departments within the College of Liberal Arts and Sciences (henceforth, LAS), function as collaborative resources for students to pursue a defined course

of study. This is only allowable if no established majors are able to provide a pathway for students to achieve their stated goals.

The IDM provides an interdisciplinary mechanism for students to design a major that will integrate different methodologies, topics, disciplinary cultures, and learning styles.

Type: B.A. OR B.S.

Communication

Communication Major

Chair: Heidi Rose, Ph.D.

Office Location: Garey Hall 028

Telephone: (610) 510-4750

[Website](#)

About

Communication shapes who we are, both individually and socially. We in the Communication Department believe our future depends upon our communication with one another. The study of Communication in the liberal arts tradition focuses on the understanding and use of symbols that create meaning in multiple communicative contexts—global and local, personal and professional, in-person and mediated. The discipline of Communication is grounded in ancient rhetorical traditions and is influenced by contemporary intellectual, artistic and technological developments. Our program integrates theory and practice, so that skills-based courses build upon communication principles, concepts, insights, and research techniques. Our mission, then, is to produce well-rounded communicators who will speak eloquently and listen actively; think critically, creatively, and ethically; and write clearly and strategically. Our graduates are placed in top graduate programs and law schools, as well as prepared to build careers in industries from public relations and marketing to media production and print/broadcast/digital journalism. Whether in corporate or nonprofit careers, serving their communities, or engaged in further academic study, our graduates illustrate that students of Communication are uniquely equipped to make a difference locally and globally, in their lives and in the lives of others.

Type: Bachelor of Arts

MAJOR (36 credits)

To Declare the Major: Enrollment in COM 1000 and COM 1100.

Concentrations:

Students may choose either to design their own major concentration or will choose one (or more) of the following concentrations:

- Public Relations & Advertising
- Journalism
- Organizational Communication
- Media Studies
- Media Production
- Rhetorical Studies
- Performance Studies
- Interpersonal & Intercultural Communication.

With or without a concentration, students must cover three different areas in their six 3000-level courses. A complete listing of concentration requirements and courses is available on the departmental Web page or in the departmental office. Some concentrations require Communication majors to complete internships, which, if completed for credit, will be used to satisfy free electives for the College of Liberal Arts and Sciences.

Program Notes:

- Only two courses may be transferred to count towards the COM major.
- Students who plan to study abroad should take COM 1000, 1100, and at least one 2000-level course before going abroad.
- Students must complete COM 4001 or COM 4002 before taking the Capstone course.

Required Major Courses:

Item #	Title	Credits
COM 1000	Surv of Communication Studies	3
COM 1100	Public Speaking	3
	Theories Electives	6
	Advanced Communication Topics Electives	18
	Qualitative or Quantitative Research in Communication	3
	Capstone Course	3

Category Descriptions

Theories Electives

Credits: 6

Theories Electives (6 cr) – Select 2 Classes from COM 2200:2440.

Item #	Title	Credits
COM 2200	Theories of Rhetoric	3
COM 2240	Theories of Perform Studies	3
COM 2280	Theories of Persuasion	3
COM 2300	Theories of Mass Communication	3
COM 2340	Theories of Visual Com & Cultu	3
COM 2400	Theories of Interpersonal Com	3
COM 2440	Theories of Organizational Com	3

Advanced Communication Topics Electives

Credits: 18

Advanced Communication Topics Electives (18 cr) – Select 6 Classes from: COM 3000:3999.

Qualitative or Quantitative Research in Communication

Credits: 3

Qualitative or Quantitative Research in Communication (3 cr) – Select 1 Class.

- Students must complete this prior to taking the Capstone.

Item #	Title	Credits
COM 4001	Qualitative Research in COM	3
COM 4002	Quantitative Research in COM	3

Capstone Course

Credits: 3

Choose one Capstone course (taken during senior year). COM 3464 is an inactive course that also satisfies this requirement.

Item #	Title	Credits
COM 5050	Senior Project	3
COM 5464	Public Relations Campaigns	3

Communication Minor

Chair: Heidi Rose, Ph.D.

Office Location: Garey Hall 028

Telephone: (610) 510-4750

[Website](#)

About

Communication shapes who we are, both individually and socially. We in the Communication Department believe our future depends upon our communication with one another. The study of Communication in the liberal arts tradition focuses on the understanding and use of symbols that create meaning in multiple communicative contexts—global and local, personal and professional, in-person and mediated. The discipline of Communication is grounded in ancient rhetorical traditions and is influenced by contemporary intellectual, artistic and technological developments. Our program integrates theory and practice, so that skills-based courses build upon communication principles, concepts, insights, and research techniques. Our mission, then, is to produce well-rounded communicators who will speak eloquently and listen actively; think critically, creatively, and ethically; and write clearly and strategically. Our graduates are placed in top graduate programs and law schools, as well as prepared to build careers in industries from public relations and marketing to media production and print/broadcast/digital journalism. Whether in corporate or nonprofit careers, serving their communities, or engaged in further academic study, our graduates illustrate that students of Communication are uniquely equipped to make a difference locally and globally, in their lives and in the lives of others.

Type: Minor

MINOR (15 credits)

Students within the College of Liberal Arts & Sciences or Villanova School of Business can minor in Communication by taking five courses.

Program Notes:

- Only one course may be transferred to count toward the COM minor.
- Students wishing to minor in Communication from within CLAS or other Villanova colleges/schools are encouraged to contact the Communication Department to learn about ways to build a minor that will complement their major programs of study.

Required Minor Courses:

Item #	Title	Credits
COM 1000	Surv of Communication Studies	3
	Theories Course	3
	Advanced Communication Elective	3
	Additional Communication Electives	6

Category Descriptions

Theories Course

Credits: 3

Theories Course (3cr): 1 Class in COM 2000:2999 with the exception of COM 2993, 2996.

Advanced Communication Elective

Credits: 3

Advanced Communication Elective (3cr): 1 Class in COM 3000:3999.

Additional Communication Electives

Credits: 6

Additional Communication Electives (6cr): 2 Classes in COM at any level 1000-4000.

- Taking 2 3000-level courses may permit minors to specialize in an area.

- A 3-credit internship focused on communication could satisfy one of the Additional COM Elective courses

Comprehensive Science

Comprehensive Science Major

Program Director: Robert Styer, PhD

Co-Director: Joseph Comber, PhD

Office Location: Saint Augustine Center Rm. 372

Telephone: (610) 519-4845

[Website](#)

About

The Comprehensive Science program allows students interested in the quantitative and physical and life sciences to get broad based competency to a full spectrum of scientific concerns and practices. Our majors gain both hands-on lab skills and quantitative aptitudes through a broad range of courses in mathematics, physical and life sciences, and computer science. The program equips students with the analytical, interpretive, and explanatory skill sets that enable their understanding of the scientific world. The flexible program allows students to create a tailored interdisciplinary program that can prepare the student for a variety of professions or graduate studies. Our majors go on to medical schools, dental schools, and other health related graduate programs, as well as careers as financial analysts, lab researchers, computing, pharmaceutical, and other careers that require a science/math background.

Program Notes:

- Chemistry majors who transfer to Comprehensive Science (BSC) may count CHM 1311/CHM 1301 in place of the CHM 1151/CHM 1103 requirement listed below.
- Chemistry majors who transfer to Comprehensive Science (BSC) may count CHM 1521/CHM 1502 in place of the CHM 1152/CHM 1104 requirement listed below.
- A student can only get credit for one class from this list: CSC 2300, PSY 2000, STAT 1313, 4310.

Type: Bachelor of Science

MAJOR (65 credits)

Required Major Courses:

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
CSC 1051	Algorithms & Data Struc I	4
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
	Approved Physics with Labs	8
	Science Major Statistics	3
	Approved Math or Computing Elective	3
SCI 5300	Capstone Seminar	3
	Approved Science Electives	18

Category Descriptions

Approved Physics with Labs

Credits: 8

Two semesters of an approved (science major level) physics with labs. Choose one sequence from those listed below.

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
Item #	Title	Credits
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

Science Major Statistics

Credits: 3

One semester of science major-level statistics. Select from those listed below, or choose any STAT course of 3000-level or above.

Item #	Title	Credits
BIO 3105	Biostatistics & Exp Design	4
CSC 2300	Statistics for Computing	3
PSY 2000	Intro Statistics	3
STAT 1313	Statistics for Life Sciences	3

Approved Math or Computing Elective

Credits: 3

One additional approved Mathematics or Computing course. Select from those listed below, or any MAT course of 2300 or above, or any STAT course of 3000 or above.

Item #	Title	Credits
BIO 3105	Biostatistics & Exp Design	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3

Approved Science Electives

Credits: 18

Science Electives (18 cr/6 courses) – Select from those listed below, or AST 2120:9999, BIO 2200:9999, CBN 2900:4000, CGS 5900:5950, CHE 2031, 2032, 5534, CHM 2200:4900, GEV 3300:3306, 4321:4329, 4351:4356, MAT 2300:5993, PHY 2414:6700, PSY 5100, STAT 3000:9999, or any course with the BSC attribute

Item #	Title	Credits
BIO 1205	Human Anatomy & Physiology I	4
BIO 1206	Human Anatomy & Physiology II	4
CHE 5534	Biomaterials	3
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3
CSC 1700	Analysis of Algorithms	3
CSC 1800	Organ of Prog Languages	3
CSC 2053	Platform Based Computing	3
CSC 2300	Statistics for Computing	3
CSC 2400	Computer Systems I	3
CSC 2405	Computer Systems II	3
CSC 2993	Internship in Computing	3
CSC 3080	Info Security & Protection	3
CSC 3400	Information Retrieval	3
CSC 4170	Theory of Computation	3
CSC 4181	Compiler Construction	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4480	Principles of Database Systems	3
CSC 4490	Data Warehousing & Mining	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
CSC 4550	Computing for Data Science	3
CSC 4630	Software Dev and Systems	3
CSC 4700	Software Engineering	3
CSC 4730	Human Computer Interaction	3
CSC 4790	Senior Projects	3
CSC 4800	Web Application Development	3
CSC 4900	Networks and Security	3
ECE 1620	Egr Prog & Applic	3
ECE 2620	C++, Algorithms & Data Struct	4
ECO 3128	Intro Mathematical Econ	3
ECO 3138	Game Theory	3
FIN 2325	Introduction to Derivatives	3
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1052	Environmental Studies	3
GEV 1053	Environmental Studies II	3
GEV 1750	Geo-Techniques	4
GEV 2310	Environmental Chemistry	4
GEV 3000	Special Topics	3
GEV 3003	Environmental Geology	3

GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4700	Geographic Information Systems	4
GEV 4710	Adv. Geographic Info Sys	4
MET 1221	Severe & Hazardous Weather	3
MET 1222	Climate Change:Past & Present	3
NS 3100	Navigation	3
NTR 2120	Principles of Nutrition	3
NUR 3030	Basic Conc Pharmacology	3
NUR 3108	Pathophysiology	3
PSY 2050	Research Methods in Psy.	3
PSY 2800	Human Factors	3
PSY 3200	Human Development	3
PSY 3300	Perception	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
PSY 4600	Animal Learning & Cognition	3
PSY 5900	Independent Research Project	3
STAT 1313	Statistics for Life Sciences	3
VIA 3010	Indoor Air Quality/Hum Hlth	3

Laboratory Sciences Minor

Program Director: Robert Styer, PhD
Office Location: Saint Augustine Center Rm. 372
Telephone: (610) 519-4845
[Website](#)

About

The Laboratory Sciences Minor trains the student in careful analysis and opens potential career paths in science-intensive industries such as

environmental or biopharmaceutical or medical research careers. This minor is not allowed in combination with a science or engineering major. It is designed for liberal arts or business majors who desire a broad understanding of science and its experimental methods.

Type: Minor

MINOR (18 credits)

The minor in Laboratory Sciences requires six science courses with accompanying hands-on laboratories. It is open to students in Arts, Business, and Nursing (not open to students in the sciences or engineering). The six courses must span at least three science disciplines. At most two AP course credits may be applied. MSE courses may be used, with the discipline of an MSE course determined by the primary focus of the laboratory component of the course.

Program Notes:

- Eligible Courses: Science courses that have a hands-on experiential laboratory component, traditionally considered “wet lab” or “field work”, that is, hands on use of physical materials and instrumentation in a physical laboratory or field setting, generally two to three lab hours in addition to the three lecture hours per week.

Item #	Title	Credits
	Examples of Eligible Courses for Laboratory Sciences	

Category Descriptions

Examples of Eligible Courses for Laboratory Sciences

Below is a list of courses which may count toward the Laboratory Sciences minor. This is not a complete list.

Item #	Title	Credits
	AST 2120 & 2133	5
	AST 2122 & 2134	5
AST 4121	Undergrad Research I	3
BIO 1205	Human Anatomy & Physiology I	4
BIO 1206	Human Anatomy & Physiology II	4
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3015	Animal Behavior	4
BIO 3055	Human Physiology	4
BIO 3155	Comparative Anatomy	4
BIO 3225	Imaging Technology	4
BIO 3385	Global Change Ecology	4
BIO 3405	Higher Vertebrates	4
BIO 3455	Histology	4
BIO 3485	Marine Biology	4
BIO 3525	Entomology	4
BIO 3595	General Microbiology	4
BIO 4105	Medical Microbiology	4
BIO 4205	Cell Biology	4
	BIO 4251 & 4252	4
BIO 4355	Experimental Genetics	4
	BIO 4451/52	4
BIO 4505	Molecular Biology	4
BIO 4605	Neurobiology	4
	CHM 1151 & 1103	5
	CHM 1152 & 1104	4
	CHM 1131 & 1107	4
	CHM 1134 & 1108	4
	CHM 1311 & 1301	4
	CHM 1502 & 3201	4
	CHM 2211 & 2201	4
	CHM 2212 & CHM 2202	4
	CHM 3311 & 3301	5
GEV 1051	Environmental Science II	4
GEV 1750	Geo-Techniques	4
GEV 2310	Environmental Chemistry	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4700	Geographic Information Systems	4
	PHY 1100 & 1101	4
	PHY 1102 & 1103	4
	PHY 2402 & 2403	4
	PHY 2410 & 2411	4
	PHY 2412 & 2413	4
	PHY 2414 & 2415	4
	PHY 2416 & 2417	4

Computing Sciences

Chair: Daniel Joyce, Ph.D.

Office Location: Mendel Science Center Rm. 161

Telephone: (610) 519-7307

[Website](#)

About

The Department of Computing Sciences seeks to provide outstanding education, to advance scholarship, and to engage in activities that benefit society as a whole, in accordance to the University mission. The Department aims to equip students with a solid foundation in computing theory, and to prepare them for lifelong independent learning and innovative thinking in a constantly changing discipline. Its faculty members strive to maintain professional currency, and to involve students and colleagues in their research investigations. These endeavors support the University mission to transmit, pursue, and discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

Computer Science Major

Chair: Daniel Joyce, Ph.D.

Office Location: Mendel Science Center Rm. 161

Telephone: (610) 519-7307

[Website](#)

About

Computer science students explore a broad spectrum of computing technologies and concepts. Our courses provide a thorough foundation in the principles and practices of computing, paving the way for successful careers and ongoing graduate studies. Our students also learn skills in communication and the scientific, mathematical, and engineering principles that support the computing disciplines.

The Department of Computing Sciences seeks to provide outstanding education, to advance scholarship, and to engage in activities that benefit society as a whole, in accordance to the University mission. The Department aims to equip

students with a solid foundation in computer science, and to prepare them for lifelong independent learning and innovative thinking in a constantly changing discipline. Its faculty members strive to maintain professional currency, and to involve students and colleagues in their research investigations. These endeavors support the University mission to transmit, pursue, and discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

Type: Bachelor of Science

MAJOR (73 credits)

Program Notes:

- Combined BS/MS in Computer Science or Software Engineering: Five-year double degree program. See departmental website for details regarding admission, requirements, the program of study, etc.

Required Major Courses:

Item #	Title	Credits
CSC 1990	Enrichment Sem in Computing	1
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3
CSC 1700	Analysis of Algorithms	3
CSC 1800	Organ of Prog Languages	3
CSC 2053	Platform Based Computing	3
	CSC 2300 or STAT 4310	3
CSC 2400	Computer Systems I	3
CSC 2405	Computer Systems II	3
CSC 4170	Theory of Computation	3
CSC 4480	Principles of Database Systems	3
CSC 4700	Software Engineering	3
CSC 4790	Senior Projects	3
PHI 2180	Computer Ethics	3
MAT 1500	Calculus I	4
MAT 2400	Linear Algebra for Computing	4
	Natural Science with Lab	8
	Computer Science Electives	12

Category Descriptions

CSC 2300 or STAT 4310

Credits: 3

Selection one class from those listed.

- STAT 1230 will be accepted but only with the grade of 'AP'

Item #	Title	Credits
CSC 2300	Statistics for Computing	3
STAT 4310	Stat Methods	3

Natural Science with Lab

Credits: 8

Choose 2 Natural Science courses with labs from those listed below for a total of 8 credits. Student may request permission from the chair to use alternate courses - all course must include a lab component and be targeted at science/engineering majors.

Item #	Title	Credits
GEV 4700	Geographic Information Systems	4
GEV 4710	Adv. Geographic Info Sys	4
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
	PHY 1100 & 1101	4
	PHY 1102 & 1103	4
	PHY 2410 & 2411	4
	PHY 2412 & 2413	4
	CHM 1151 & 1103	5
	CHM 1152 & 1104	4

ASTRONOMY AND LAB - Students may select to take a lecture lab combo

- 1 Class in AST 2120, 2121, 2122 "Astronomy"
- 1 Class in MSE 2150, 2151, 2152, 2153 "Astronomy Lab"

Computer Science Electives

Credits: 12

Select 4 Classes from any of the courses listed below or CSC 8000:9999. Student can request permission from the CSC department chair to use other courses related to computing as an elective.

Item #	Title	Credits
CSC 2993	Internship in Computing	3
CSC 3010	Overview of Cybersecurity	3
CSC 3080	Info Security & Protection	3
CSC 3150	Game Development	3
CSC 3400	Information Retrieval	3
CSC 4181	Compiler Construction	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4450	Digital Forensics	3
	CSC 4490 or STAT 4480	3
CSC 4500	Artificial Intelligence	3
CSC 4505	Applied Machine Learning	3
CSC 4510	Machine Learn&Theory&Evolution	3
	CSC 4550 or STAT 4380	3
CSC 4598	Machine Translation	3
CSC 4630	Software Dev and Systems	3
CSC 4730	Human Computer Interaction	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3
	CSC 4900 or ECE 3180	3
CSC 5920	Logic	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3
ECE 3476	Computer and Network Security	3

Computer Science Minor

Chair: Daniel Joyce, Ph.D.
Office Location: Mendel Science Center Rm. 161
Telephone: (610) 519-7307
[Website](#)

About

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discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

Type: Minor

MINOR: Computer Science (20 credits)

The computer science minor consists of 6 courses from the requirements for the computer science major. The minor provides a strong foundation in computer science suitable for application to any other major field of endeavor.

Required Courses:

Item #	Title	Credits
	CSC 1051 or ECE 1260 & 1261	4
	CSC 1052 or ECE 2160 & 2161	4
	CSC 1300 or MAT 2600	3
CSC 2053	Platform Based Computing	3
CSC 4480	Principles of Database Systems	3
	Computer Science Electives for Minor	3-4

Category Descriptions

CSC 1051 or ECE 1260 & 1261

Credits: 4

Select 1 option from CSC 1051 or ECE 1260 & 1261.

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4

CSC 1052 or ECE 2160 & 2161

Credits: 4

Select 1 option from CSC 1051 or ECE 2160 & 2161

Item #	Title	Credits
CSC 1052	Algorithms & Data Struc II	4

CSC 1300 or MAT 2600

Credits: 3

Select 1 class from these options.

Item #	Title	Credits
CSC 1300	Discrete Structures	3
MAT 2600	Foundation of Math I	3

Computer Science Electives for Minor

Credits: 3-4

Select 1 Class from the list below.

- Student can request permission from the CSC department chair to use other courses related to computing as an elective.

Item #	Title	Credits
CSC 1600	Operating Systems	3
CSC 1700	Analysis of Algorithms	3
CSC 1800	Organ of Prog Languages	3
CSC 2400	Computer Systems I	3
CSC 3010	Overview of Cybersecurity	3
CSC 3080	Info Security & Protection	3
CSC 3150	Game Development	3
	One Linear Algebra Course	3-4
CSC 3400	Information Retrieval	3
CSC 4170	Theory of Computation	3
CSC 4181	Compiler Construction	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4450	Digital Forensics	3
	CSC 4490 or STAT 4480	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
	CSC 4550 or STAT 4380	3
CSC 4598	Machine Translation	3
CSC 4630	Software Dev and Systems	3
CSC 4700	Software Engineering	3
CSC 4730	Human Computer Interaction	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3
	CSC 4900 or ECE 3180	3
CSC 5920	Logic	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3
PHI 2180	Computer Ethics	3
CSC 4505	Applied Machine Learning	3
ECE 3476	Computer and Network Security	3

Cybersecurity Minor

Chair: Daniel Joyce, Ph.D.

Office Location: Mendel Science Center Rm. 161

Telephone: (610) 519-7307

[Website](#)

About

The Department of Computing Sciences seeks to provide outstanding education, to advance scholarship, and to engage in activities that benefit society as a whole, in accordance to the University mission. The Department aims to equip students with a solid foundation in computer

science, and to prepare them for lifelong independent learning and innovative thinking in a constantly changing discipline. Its faculty members strive to maintain professional currency, and to involve students and colleagues in their research investigations. These endeavors support the University mission to transmit, pursue, and discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

Type: Minor

MINOR: Cybersecurity (28-29 credits)

Offered jointly through the Departments of Computing Sciences in the College of Liberal Arts and Sciences and Electrical and Computer Engineering in the College of Engineering. The program provides students with a solid foundation in the principles of cybersecurity; equips students with the technical skills and knowledge to address constantly evolving cybersecurity threat; promotes independent study and self-reliance so students can keep pace with rapid technological advancement; and prepares graduates to enter the workforce as cybersecurity professionals

Program Notes:

- Topics, capstone, and independent study courses must be in the cybersecurity area and approved by the cybersecurity minor curriculum committee.
- Computer Science majors: at least two of the courses taken for the minor may *not* also be applied to the major. They must be used as free electives.

Item #	Title	Credits
	Overview of Cybersecurity	2-3
	Algorithms & Data Structures	8
CSC 1300	Discrete Structures	3
	Core Cybersecurity Electives	9
	Cybersecurity Networks Course	3
	Cybersecurity Capstone Project	3

Category Descriptions

Overview of Cybersecurity

Credits: 2-3

Select one option from those listed.

Cybersecurity

Item #	Title	Credits
CSC 3010	Overview of Cybersecurity	3

Digital Life Technology

Item #	Title	Credits
VIA 2111	Digital Life Technology I	1
VIA 2112	Digital Life Technology II	1

Algorithms & Data Structures

Credits: 8

- Students must select one option from CSC 1051 or ECE 1260 & ECE 1261.
- Students must select one option from CSC 1052 or ECE 2160 & ECE 2161.

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4

Core Cybersecurity Electives

Credits: 9

Select three courses from among those listed.

- Topics courses with distinct content may be repeated for additional credit.
- Student can request permission from the Cybersecurity committee to use other courses related to computing as an elective.

Item #	Title	Credits
CSC 3080	Info Security & Protection	3
CSC 4450	Digital Forensics	3
ECE 3476	Computer and Network Security	3
ECE 5478	Eng Secure Cyber-Physical Sys	3
ECE 5900	Special Topics	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3

Cybersecurity Networks Course

Credits: 3

Select 1 class from either CSC 4900 or ECE 3180.

Item #	Title	Credits
CSC 4900	Networks and Security	3

Cybersecurity Capstone Project

Credits: 3

Select one course from those listed.

Item #	Title	Credits
CSC 4790	Senior Projects	3
ECE 4971	Design Project - CPE	3

Criminology

Criminology Major

Program Director: Kelly Welch, Ph.D.

Office Location: 274 Saint Augustine Center

Telephone: (610) 519-7048

[Website](#)

About

The Criminology major is an interdisciplinary program designed to provide students with an understanding of the causes, social functions, nature and application of criminal law, and societal reactions to criminal law. Criminologists believe that people's actions are strongly influenced by the conditions and situations in which they live, work, and play. Everybody makes decisions, but we recognize and study how social structures and institutions affect and constrain those decisions. Our goal as researchers is to expose and analyze the impacts of those circumstances on human decisions, societies, and opportunities. Methodologically, we incorporate multiple perspectives and analytical approaches to help create a more holistic understanding of our society. Rather than a technical program which focuses on applied skills, our program emphasizes the justice component. Our mission as teachers is to empower students to think critically and rigorously about individuals and societies. Through our diverse offerings on local, regional, national and global social processes, we strive to create more complete human beings with a keen sense of humanity, social justice, and appropriate social policy.

Type: Bachelor of Arts

MAJOR (33 credits)

To declare the Major, a student must have completed Introduction to Criminology (CRM 1001) with a "C" or higher. The Major consists of 33 credits. A student must allow three full semesters after the declaration of the Major to complete all requirements. One of the Criminology electives for the Major can be satisfied by an internship for credit with approval from the Program Director, provided that the student has at least 15 credits toward the Major.

Program Notes:

- A student taking an internship in a field setting in the second semester of their junior year or during their senior year should consult with the Program Director.

Required Major Courses:

Item #	Title	Credits
CRM 1001	Introduction to Criminology	3
CRM 5100	Criminological Theory	3
SOC 5300	Data Analysis-Social Scientist	3
SOC 5400	Applied Research in Soc	3
CRM 6500	Senior Seminar	3
	CRM B.A. Electives	15
	SOC Elective for CRM B.A.	3

Category Descriptions

CRM B.A. Electives

Credits: 15

Criminology Electives (15 cr) – Select 5 Classes from CRM 1000:7000 SOC 2200, SOC 3300, or any course with the CRM attribute

SOC Elective for CRM B.A.

Credits: 3

Sociology Elective (3 cr) – Select 1 Class from SOC 1000:9999 except SOC 5000, 5050, 5100, 5300, 5400, 6500.

Criminology Minor

Program Director: Kelly Welch, Ph.D.

Office Location: 274 Saint Augustine Center

Telephone: (610) 519-7048

[Website](#)

About

Criminology an interdisciplinary program designed to provide students with an understanding of the causes, social functions, nature and application of criminal law, and societal reactions to criminal law. Criminologists believe that people's actions are strongly influenced by the conditions and situations in which they live, work, and play. Everybody makes decisions, but we recognize and study how social structures and institutions affect and constrain those decisions. Our goal as researchers is to expose and analyze the impacts of those circumstances on human decisions, societies, and opportunities. Methodologically, we incorporate multiple perspectives and analytical approaches to help create a more holistic understanding of our society. Rather than a technical program which focuses on applied skills, our program emphasizes the justice component. Our mission as teachers is to empower students to think critically and rigorously about individuals and societies. Through our diverse offerings on local, regional, national and global social processes, we strive to create more complete human beings with a keen sense of humanity, social justice, and appropriate social policy.

Type: Minor

MINOR (15 credits)

A Minor is open to all students and requires 5 courses and 15 credits. Courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the Minor. Minors cannot receive Criminology credit for an internship.

Program Notes:

- Only one course may be transferred from another university.

Required Minor Courses:

Item #	Title	Credits
CRM 1001	Introduction to Criminology	3
	CRM Minor Electives	12

Category Descriptions

CRM Minor Electives

Credits: 12

Criminology Electives (12 cr) – Select 4 Classes from CRM 1000:7000 SOC 2200, SOC 3300, or any course with the CRM attribute except CRM 5100, CRM 6500, SOC 1500, SOC 5300, SOC 5400

Economics

Chair: Erasmus Kersting, Ph.D.
Associate Chair: Mary Kelly, Ph.D.
Office Location: 2014 Bartley Hall
Telephone: 610-519-4370
[Website](#)

About

Economics is the science that studies the behavior of social systems – such as markets, legislatures, corporations, and families – in allocating scarce resources. It is a discipline which brings together the diverse worlds of business, social science, and public policy. The study of economics is an excellent preparation leading to many career options. Economics majors are well positioned to be the future managers and leaders in both the private and

public sectors. The study of economics at the undergraduate level provides a solid basis for graduate study in the social sciences and for professional study in business administration, law, public administration, and in the health sciences.

Economics Major

Chair: Erasmus Kersting, Ph.D.
Associate Chair: Mary Kelly, Ph.D.
Office Location: 2014 Bartley Hall
Telephone: 610-519-4370
[Website](#)

About

Economics addresses how individuals and firms make decisions in a world of scarcity and uncertainty while also presenting opportunities to learn how to analyze the performance and interaction of national economies. The curriculum is designed to promote the development of quantitative skills as well as written and verbal communication abilities, so students are equipped to critically examine the effects of economic factors on market participants in the private and public sectors. Because of the growing complexity of the global economy, there is an increase in the demand for individuals who can provide and communicate quantitative analysis of economic variables and their effects on forecasting sales, managing costs, allocating budgets, and choosing investment options. Economics graduates find employment in private industry, consulting, think tanks and policy institutes, the public sector, and academia. Economics is also a perfect preparation for Law School.

Type: Bachelor of Arts

MAJOR (33 credits)

Program Notes:

- A minimum grade of B in ECO 1001 & 1002 are required to declare the economics major. Students not meeting these requirements should discuss their options with the Chair/Associate Chair of the Economics Department.
- Calculus (which can be used to satisfy the core) is a prerequisite for ECO 2101 and ECO 2102.
- Students have the ability to earn a specialization certificate. Please contact your advisor or the chairperson for more information.

Required Major Courses:

Item #	Title	Credits
	MAT 1235 or STAT 1430	3
ECO 1001	Intro to Micro	3
ECO 1002	Intro to Macro	3
ECO 2101	Macroeconomic Theory	3
ECO 2102	Microeconomic Theory	3
ECO 3137	Intro to Econometrics	3
	Economics Capstone Course	3
	ECO Electives for B.A.	12

Category Descriptions

MAT 1235 or STAT 1430

Credits: 3

Select either MAT 1235: Intro to Statistics II or STAT 1430: Business Statistics (3 cr).

Economics Capstone Course

Credits: 3

Select 1 course from ECO 4000:9999 (3 cr).

ECO Electives for B.A.

Credits: 12

Select 4 courses from ECO 3000:9999 worth 3 credits each (12 cr).

Economics Minor

Chair: Erasmus Kersting, Ph.D.

Associate Chair: Mary Kelly, Ph.D.

Office Location: 2014 Bartley Hall

Telephone: 610-519-4370

[Website](#)

About

Economics addresses how individuals and firms make decisions in a world of scarcity and uncertainty while also presenting opportunities to learn how to analyze the performance and interaction of national economies. The curriculum is designed to promote the development of quantitative skills as well as written and verbal communication abilities, so students are equipped to critically examine the effects of economic factors on market participants in the private and public sectors. Because of the growing complexity of the global economy, there is an increase in the demand for individuals who can provide and communicate quantitative analysis of economic variables and their effects on forecasting sales, managing costs, allocating budgets, and choosing investment options. Economics graduates find employment in private industry, consulting, think tanks and policy institutes, the public sector, and academia. Economics is also a perfect preparation for Law School.

Type: Minor

MINOR (18 credits)

A minor is open to all students and requires 6 courses and 18 credits.

Program Notes:

- Calculus (which can be used to satisfy the core) is a prerequisite for ECO 2101 and ECO 2102.

Required Minor Courses:

Item #	Title	Credits
ECO 1001	Intro to Micro	3
ECO 1002	Intro to Macro	3
ECO 2101	Macroeconomic Theory	3
ECO 2102	Microeconomic Theory	3
	ECO Electives for Minor	6

Category Descriptions

ECO Electives for Minor

Credits: 6

Two (2) Economics elective courses above ECO 3000.

Education and Counseling

Chair: Christopher Schmidt, Ph.D.

Office Location: 302 Saint Augustine Center

Telephone: 610-519-4620

[Website](#)

About

The Education and Counseling Department undergraduate offerings include a Major in Secondary Education, two different Minor in Education programs, a Minor in Counseling, and a combined [BA/MA in Education](#). The Secondary Education degree has been approved by the Pennsylvania Department of Education (PDE) to recommend candidates for Level I Certification in order to teach in grades 7 through 12 in Pennsylvania's public schools. Faculty in the department are highly engaged in both theoretical and practical research related to education and counseling.

Education Major

Chair: Teresa G. Wojcik, Ph.D.

Undergraduate Program Director: Christa S. Bialka, Ed.D.

Office Location: 302 Saint Augustine Center
Telephone: 610-519-8103

[Website](#)

About

The Education and Counseling Department undergraduate offerings include a Major in Secondary Education, two different Minor in Education programs, a Minor in Counseling, and a combined [BA/MA in Education](#). The Secondary Education degree has been approved by the Pennsylvania Department of Education (PDE) to recommend candidates for Level I Certification in order to teach in grades 7 through 12 in

Pennsylvania's public schools. Faculty in the department are highly engaged in both theoretical and practical research related to education and counseling.

Type: Bachelor of Arts

MAJOR (34 credits + Concentration)

In addition to demonstrating competence within their chosen academic discipline, as well as fulfilling the College of Arts and Sciences' core curriculum requirements, students participate in a wide variety of classroom field experiences. Such experiences are carefully selected and supervised and always appropriate to both the academic and professional competence of the students.

Program Notes:

- Students majoring in Education need to select one concentration from those listed below. The credit total for the B.A. will vary depending upon the concentration.
- To be accepted into the major, students must have a 3.0 GPA, 6 credits in English and 6 credits in math completed prior to the start of their junior year.
- Candidates for the major should apply as soon as possible and no later than sophomore year
- Teacher certification is embedded within the B.A. program. [Visit this page to learn more.](#)

Education Major Required Courses:

Item #	Title	Credits
	EDU 2201 or EDU 2202	3
EDU 2300	Research Seminar in Education	3
EDU 3000	Prof. Development in Education	1
EDU 3251	Psych of Teaching & Learning	3
EDU 3263	Diversity and Inclusion	3
EDU 3264	Intro to Disability Studies	3
EDU 4245	Literacy & Eng Lang Learning	3
EDU 4290	Philosophy of Education	3
EDU 4291	Student Teaching	9
EDU 4292	Senior Seminar	3

Select Concentration (43-65)

Students majoring in Education need to select one concentration from those listed below. The credit total for the B.A. will vary depending upon the concentration.

Item #	Title	Credits
	Teaching Biology Concentration (48-49 credits)	48-49
	Teaching Chemistry Concentration (42 credits)	42
	Teaching English Concentration (36 Credits)	36
	Teaching French Concentration (36 credits)	36
	Teaching Latin Concentration (36 credits)	36
	Teaching Mathematics Concentration (41 credits)	41
	Teaching Physics Concentration (41 credits)	41
	Teaching Social Studies Concentration (42 credits)	42
	Teaching Spanish Concentration (39 credits)	39

Category Descriptions

EDU 2201 or EDU 2202

Credits: 3

Item #	Title	Credits
EDU 2201	Social Foundation Educ I	3
EDU 2202	Social Foundation Edu II	3

Teaching Biology Concentration (48-49 credits)

Credits: 48-49

- Students must be a declared education major to have this concentration.
- Students in the education major with a biology emphasis fulfill their core math, core natural science, and core social science with courses taken in the major.

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3055	Human Physiology	4
BIO 3351	Genetics	4
BIO 3255	Evolutionary Ecology	4
BIO 3595	General Microbiology	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
MSE 2206	BIO:Biotechnology in Our Soc.	4
	Electives for Education BIO Concentration	11-12

Teaching Chemistry Concentration (42 credits)

Credits: 42

- Students in the education major with a chemistry emphasis fulfill their core math, core natural science, and core social science with courses taken in the major.

Item #	Title	Credits
	CHM 1151 & 1103	5
	CHM 1152 & 1104	4
	CHM 2211 & 2201	4
	CHM 2212 & CHM 2202	4
	CHM 3412 & 3404	4
	CHM 4611 & CHM 4601	4
MSE 2301	CHM: Water	4
MSE 2304	CHM:Our Energy Future	4
MSE 2305	Perspective on Plastic	4
MSE 2302	CHM: Criminalistics	4

Teaching English Concentration (36 Credits)

Credits: 36

- Students in the education major with a Teaching English emphasis fulfill their core math and core social science with courses taken in the major.

Item #	Title	Credits
	ENG 2000-2070	6
ENG 2250	Ways of Reading:Lit Analysis	3
ENG 2400	Classical Hero in Ancient Lit	3
ENG 3250	Shakespeare	3
ENG 3001	Foundational Lit in ENG 1	3
	ENG 4001 or ENG 4000	3
	ENG 4601 or ENG 4600	3
EDU 3220	Literature in Classrooms	3
COM 1100	Public Speaking	3
	African American Literature, EDU B.A.	3
	Women's Literature, EDU B.A.	3

Teaching French Concentration (36 credits)

Credits: 36

- Students in the education major with a Teaching French emphasis fulfill their core language, core math, and core social science with courses taken in the major.

Item #	Title	Credits
FFS 1121	Intermediate French I	3
FFS 1122	Intermediate French II	3
FFS 1131	Conversation and Composition I	3
FFS 1132	Conversation & Composition II	3
	FFS 1138 or FFS 1140	3
FFS 2220	Lit and Culture of France	3
FFS 2221	Lit/Cult Francophone World	3
FFS 2075	Introduction to French Cinema	3
FFS 3925	Paris, Capital of the 19th-C	3
FFS 3970	Research Seminar	3
	French Electives for EDU B.A. Concentration	6

Teaching Latin Concentration (36 credits)

Credits: 36

- Students in the education major with a Teaching Latin emphasis fulfill their core language and core social science with courses taken in the major.

Item #	Title	Credits
LAT 1111	Introductory Latin I	3
LAT 1112	Introductory Latin II	3
LAT 1121	Intermediate Latin I	3
LAT 1122	Intermediate Latin II	3
	Latin 3001 courses	12
	Classical or Greek Electives for Latin, EDU B.A.	9
CLA 6001	Senior Classics Capstone	3

Teaching Mathematics Concentration (41 credits)

Credits: 41

- Students in the education major with a Teaching Mathematics emphasis fulfill their core math and core social science with courses taken in the major.

Item #	Title	Credits
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
MAT 2600	Foundation of Math I	3
MAT 2705	Diff Equation with Linear Alg	4
MAT 3300	Advanced Calculus	3
MAT 3400	Linear Algebra	3
MAT 3500	Modern Algebra I	3
MAT 3930	History of Mathematics	3
STAT 4310	Stat Methods	3
MAT 5110	Topics in Geometry	3
CSC 1051	Algorithms & Data Struc I	4

Teaching Physics Concentration (41 credits)

Credits: 41

- Students in the education major with a Teaching Physics emphasis fulfill their core math and core social science with courses taken in the major.

Item #	Title	Credits
	CHM 1151 & 1103	5
MAT 2705	Diff Equation with Linear Alg	4
	PHY 2410 & 2411	4
	PHY 2412 & 2413	4
	PHY 2414 & 2415	4
	PHY 2416 & 2417	4
	MSE 2602 & 2652	4
	MSE 2603 & 2653	4
	MSE 2604 & 2654	4

Teaching Social Studies Concentration (42 credits)

Credits: 42

- Students in the education major with a Teaching Social Studies emphasis fulfill their core math and core social science with courses taken in the major.

Item #	Title	Credits
	ECO 1001 or ECO 1002	3
GEV 1002	Geo. of a Globalizing World	3
PSC 1100	American Government	3
PSC 1200	International Relations	3
PSY 1000	General Psychology	3
HIS 2000	Investigating U.S. History I	3
HIS 2001	Investigating US History II	3
	Pre-1750 European History for EDU SS	3
	EDU 2252 or EDU 3258 or EDU 3262	3
	GIS 2000 or CST 2100	3
	SOC 3600 or SOC 1000	3
	Women's History for EDU SS	3
	African American History, EDU B.A. for SS	3
	World History Elective for EDU SS	3

Teaching Spanish Concentration (39 credits)

Credits: 39

- Students in the education major with a Teaching Spanish emphasis fulfill their core language, core math, and core social science with courses taken in the major

Item #	Title	Credits
SPA 1121	Intermediate Spanish I	3
SPA 1122	Intermediate Spanish II	3
SPA 1131	Conversation & Composition I	3
SPA 1132	Conversation & Composition II	3
	SPA 1138 or SPA 1140	3
SPA 2220	Literature & Culture of Spain	3
SPA 2221	Lit. & Cult. of Latin America	3
	Spanish Electives for EDU SPA	15
	Additional SPA elective or SPA 3970	3

Counseling Minor

Program Director: Krista Malott, Ph.D.

Office Location: 302 Saint Augustine Center

Telephone: (610) 519-8103

[Website](#)

About

The Education and Counseling Department undergraduate offerings include a Major in Secondary Education, two different Minor in Education programs, a Minor in Counseling, and a combined [BA/MA in Education](#). The Secondary Education degree has been approved by the Pennsylvania Department of Education (PDE) to recommend candidates for Level I Certification in order to teach in grades 7 through 12 in Pennsylvania's public schools. Faculty in the department are highly engaged in both theoretical and practical research related to education and counseling.

Type: Minor

COUNSELING MINOR (15 credits)

The Minor in Counseling exposes students to knowledge of the field of counseling and the counseling process, evidence-based therapeutic practices, and the application of counseling skills. The minor is not intended to replace graduate level professional training, but to prepare students for entry level helping careers, for advanced graduate work, or to complement coursework from a variety of majors.

Program Notes:

- Students interested in declaring the counseling minor must have a minimum GPA of 3.0

Counseling Minor Required Courses:

Item #	Title	Credits
COU 2000	Introduction to Counseling	3
	COU 3500 or PSY 3700	3
	COU 3100 or three one-credit COM 5300 workshops	3
	COU 3400 or COU 2500	3
	COU 3600 or COU 3700	3

Category Descriptions

COU 3500 or PSY 3700

Credits: 3

Select one of the following:

Item #	Title	Credits
COU 3500	Devlp Perspective to Diagnosis	3
PSY 3700	Psychopathology	3

COU 3100 or three one-credit COM 5300 workshops

Credits: 3

Note: COM 5300 is a 1-credit, 10 hour workshop. Students who select this route must take three one-credit COM 5300 workshops to fulfill the requirement.

Item #	Title	Credits
COU 3100	Group Counseling	3
COM 5300	Topics in Intergroup Dialogue	1

COU 3400 or COU 2500

Credits: 3

Item #	Title	Credits
COU 3400	Culturally Competent Counseling	3
COU 2500	Counseling for Women	3

COU 3600 or COU 3700

Credits: 3

Select one of the following:

Item #	Title	Credits
COU 3600	Motivational Counseling Skills	3
COU 3700	Family & Couples Counseling	3

Education Minor

Program Director: Dr. Christa Bialka

[Website](#)

Type: Minor

About

The Education Minor is 15 credits. The minor in Education does not qualify one to teach in Pennsylvania public schools. If a student wishes to continue toward teacher certification after graduation, they will need to complete the coursework and student teaching required to apply for Pennsylvania certification. Students interested in obtaining teacher certification should speak to Education Undergraduate Program Director, [Dr. Christa Bialka](#), to create a plan for moving forward.

Program Notes:

- Electives other than those listed below may be taken with approval of Chairperson. Please contact [Rita Siciliano](#) for more information on electives and registering for graduate level courses.
- All 8000 level courses need approval of Chairperson.

Required Courses:

Item #	Title	Credits
	EDU 2201 or EDU 2202	3
EDU 3251	Psych of Teaching & Learning	3
EDU 3263	Diversity and Inclusion	3
EDU 4290	Philosophy of Education	3
	EDU Minor Elective	3

Category Descriptions

EDU 2201 or EDU 2202

Credits: 3

Item #	Title	Credits
EDU 2201	Social Foundation Educ I	3
EDU 2202	Social Foundation Edu II	3

EDU Minor Elective

Credits: 3

Choose one course from the following list, or others as approved by Chairperson. Please contact [Rita Siciliano](#) for more information on electives and registering for graduate level courses.

List also includes EDU 8610, 8654, 8656, 8664, 8669, 8679.

Item #	Title	Credits
EDU 2300	Research Seminar in Education	3
EDU 3258	Education & Society in 1960s	3
EDU 3260	World War II Experience in EDU	3
EDU 3262	Edu Pearl Harbor to Sputnik	3
EDU 3264	Intro to Disability Studies	3
EDU 4245	Literacy & Eng Lang Learning	3

Education Policy & Leadership Minor

Program Director: Dr. Christa Bialka

Telephone: 610-519-4733

[Website](#)

About

The Education and Counseling Department undergraduate offerings include a Major in Secondary Education, two different Minor in Education programs, a Minor in Counseling, and a combined [BA/MA in Education](#). The Secondary Education degree has been approved by the Pennsylvania Department of Education (PDE) to recommend candidates for Level I Certification in order to teach in grades 7 through 12 in Pennsylvania's public schools. Faculty in the department are highly engaged in both theoretical and practical research related to education and counseling.

Type: Minor

EDUCATION POLICY & LEADERSHIP MINOR (15 credits)

A minor in Educational Policy and Leadership is designed to help students develop an awareness of global issues in education in order to learn how educational institutions can transform and be transformed by society through school policy and leadership. A minor in Educational Policy and Leadership requires at least 15 credits. The minor in Educational Policy and Leadership does not lead to Pennsylvania teacher certification or qualify one to teach in Pennsylvania public schools.

Program Notes:

- Other courses may count as an elective by approval of Chairperson.
- All 8000 level courses need approval of Chairperson.

Education Policy & Leadership Minor Required Courses:

Item #	Title	Credits
EDU 3264	Intro to Disability Studies	3
	Diversity and Inclusion or Urban Education	3
	EDU 3253 or EDU 8654	3
	Education Policy & Leadership Electives	6

Category Descriptions

Diversity and Inclusion or Urban Education

Credits: 3

Select 1 course (3 cr)

Item #	Title	Credits
EDU 3263	Diversity and Inclusion	3
EDU 3277	Urban Education	3

EDU 3253 or EDU 8654

Credits: 3

Requirement is also fulfilled by EDU 8654, which is a grad-level course.

Item #	Title	Credits
EDU 3253	Educational Policy Analysis	3

Education Policy & Leadership Electives

Credits: 6

Choose six credits from the following list. Other courses may qualify based on approval of Chairperson. Please contact [Rita Siciliano](#) for more information on electives and registering for graduate level courses.

List also includes EDU 8610, 8656, 8664, 8669 and 8679.

Item #	Title	Credits
EDU 2201	Social Foundation Educ I	3
EDU 2202	Social Foundation Edu II	3
EDU 2300	Research Seminar in Education	3
EDU 3251	Psych of Teaching & Learning	3
EDU 4290	Philosophy of Education	3
EDU 4245	Literacy & Eng Lang Learning	3

Teaching Certification

Chair: [Teresa G. Wojcik](#), Ph.D.,
Department of Education and Counseling
Certification Officer: [Nancy Franz](#), M.Ed.
Office Location: 302 Saint Augustine Center
Telephone: 610-519-4620
[Website](#)

About

Teacher certification can only be obtained within the context of the Bachelor of Arts in Education program. Villanova does not offer a stand alone teaching certification program.

Villanova University's secondary teacher education program is approved by the Pennsylvania Department of Education as satisfying the requirements for teacher certification in 9 subject areas. Students with majors in departments other than Education and Counseling may be admitted to the teacher education program upon the approval of the Program Director.

Student Teaching is normally taken in the second semester of the senior year. Exploratory-Arts students who may be interested in Secondary Teacher Certification should stop by the Office of Education and Counseling, 302 St. Augustine Center for the Liberal Arts, as soon as possible to discuss the content area prerequisites and the requirements of the Education major.

Students enrolled in the Undergraduate Teacher Education Program will have their work reviewed each semester by academic advisor to determine progress and professional development for certification. Students must achieve a 3.0 overall GPA and successful completion of the PAPA tests (or satisfaction of the *SAT/ ACT exemption) before they are permitted to do student teaching. Students who do not achieve the required cumulative average by spring semester junior year will not be allowed to continue in the education major.

AREAS OF CERTIFICATION:

Biology, Chemistry, English, French, Latin, Mathematics, Physics, Spanish, and Social Studies.

Upon successful completion of the Education major courses, the required courses in their certification content area, the PAPA, and the Praxis II exams, the student will be eligible for Pennsylvania teaching certification in grades 7-12.

*SAT/ACT exemption: Students who receive qualifying score on the subset testing of the SAT and ACT may be exempt from taking the PAPA basic skills test. For more information please contact [Nancy Franz](#), M.Ed.

Type: Certificate

English

Upcoming Courses

- [Fall 2020 Upper-Level Courses](#)
- [Fall 2020 1842 First-Year Courses](#)

English Major

Chair: Heather Hicks, Ph.D.

Office Location: 402 Saint Augustine Center

Telephone: 610-519-4630

[Website](#)

About

The English department believes that skillful, self-aware reading, writing, and thinking provide a foundation for meaningful living. We seek to develop forms of analysis and expression that are both critical and creative and that help us comprehend the multiple cultural practices and values of the twenty-first century. Villanova English majors acquire a broad understanding of Anglophone literary history as well as familiarity with the major genres of the tradition. A department of accomplished scholars, we focus on undergraduate education and make our majors the center of pedagogy. While preserving the value of literature as a cultural form, we cultivate in our students the analytical skills necessary for negotiating today's rapidly changing world.

Type: Bachelor of Arts

MAJOR (33 credits)

English majors take a range of courses, from required courses (chosen from a number of possibilities) that provide a sense of the historical range and diversity of literature in English to electives covering contemporary writers, film, creative writing, and many more topics. Students can also form tracks (such as Professional Writing, World Literature, or Race and Ethnicity) within the major. English courses are particularly well-suited to helping students become better readers, writers, and analytical thinkers; because of those skills, and because of the breadth of literature, English courses are valuable in all aspects of our lives.

Program Notes:

- There is no prerequisite to the major, but we strongly recommend that you take English 3001 (Foundational Literature in English I) early, since it will introduce you to writers, texts, and issues that are crucial to most subsequent courses.
- “Special Topics” signifies that the specific focus of the course varies by semester.

Required Major Courses:

Item #	Title	Credits
	BIPOC Literature Course	3
	Pre-1800 Literature Courses	6
	Post-1800 Literature Course	6
ENG 2250	Ways of Reading:Lit Analysis	3
ENG 5000	Senior Seminar	3
	English Electives 1800 and Above	15

Category Descriptions

BIPOC Literature Course

Credits: 3

Choose one course focused on Black, Indigenous, Person of Color (BIPOC) literature from the historical requirements from the list below.

- The following courses may also fulfill the requirement: ENG 3661, ENG 4635.

Item #	Title	Credits
ENG 2304	Cont World Lit & Environment	3
ENG 2305	Black Life Writing	3
ENG 3618	Intro to African Lit I	3
ENG 3619	Intro to African Lit II	3
ENG 3650	African Drama	3
ENG 3660	Contemp. Lit & Film of India	3
ENG 4003	African-American Lit Trad 1	3
ENG 4010	Early American Textual Bodies	3
ENG 4500	American Slave Narrative	3
ENG 4502	The Black Atlantic	3
ENG 4503	Indigenous Lit of the Americas	3
ENG 4602	African American Lit Trad 2	3
ENG 4603	African American Short Story	3
ENG 4610	African American Poetry	3
ENG 4618	Harlem Renaissance	3
ENG 4622	African American Women Writers	3
ENG 4623	African American Novel	3
ENG 4632	African American Drama	3
ENG 4641	American Immigrant Narratives	3
ENG 4646	Race & Ethnicity: Amer Novel	3
ENG 4648	U.S. Empire & Cont. Am. Lit.	3
ENG 4649	Intro to Asian American Lit	3
ENG 4651	Lives of the Undocumented	3
ENG 4653	Work/Play in Cont. Latinx Lit	3
ENG 4700	Caribbean Literature	3

Pre-1800 Literature Courses

Credits: 6

Choose two courses in literature before 1800, in two different areas.

Pre-1500

ENG 3190 and ENG 3195 may also fulfill this requirement.

Item #	Title	Credits
ENG 3000	Intro to OE Lang & Lit	3
ENG 3001	Foundational Lit in ENG 1	3
ENG 3150	Chaucer	3
ENG 3160	Fabulous Middle Ages	3
ENG 3170	Love & War in Medieval Romance	3
ENG 3181	Irish Epics, Visions&Hauntings	3

1500-1650

ENG 3290 may also fulfill this requirement.

Item #	Title	Credits
ENG 3001	Foundational Lit in ENG 1	3
ENG 3181	Irish Epics, Visions&Hauntings	3
ENG 3201	English Renaissance	3
ENG 3230	Eliz & Jacobean Drama	3
ENG 3250	Shakespeare	3
ENG 3260	Revenge Tragedy	3
ENG 3300	17th Cent Poetry & Prose	3
ENG 3350	Milton	3

1650-1800

ENG 3195, ENG 3426, ENG 3427, ENG 3428, and ENG 3490 may also fulfill this requirement.

Item #	Title	Credits
ENG 3001	Foundational Lit in ENG 1	3
ENG 3300	17th Cent Poetry & Prose	3
ENG 3350	Milton	3
ENG 3425	British Gothic Fiction	3
ENG 3430	Restor & 18th cent Drama	3
ENG 3440	Harlots, Rakes, & Libertines	3
ENG 3450	Dryden Swift & Pope	3
ENG 4010	Early American Textual Bodies	3
ENG 4503	Indigenous Lit of the Americas	3

Post-1800 Literature Course

Credits: 6

Choose two courses in literature after 1800, one from each time period.

1800- 1945

ENG 3428, ENG 3590, ENG 4590, and ENG 4624 may also count toward fulfilling the requirement.

Item #	Title	Credits
ENG 3425	British Gothic Fiction	3
ENG 3500	Foundational Lit. in English 2	3
ENG 3501	Early Romantic Writers	3
ENG 3502	Later Romantic Writers	3
ENG 3504	19th Cent Brit Women Writers	3
ENG 3505	Poetry & Prose 1830-1865	3
ENG 3506	Poetry & Prose 1865-1900	3
ENG 3507	StrangeCases:ImagHealth&Illnes3	3
ENG 3520	19th Cent British Novel	3
ENG 3525	Dickens	3
ENG 3530	Victorian Doubles	3
ENG 3540	Institutional Fictions	3
ENG 3580	Topics in 19th C Irish Lit&Cul	3
ENG 3610	Modern British Poetry	3
ENG 3615	James Joyce	3
ENG 3617	Irish Revivalism	3
ENG 3618	Intro to African Lit I	3
ENG 3620	Modern British Novel	3
ENG 3622	Virginia Woolf	3
ENG 3630	Modern British Drama	3
ENG 3640	Irish Drama	3
ENG 4000	American Literary Trad 1	3
ENG 4001	Major American Writers I	3
ENG 4003	African-American Lit Trad 1	3
ENG 4500	American Slave Narrative	3
ENG 4501	Amer Transcendentalism	3
ENG 4502	The Black Atlantic	3
ENG 4503	Indigenous Lit of the Americas	3
ENG 4505	Concord Writers	3
ENG 4515	American Gothic	3
ENG 4520	American Novel to 1945	3
ENG 4530	The American Renaissance	3
ENG 4540	The American Revolutionary Era	3
ENG 4641	American Immigrant Narratives	3
ENG 4545	Early American Novel	3
ENG 4591	Am. Lit. & Cult. before 1945	3
ENG 4600	Amer Literary Trad 2	3
ENG 4603	African American Short Story	3

ENG 4605	Amer Poetry: 1900-1950	3
ENG 4606	Alone Together-Social Dist Lit	3
ENG 4610	African American Poetry	3
ENG 4618	Harlem Renaissance	3
ENG 4619	The Works of Edith Wharton	3
ENG 4620	American Novel 1895-1950	3
ENG 4622	African American Women Writers	3
ENG 4623	African American Novel	3
ENG 4652	Letters, Texts, & Twitter	3

1945 - Present

ENG 3661, ENG 3690, ENG 4624, and ENG 4690 may also count toward fulfilling the requirement.

Item #	Title	Credits
ENG 2304	Cont World Lit & Environment	3
ENG 2305	Black Life Writing	3
ENG 2360	Adaptation:Film as Literature	3
ENG 2410	The Art of Translation	3
ENG 3616	Irish American Drama & Film	3
ENG 3618	Intro to African Lit I	3
ENG 3619	Intro to African Lit II	3
ENG 3621	Contemp British Novel	3
ENG 3650	African Drama	3
ENG 3660	Contemp. Lit & Film of India	3
ENG 3680	Top: 20th-21st C Irish Lit&Cul	3
ENG 3682	Contemporary Irish Literature	3
ENG 3691	Br/Ir Lit. & Cult. after 1900	3
ENG 4600	Amer Literary Trad 2	3
ENG 4601	Major American Writers II	3
ENG 4602	African American Lit Trad 2	3
ENG 4603	African American Short Story	3
ENG 4606	Alone Together-Social Dist Lit	3
ENG 4610	African American Poetry	3
ENG 4615	Amer Poetry since 1950	3
ENG 4621	Amer Novel since 1950	3
ENG 4622	African American Women Writers	3
ENG 4623	African American Novel	3
ENG 4630	American Drama to 1960	3
ENG 4631	Amer Drama since 1960	3
ENG 4632	African American Drama	3
ENG 4636	Contemp Amer Women's Poetry	3
ENG 4640	Contemp Amer Women's Lit	3
ENG 4641	American Immigrant Narratives	3
ENG 4645	Post Modern Amer Fiction	3
ENG 4646	Race & Ethnicity: Amer Novel	3
ENG 4647	Gender & Sexuality in US Lit	3
ENG 4648	U.S. Empire & Cont. Am. Lit.	3

ENG 4649	Intro to Asian American Lit	3
ENG 4651	Lives of the Undocumented	3
ENG 4652	Letters, Texts, & Twitter	3
ENG 4653	Work/Play in Cont. Latinx Lit	3
ENG 4691	Amer. Lit. & Cult. after 1945	3
ENG 4700	Caribbean Literature	3
ENG 4702	Authors On & Off the Page	3
ENG 4703	21st C. American Apocalypse	3

English Electives 1800 and Above

Credits: 15

Choose five courses numbered 1800 and above, with the exception of 1975, which cannot be counted.

Creative Writing Minor

Website

The Creative Writing Program offers an interdisciplinary Minor in Creative Writing to students across the university. The goal of the program is to support students in their creative writing endeavors. The Creative Writing Program seeks to offer students the opportunity to augment their degree by taking courses that will awaken their imagination, develop their skills as creative writers and thinkers, and foster greater empathy towards the experiences of others.

The Creative Writing Program also seeks to create a "space of creativity" within the university. Through courses and workshops, students will interact with and learn from their peers as well as published novelists, poets, playwrights and screenwriters.

Interested freshmen may wish to take part in our [Creative Writing Community](#).

Type: Minor

MINOR (15 credits)

Program Notes:

- Students must take ENG 2003: Introduction to Creative Writing as a prerequisite to the minor.
- Students may also complete an Independent Study (Completion of a collection of stories or poems, or a novel) upon approval.

Item #	Title	Credits
ENG 2003	Intro to Creative Writing	3
ENG 4702	Authors On & Off the Page	3
	Creative Writing Electives	9

Category Descriptions

Creative Writing Electives

Credits: 9

Choose three courses from the following list:

Item #	Title	Credits
ENG 1842	Perspectives in Literature	3
ENG 2005	Writing of Short Story	3
ENG 2006	The Writing of Poetry	3
ENG 2007	The Writing of Screenplays	3
ENG 2009	Writing the Traditional Novel	3
ENG 2012	Advanced Creative Writing	3
ENG 2013	Writing of Memoir	3
ENG 2045	Sp Top in Writing & Rhetoric	3
ENG 2060	Desktop Publishing	3
COM 3303	Screenwriting	3
HON 5440	Literary Arts:Poetry	1
HUM 2900	Topics	3
THE 3007	Playwriting	3

English Minor

Program Contact: Amanda Eliades, Advisor for English Minors

Office Location: Saint Augustine Center, Room 402

[Website](#)

About

The English department believes that skillful, self-aware reading, writing, and thinking provide a foundation for meaningful living. We seek to develop forms of analysis and expression that are both critical and creative and that help us comprehend the multiple cultural practices and values of the twenty-first century. Villanova English minors acquire an understanding of the scope of Anglophone literature as well as familiarity with some of the major genres of the tradition. A department of accomplished scholars, we focus on undergraduate education and cultivate in our students the analytical skills necessary for negotiating today's rapidly changing world.

Type: Minor

ENGLISH MINOR (15 credits)

To complete an English Minor, you take five English courses (15 credits) numbered 1800 or higher, with the exception of 1975, which cannot be counted. To declare an English Minor, students should complete the application for an English Minor located [here](#).

Required Minor Courses:

- Literature Beyond the Americas (3 cr) - Select 1 Class from: 3000:3999
- Literature of the Americas (3 cr) - Select 1 Class from: 4000:4999
- English Electives (9 cr) - Select 3 Classes from: ENG 1842:5000 (with the exception of ENG 1975)

Program Notes:

- At least three of these courses must be taken at Villanova.
- Course numbers from 2000 to 4999 refer only to the subjects that the course cover, and do not reflect the level or difficulty.

Ethics

Ethics Minor

Program Director: Mark Doorley, Ph.D.

Associate Director: Brett T. Wilmot, Ph.D.

Office Location: 104 Saint Augustine Center
Telephone: 610-519-4692
[\[Website\]](#)

About

Here at Villanova University, we believe that at the heart of every human endeavor we find assumptions about what it means to live well as human beings in the world and in relationships with others—human, non-human, and divine. The aim of the Ethics Program is to provide students with opportunities to explore these assumptions, to understand their origins in our great intellectual traditions, and to engage them critically using methods and resources both theological and philosophical.

MINOR (18 credits)

Villanova University prides itself on presenting an educational alternative built around a clear ethical core, in particular, the moral teachings of the Catholic intellectual tradition. The ethics minor allows students to pursue the study of ethics explicitly and in depth as part of their undergraduate education. The minor contributes directly to the mission of the university. A focus on a particular set of questions/issues within ethics not only benefits students' intellectual and moral development and contributes to the public perception of the university but also has tangible benefits for students as they apply for graduate studies, fellowships, and job on completion of their studies.

Program Notes

- Students choose a focus of study and pursue courses listed below, in consultation with their Ethics faculty advisor. To view examples of potential ethics minor foci, [click here](#).
- Each semester the upper-level courses that will count toward the minor will be marked in the Master Schedule, in the Attributes section with "Fulfills ethics minor requirement." These will also be listed on the Ethics Program website. It is important for students to be sure they take the upper level courses that are affiliated with their focus of study.
- The ETH 30xx courses will be planned five semesters in advance so that students will know what will be offered in future

semesters, for planning purposes. This information will be available on the Ethics Program website.

- Students are able to do service work in lieu of one of their elective courses in all focus areas. The service must be related to their focus of study, amount to at least 60 hours of service, and not be credit-bearing or paid work. Students will register for ETH 4975 Ethics Independent Study (3 cr) and must complete their service and associated assignments in that same semester. Students must get approval of their service site from the Associate Director of the Ethics Program.

Type: Minor

Required Courses

Item #	Title	Credits
ETH 2050	The Good Life:Eth & Cont Prob	3
	Upper-Level Ethics Elective	3
	Philosophical Ethics Course	3
	Theological Ethics Course	3
	Two Electives in the Student's Chosen Focus	6

Category Descriptions

Upper-Level Ethics Elective

Credits: 3

One Ethics course of 3000 level or higher. Ideally this course should advance the aims of the student's chosen focus.

Philosophical Ethics Course

Credits: 3

A student will take one course in philosophical ethics, offered by ETH, HON, HUM, PHI or PJ, related to the chosen focus,

Theological Ethics Course

Credits: 3

A student will take one course in theological ethics, offered by ETH, HON, HUM, PJ or TH, related to the chosen focus

Two Electives in the Student's Chosen Focus

Credits: 6

Students must take two electives that may or may not be ethics courses, but which are relevant to the chosen theme/focus.

While there are many possible combinations of courses on particular themes than we can identify here, what follows are possible courses of study. The goal for the ethics advisor and the student is to identify a set of courses that have coherence in light of the focus of study.

To view examples of prospective areas of focus, [click here](#).

French and Francophone Studies

French & Francophone Studies Major

Program Director: Étienne Achille, Ph.D.
Office Location: 343 Saint Augustine Center
Telephone: 610-519-5468
[Website](#)

About

The French and Francophone Studies Program (FFS) offers a major and a minor. FFS emphasizes language skills and offer interdisciplinary studies in the faculty's area of specialization: French literature and cinema; the cultures and literatures of the Francophone world; and stylistics and translation. Francophone studies is a dynamic and rapidly expanding field. Villanova's interdisciplinary FFS have been designed to provide students with a thorough grounding in the literatures, history, politics, cultural production, sociolinguistics, post-colonial experiences, and development of Francophone countries.

Type: Bachelor of Arts

MAJOR (31 credits)

The Major consists of 31 FFS credits above the intermediate level (FFS 1122), including courses in literature, cinema, and cultural studies. Students may obtain up to 6 credits through the Villanova summer program in Lille, France, and up to 9 credits through the semester program.

Program Notes:

- One RLL course taught in English with FFS attribute may be accepted for the major.
- FFS 3971 is to be taken in conjunction with any 3000-level course.

Required Major Courses:

Item #	Title	Credits
	FFS 1138 or FFS 1140	3
	FFS 2220 or FFS 2221	3
FFS 3971	Directed Research in FFS	1
	FFS 3000+ elective	3
	French and Francophone Studies Electives	21

Category Descriptions

FFS 1138 or FFS 1140

Credits: 3

Item #	Title	Credits
FFS 1138	Advanced Grammar	3
FFS 1140	Writing & Stylistics in French	3

FFS 2220 or FFS 2221

Credits: 3

Item #	Title	Credits
FFS 2220	Lit and Culture of France	3
FFS 2221	Lit/Cult Francophone World	3

FFS 3000+ elective

Credits: 3

French and Francophone Studies Elective (3000 level or above) (3 cr) - Select 1 Class from FFS 3000:9999

French and Francophone Studies Electives

Credits: 21

Select 7 Classes from FFS 1123:9999 totaling 21 cr.

French and Francophone Studies Minor

Program Director: Étienne Achille, Ph.D.
Office Location: 343 Saint Augustine Center
Telephone: 610-519-5468
[Website](#)

About

The French and Francophone Studies Program (FFS) offers a major and a minor. FFS emphasizes language skills and offer interdisciplinary studies in the faculty's area of specialization: French literature and cinema; the cultures and literatures of the Francophone world; and stylistics and translation. Francophone studies is a dynamic and rapidly expanding field. Villanova's interdisciplinary FFS have been designed to provide students with a thorough grounding in the literatures, history, politics, cultural production, sociolinguistics, post-colonial experiences, and development of Francophone countries.

Type: Minor

MINOR (15 credits)

A minor is open to all students and requires 5 courses above intermediate level (FFS 1122).

Program Notes:

- No course in English may count for the minor.

Required Minor Courses:

Item #	Title	Credits
	FFS Electives for Minor	15

Category Descriptions

FFS Electives for Minor

Credits: 15

Select 5 Classes of three or more credits from FFS 1130:9999

Gender and Women's Studies

Gender and Women's Studies Minor

Co-Directors: Travis Foster, Ph.D. and Kelly-Anne Diamond, Ph.D.
[\[Website\]](#)

About

Gender and Women's Studies encourages critical analysis of gender and sexuality at local, national, and global levels—now and in the past. Our curriculum brings feminist and queer theory into conversation with fields of study across the University, from history to sociology to global finance, helping students discover new alternatives for thinking about the problems of the world and the contributions of its people. As teachers, we are profoundly influenced by feminist models of collaborative learning and shared authority. We recognize our students and their life experiences as sources of vital expertise, and we help them find a voice, a sense of community, and a purpose as agents of social change.

Type: Minor

MINOR (18 credits)

The minor is open to all students and requires 2 courses and 4 electives for a total of 18 credits. Student may choose their four electives from any GWS-attributed courses that are available in a variety of disciplines.

Required Minor Courses:

Item #	Title	Credits
GWS 2050	Introduction to Gender Studies	3
GWS 5000	Integrating Seminar	3
	GWS Electives for Minor	12

Category Descriptions

GWS Electives for Minor

Credits: 12

Select 4 Classes in any course of 3 credits or more in any subject with the GWS attribute

Geography and the Environment

Environmental Studies Major

Chair: Nathaniel Weston, Ph.D.

Program Director: Peleg Kremer, Ph.D.

Office Location: Suite G61, Mendel Science Center

Telephone: 610-519-3336

[Website](#)

About

The Department of Geography and the Environment offers B.A. degrees in Geography and Environmental Studies, and a B.S. in Environmental Science. The department also offers minors in Geography and Sustainability Studies. The department's overarching objective is to integrate the disciplines of geography and environmental science to seek an understanding of human and environmental patterns, the processes that produce those spatial patterns, and salient human and environmental problems that face modern society. The department has three teaching and five research labs; and the department has a full suite of state-of-the-art geospatial software and scientific research equipment.

Type: Bachelor of Arts

MAJOR (57 credits)

The B.A. in Environmental Studies program focuses on the interface between environmental science and relevant social sciences, including public policy, political science, law, economics, sociology, and planning. Towards this end, the program's graduates will have a fundamental understanding of the biological, chemical, and physical principles that underlie the structure and function of the natural and physical environments of the Earth coupled with a foundation in the social sciences that underlie the relationships between humans, as individuals and/or societies, and the natural and physical environments of Earth. The program is founded on the principle that the social sciences – both as a bodies of knowledge and as the bases for structuring human societal norms and behaviors – must be applied to assess and to address the direct and indirect influences of human activities on the integrity of the Earth's systems.

Program Notes:

- Consider course offerings with environmental content when selecting the twelve free electives.
- BIO 3105 or MAT 4310 may fulfill the requirement for GEV 3300.
- GEV 6006 must be taken a total of three times prior to graduation.
- Students must select one track in either the Environmental Sustainability Concentration or Environmental Management Concentration, as listed below.
- Two environmental social science and humanities electives are required for the major, and not included in the 57 credits as they count towards core or free elective credits.

Required Major Courses:

Item #	Title	Credits
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 2001	Prof Dev in Geo and Env	1
GEV 4310	Environmental Issues Seminar	3
GEV 3300	Stats. in Environmental Sci.	3
GEV 4700	Geographic Information Systems	4
GEV 3004	Geographies Envrnl Justice	3
GEV 6005	Senior Research Seminar	1
GEV 6006	Research Colloquium	0

GEV 6006	Research Colloquium	0
GEV 6006	Research Colloquium	0
	Environmental Social Sciences and Humanities Electives	0
	GEV Independent Study Requirement	3-6

Environmental Sustainability Concentration

Associated Career Paths: Corporate Sustainability, Environmental Planning, Environmental Journalism.

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3
GEV 4001	Advanced Sustainability Study	4
	Geospatial Technology	3-4
	Policy and Management Electives for ES Concentration	12
	Science and Technology Electives for ES Concentration	9

Environmental Management Concentration

Associated Career Paths: Environmental Consulting, Environmental Health, Environmental Law.

Item #	Title	Credits
	CHM 1151 & 1103	5
GEV 2310	Environmental Chemistry	4
GEV 1750	Geo-Techniques	4
	Policy and Management Electives for EM Concentration	6
	Science and Technology Electives for EM Concentration	12

Category Descriptions

Environmental Social Sciences and Humanities Electives

Credits: 0

- Select two classes from this list, or any course of three or more credits with the GESH attribute.
- Course credits are counted under core curriculum or free electives.

Item #	Title	Credits
GEV 3004	Geographies Envrnl Justice	3
GEV 4340	Spec Topics in Environm Issues	3
HIS 2276	American Environmental Hist	3
PHI 2160	The Ethics of War	3
THL 4330	Christian Environmental Ethics	3

GEV Independent Study Requirement

Credits: 3-6

- Choose GEV 6200: Independent Study (3 cr) OR
 - GEV 6210 and 6220: Senior Thesis I & II (6 cr – 3 cr of which count as a free elective)

Item #	Title	Credits
GEV 6200	Independent Study	3
Item #	Title	Credits
GEV 6210	Senior Thesis Research I	3
GEV 6220	Senior Thesis Research II	3

Geospatial Technology

Credits: 3-4

Select 1 courses from the list (3-4cr)

Item #	Title	Credits
GEV 3521	GIS for Urban Sustainability	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4710	Adv. Geographic Info Sys	4

Policy and Management Electives for ES Concentration

Credits: 12

Select 4 courses from the list, or any course of three or more credits with the GEPM attribute.

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4001	Advanced Sustainability Study	4
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
PA 2000	Public Policy	3

Science and Technology Electives for ES Concentration

Credits: 9

Select 3 classes from the list below, or any course of three or more credits with the GESC attribute.

Item #	Title	Credits
GEV 2500	Global Change in Local Places	3
GEV 3002	Ecosystem Services	3
GEV 3003	Environmental Geology	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3303	Soil Science	3
GEV 3304	Air Pollution	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4352	Physical Geology	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

CHM 1151 & 1103

Credits: 5

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1

Policy and Management Electives for EM Concentration

Credits: 6

Select 2 courses from the list, or any course of three or more credits with the GEPM attribute.

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4001	Advanced Sustainability Study	4
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
PA 2000	Public Policy	3

Science and Technology Electives for EM Concentration

Credits: 12

Select 4 classes from the list below, or any course of three or more credits with the GESG attribute.

Item #	Title	Credits
GEV 2500	Global Change in Local Places	3
GEV 3002	Ecosystem Services	3
GEV 3003	Environmental Geology	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3303	Soil Science	3
GEV 3304	Air Pollution	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4352	Physical Geology	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

Geography Major

Chair: Nathaniel Weston, Ph.D.

Program Director: Stephen Strader, Ph.D.

Office Location: Suite G61, Mendel Science Center

Telephone: 610-519-3336

[Website](#)

About

The Department of Geography and the Environment offers B.A. degrees in Geography and Environmental Studies, and a B.S. in Environmental Science. The department also offers minors in Geography and Sustainability Studies. The department's overarching objective is to integrate the disciplines of geography and environmental science to seek an understanding of human and environmental patterns, the processes that produce those spatial patterns, and salient human and environmental problems that face modern society. The department has three teaching and five research labs; and the department has a full suite of state-of-the-art geospatial software and equipment.

Type: Bachelor of Arts

MAJOR (37 credits)

The B.A. in Geography provides a well-rounded and useful education and marketable skills to students with interests in the spatial patterns of society and the environment. It focuses on the interactions of humans with the natural and physical environments of Earth from a special perspective. Towards this end, the program's graduates will have a fundamental understanding of the human social dynamics and physical patterns and processes at the Earth's surface, such as globalization, climatic variation and natural disasters within the context of places, landscapes, and regions. Graduates will also be trained in the use of geospatial technologies as tools in addressing many modern concerns. The program is founded on the principle that geographical knowledge of place, space, and scale can provide essential insights into contemporary social and environmental issues and variation in human cultures and behaviors, and promotes the idea that such insight is critical to managing the Earth at local, regional and global scales.

Program Notes:

- A 1000-level GEV topics course may substitute for either GEV 1002 or GEV 1003.

Required Major Courses:

Item #	Title	Credits
GEV 1002	Geo. of a Globalizing World	3
GEV 1003	Geo. of Earth's Environments	3
GEV 1750	Geo-Techniques	4
GEV 2001	Prof Dev in Geo and Env	1
GEV 2500	Global Change in Local Places	3
GEV 4700	Geographic Information Systems	4
GEV 6005	Senior Research Seminar	1
GEV 6006	Research Colloquium	0
GEV 6006	Research Colloquium	0
GEV 6006	Research Colloquium	0
	GEV Independent Study Requirement	3-6
	GEV Regional Perspectives Course	3
	GEV Geospatial Technology Course	3
	Geography Electives for B.A.	9

Category Descriptions

GEV Independent Study Requirement

Credits: 3-6

- Choose GEV 6200: Independent Study (3 cr) OR
 - GEV 6210 and 6220: Senior Thesis I & II (6 cr – 3 cr of which count as a free elective)

Item #	Title	Credits
GEV 6200	Independent Study	3
Item #	Title	Credits
GEV 6210	Senior Thesis Research I	3
GEV 6220	Senior Thesis Research II	3

GEV Regional Perspectives Course

Credits: 3

Choose one Regional Perspectives course from the list.

Item #	Title	Credits
GEV 3500	Geography of North America	3
GEV 3515	Geography of Africa	3
GEV 3522	Geography of the Middle East	3

GEV Geospatial Technology Course

Credits: 3

Item #	Title	Credits
GEV 3521	GIS for Urban Sustainability	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4710	Adv. Geographic Info Sys	4

Geography Electives for B.A.

Credits: 9

Select 3 classes from this list.

Item #	Title	Credits
GEV 2525	Population Geography	3
GEV 3004	Geographies Envrnl Justice	3
GEV 3500	Geography of North America	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3515	Geography of Africa	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3522	Geography of the Middle East	3
GEV 3550	Natural Hazards	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4352	Physical Geology	3
GEV 4510	Special Topics in Geography	3
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

Environmental Science Major

Chair: Nathaniel Weston, Ph.D.

Program Director: Kabindra Shakya, Ph.D.

Office Location: Suite G61, Mendel Science Center

Telephone: 610-519-3336

[Website](#)

About

The Department of Geography and the Environment offers B.A. degrees in Geography and Environmental Studies, and a B.S. in Environmental Science. The department also offers minors in Geography and Sustainability Studies. The department's overarching objective is to integrate the disciplines of geography and environmental science to seek an understanding of human and environmental patterns, the processes that produce those spatial patterns, and salient human and environmental problems that face modern society. The department has three teaching and five research labs; and the

department has a full suite of state-of-the-art geospatial software and scientific research equipment.

Type: Bachelor of Science

MAJOR (70 credits)

The B.S. in Environmental Science Program provides the technical background necessary for understanding the biological, chemical, and physical aspects of the environment. It focuses on the application of biological, chemical and physical principals to understanding the natural and physical environments of the Earth. Towards this end, the program's graduates will have an understanding of and appreciation for the processes and interactions that occur both within and between the atmosphere, the biosphere, the lithosphere, and the hydrosphere. The program is founded on the principle that science – both as a body of knowledge and as a process that is grounded in intellectual inquiry and the scientific method – must be applied to assess the direct and indirect influences of human activities on the integrity of the Earth's systems.

Program Notes:

- Consider course offerings with environmental content when selecting the ten free electives.
- BIO 3105 or MAT 4310 may fulfill the GEV 3300 requirement.
- MAT 1310 may fulfill the MAT 1500 requirement.
- GEV 6006 must be taken a total of 3 times prior to graduation.

Required Major Courses:

Item #	Title	Credits
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1750	Geo-Techniques	4
GEV 2001	Prof Dev in Geo and Env	1
GEV 2310	Environmental Chemistry	4
	Statistics for Environmental Science	3
GEV 4310	Environmental Issues Seminar	3
GEV 4700	Geographic Information Systems	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
MAT 1500	Calculus I	4
GEV 6005	Senior Research Seminar	1
GEV 6006	Research Colloquium	0
GEV 6006	Research Colloquium	0

GEV 6006	Research Colloquium	0
	GEV Independent Study Requirement	3-6
	GEV Lab Elective	8
	GEV Science and Technology Electives	12
	GEV Policy and Management Electives	6

Category Descriptions

Statistics for Environmental Science

Credits: 3

Select 1 course from those listed.

- Note: MAT 1313 and MAT 4310 also satisfy this but were renumbered as STAT courses term 202120.

Item #	Title	Credits
BIO 3105	Biostatistics & Exp Design	4
GEV 3300	Stats. in Environmental Sci.	3
STAT 1313	Statistics for Life Sciences	3
STAT 4310	Stat Methods	3

GEV Independent Study Requirement

Credits: 3-6

- Choose GEV 6200: Independent Study (3 cr) OR
 - GEV 6210 and 6220: Senior Thesis I & II (6 cr - 3 cr of which count as a free elective)

Item #	Title	Credits
GEV 6200	Independent Study	3
Item #	Title	Credits
GEV 6210	Senior Thesis Research I	3
GEV 6220	Senior Thesis Research II	3

GEV Lab Elective

Credits: 8

Select 2 Classes from the list below, or any course of four or more credits with the GESC attribute.

BIO or CHM lab courses >2000 may fulfill this requirement.

Item #	Title	Credits
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4

GEV Science and Technology Electives

Credits: 12

Select 4 classes from the list below, or any course of three or more credits with the GESC attribute.

Item #	Title	Credits
GEV 2500	Global Change in Local Places	3
GEV 3002	Ecosystem Services	3
GEV 3003	Environmental Geology	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3303	Soil Science	3
GEV 3304	Air Pollution	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4352	Physical Geology	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

GEV Policy and Management Electives

Credits: 6

Select 2 Classes from the list, or any course of three or more credits with the GEPM attribute.

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4001	Advanced Sustainability Study	4
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
PA 2000	Public Policy	3

Geography Minor

Chair: Nathaniel Weston, Ph.D.

Program Director: Stephen Strader, Ph.D.

Office Location: Suite G61, Mendel Science Center

Telephone: 610-519-3336

[Website](#)

About

The Department of Geography and the Environment offers B.A. degrees in Geography and Environmental Studies, and a B.S. in Environmental Science. The department also offers minors in Geography and Sustainability Studies. The department's overarching objective is to integrate the disciplines of geography and environmental science to seek an understanding of human and environmental patterns, the processes that produce those spatial patterns, and salient human and environmental problems that face modern society. The department has three teaching and five research labs; and the department has a full suite of state-of-the-art geospatial software and equipment.

Type: Minor

MINOR (16 credits)

The geography minor is open to all students and requires 5 courses and 16 credits, and it is designed for students who wish to deepen and broaden their knowledge of the world with a distinctive yet flexible program of courses encompassing the relationship between the environment and society. The minor enables students to develop a coherent strategy for understanding and explaining the manner in which people and the Earth interact.

Required Minor Courses:

Item #	Title	Credits
	GEV 1002 or GEV 1003	3
GEV 4700	Geographic Information Systems	4
	GEV Regional Perspectives Course	3
	Geography Electives for Minor	6

Category Descriptions

GEV 1002 or GEV 1003

Credits: 3

Item #	Title	Credits
GEV 1002	Geo. of a Globalizing World	3
GEV 1003	Geo. of Earth's Environments	3

GEV Regional Perspectives Course

Credits: 3

Choose one Regional Perspectives course from the list.

Item #	Title	Credits
GEV 3500	Geography of North America	3
GEV 3515	Geography of Africa	3
GEV 3522	Geography of the Middle East	3

Geography Electives for Minor

Credits: 6

Select 2 classes from this list.

Item #	Title	Credits
GEV 2525	Population Geography	3
GEV 3004	Geographies Envrnl Justice	3
GEV 3500	Geography of North America	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3515	Geography of Africa	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3522	Geography of the Middle East	3
GEV 3550	Natural Hazards	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4352	Physical Geology	3
GEV 4510	Special Topics in Geography	3
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

Global Interdisciplinary Studies

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

All students must choose one specialization from the sections listed below.

The Department of Global Interdisciplinary Studies also offers minors in the following programs: Arabic Language and Cultural Studies,

Chinese Language and Cultural Studies, Japanese Language and Cultural Studies, Russian Language and Cultural Studies. Visit these individual pages to view requirements.

Africana Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.
Office Location: 36 Garey Hall
Telephone: 610-519-6302
[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Villanova's Africana Studies Program connects faculty, students, and community members interested in the academic study of Africa and the African diaspora. With 25 faculty affiliates, about 20 courses offered each semester, a robust calendar of public events, and a major and a minor, the Program has grown significantly since its founding in 1994. Whether the topic is politics in Africa, the literature of the Black diaspora in France, the history of the US civil rights movement, or Black theology, the Africana Studies Program encourages critical thinking, crossing disciplinary boundaries, and connecting academic work with lived reality. The Africana Studies Program pursues knowledge that has often been overlooked or undervalued as we strive to develop deeply inclusive community. Indeed, as an Augustinian Catholic university, Villanova is oriented to its core by the vision of an African diasporic faith leader.

Required Specialization Courses:

Six courses with the AFR attribute for a minimum of 18 credits, including the courses listed below.

Program Notes:

- Students may also combine three 1-credit IGR courses to count as one of the undesignated Africana courses
- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).
- Courses taken as part of a study abroad program may be counted
- A GIS 5011 with AFR attribute (or other course approved by the program director) may be counted among the six courses, as long as the two required GIS 5011 courses for the GIS major have been fulfilled.

Required GIS Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2: Thesis	3
GIS 5000	Special Topics	1
	Study Abroad	
AFR 3000	Constructs of Blackness	3

Category Descriptions

Study Abroad

One semester of Study Abroad.

GIS Africana Elective

Credits: 15

Choose five courses with the AFR attribute, one of which in either Africana History or Literature, or HIS 2293. Below represents select courses eligible. Please consult the course catalog for additional courses with the AFR attribute.

Item #	Title	Credits
HIS 2292	African Amer His since Emancip	3
ENG 3690/3691	Br/lr Lit. & Cult. after 1945	3

Arab and Islamic Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.
Office Location: 36 Garey Hall
Telephone: 610-519-6302
[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Program Notes:

- Courses taken as part of a study abroad may be counted.
- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
GIS 5000	Special Topics	1
	GAIS Language Requirement	6-10
	GAIS Political Science Course	3
	GAIS History Course	3
	GAIS Theology Course	3
	Study Abroad	

Category Descriptions

GAIS Language Requirement

Credits: 6-10

Two courses of Arabic at the intermediate or above level.

Item #	Title	Credits
ARB 1121	Intermediate Arabic I	5
ARB 1122	Intermediate Arabic II	5
ARB 1131	Intensive Adv Arabic I	3
ARB 1132	Intensive Adv Arabic II	3
ARB 1141	Intro to Colloquial Arabic	3

GAIS Political Science Course

Credits: 3

One Political Science course with an AIS attribute.

GAIS History Course

Credits: 3

One History course with an AIS attribute.

GAIS Theology Course

Credits: 3

One Theology course with an AIS attribute.

Study Abroad

One semester of Study Abroad.

Asian Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: 610-519-6302

[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

All students must choose one specialization from the sections listed below.

The Department of Global Interdisciplinary Studies also offers minors in the following programs: Arabic Language and Cultural Studies, Chinese Language and Cultural Studies, Japanese Language and Cultural Studies, Russian Language and Cultural Studies. Visit these individual pages to view requirements.

Type: Bachelor of Arts

MAJOR (31 credits)

Program Notes:

- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).
- Courses taken as part of a study abroad may be counted.
- One internship course may be counted.
- Coursework must be done on more than one country in Asia and in more than one discipline.

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 5000	Special Topics	1
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
	Asian Studies Major Electives	9
	2 Asian Studies Language or Elective Courses	6-12

Category Descriptions

Asian Studies Major Electives

Credits: 9

Three non-language courses with the Asian Studies (ASN) attribute.

2 Asian Studies Language or Elective Courses

Credits: 6-12

2 Asian Studies elective courses **OR** any 2 Asian Language elective courses at any level (only those not used to fulfill the CLAS language requirement)

Chinese Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: 610-519-6302

[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (38 credits)

The Chinese language is spoken by over one billion people, making it the most spoken language in one country in the world, while it continues to gain global ascendancy and influence. Chinese Studies offers students extensive instruction in Chinese language coupled with interdisciplinary studies that position the language and culture of China within subject areas with global significance. Students will study Chinese to advanced levels, including taking courses on translation, with a capstone thesis partially written in Chinese. Sitting for external proficiency exams provides language certification, and a required Study Abroad experience provides experiential learning that re-enforces cultural literacy.

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5000	Special Topics	1
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
Intermediate Chinese Courses		10
Advanced Chinese Courses		12
Asian Studies Course with Attribute		3

Category Descriptions

Intermediate Chinese Courses

Credits: 10

Item #	Title	Credits
CHI 1121	Intermediate Chinese I	5
CHI 1122	Intermediate Chinese II	5

Advanced Chinese Courses

Credits: 12

Item #	Title	Credits
CHI 1131	Advanced Chinese I	3
CHI 1132	Advanced Chinese II	3
CHI 1133	Advanced Chinese III	3
CHI 1134	Advanced Chinese IV	3

Asian Studies Course with Attribute

Credits: 3

One Asian Studies elective with ASN attribute worth at least 3 credits.

Cultural Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: 610-519-6302

[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Cultural Studies is an interdisciplinary academic field that seeks to understand, critique, and transform cultural phenomena. It draws on a number of disciplines in the humanities and social sciences to scrutinize questions of identity, race, gender, class, and community as well as to examine how these areas manifest themselves in different cultural practices; also addressed is the meaning assigned to these variables. By examining the link between power and discourse, cultural studies deals with the representation of these identities, for representation is the vehicle through which knowledge of cultures is acquired. Cultural Studies is considered the next generation of area studies for those who – instead of focusing on a specific geographical area-- wish to study the global cultural phenomena with a set of theoretical tools.

Program Notes:

- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).
- Courses taken as part of a study abroad may be counted.
- One internship course may be counted.

Required Major Courses:

Six courses with the CST attribute for a minimum of 18 credits.

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
GIS 5000	Special Topics	1
CST 2100	Intro. to Cultural Studies	3
	GCST Core Courses	9
	Study Abroad	

Category Descriptions

GCST Core Courses

Credits: 9

Choose three core courses, one from each of the following three categories:

Representation

Item #	Title	Credits
CST 4100	Capstone Sem of Cultural Stud	3
PHI 2170	Mass Media Ethics	3
PHI 2760	Philosophy & Literature	3
PHI 4140	Phil of Contemporary Music	3
PHI 4150	Philosophy & Film	3

Gender

Item #	Title	Credits
PHI 2410	Philosophy of Sex & Love	3
PHI 2420	Philosophy of Women	3
PHI 2430	Eco-Feminism	3
PHI 4900	Feminist Theories	3

Race

Item #	Title	Credits
PJ 2800	Race, Class, & Gender	3
PHI 3160	History of Islamic Phil	3
ENG 4646	Race & Ethnicity: Amer Novel	3

Study Abroad

One semester of Study Abroad.

Gender and Women's Studies Major (GIS)

Co-Directors: Travis Foster, Ph.D. and Kelly-Anne Diamond, Ph.D.

[\[Website\]](#)

About

Gender and Women's Studies encourages critical analysis of gender and sexuality at local, national, and global levels—now and in the past. Our curriculum brings feminist and queer theory into conversation with fields of study across the University, from history to sociology to global finance, helping students discover new alternatives for thinking about the problems of the world and the contributions of its people. As teachers, we are profoundly influenced by

feminist models of collaborative learning and shared authority. We recognize our students and their life experiences as sources of vital expertise, and we help them find a voice, a sense of community, and a purpose as agents of social change

Type: Bachelor of Arts

MAJOR (30 credits)

The major in Gender and Women's Studies provides an interdisciplinary and comparative approach to deepen students' understandings of the history, culture, religion, politics, literature, and society. Students sign up for the major and choose their specialization through the Department of Global Interdisciplinary Studies. The GIS chair and GWS Academic Director will work closely with each student to develop their individual interests, abilities, and career goals while fulfilling the requirements for the major.

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GWS 2050	Introduction to Gender Studies	3
PHI 2420	Philosophy of Women	3
GWS 5000	Integrating Seminar	3
	GWS Electives for B.A.	18

Category Descriptions

GWS Electives for B.A.

Credits: 18

Select 6 Classes in any course of 3 credits or more with GWS attribute

Irish Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.
Office Location: 36 Garey Hall
Telephone: 610-519-6302
[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Program Notes:

- Courses taken as part of a study abroad may be counted.
- One internship course may be counted.
- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
GIS 5000	Special Topics	1
	Study Abroad	
	IS 1121 or IS 2222	3
	Irish Literature Survey for Major	3
	HIS 3216 or HIS 2286	3
	IS Elective	3
	IS Elective	3

Category Descriptions

Study Abroad

One semester of Study Abroad.

IS 1121 or IS 2222

Credits: 3

Choose one course of Irish language at the intermediate level or above.

Item #	Title	Credits
IS 1121	Intermediate Irish Language I	3
IS 2222	Topics: Irish Language	3

Irish Literature Survey for Major

Credits: 3

Choose one course from those listed below.

Item #	Title	Credits
ENG 3181	Irish Epics, Visions&Hauntings	3
ENG 3617	Irish Revivalism	3
ENG 3680	Top: 20th-21st C Irish Lit&Cul	3
ENG 3682	Contemporary Irish Literature	3

HIS 3216 or HIS 2286

Credits: 3

Choose one history survey.

Item #	Title	Credits
HIS 3216	Ireland since 1800	3
HIS 2286	Irish-American Saga	3

IS Elective

Credits: 3

Choose a course with IS attribute.

Japanese Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.
Office Location: 36 Garey Hall
Telephone: 610-519-6302
[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an

understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (38 credits)

With the capital Tokyo the world's largest metropolitan city, Japan occupies a prominent position on the global stage for its cutting-edge technologies humming across the country's archipelago of over 6,800 islands. Japanese Studies offers students extensive instruction in Japanese language coupled with interdisciplinary studies that position the language and culture of Japan in subject areas with global significance. Students will study Japanese to advanced levels, including taking courses on translation, with a capstone thesis partially written in Japanese. Sitting for external proficiency exams provides language certification, and a required Study Abroad experience provides experiential learning that re-enforces cultural literacy.

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5000	Special Topics	1
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
	Intermediate Japanese Courses	10
	Advanced Japanese Courses	12
	Asian Studies Course with Attribute	3

Category Descriptions

Intermediate Japanese Courses

Credits: 10

Item #	Title	Credits
JPN 1121	Intermediate Japanese I	5
JPN 1122	Intermediate Japanese II	5

Advanced Japanese Courses

Credits: 12

Item #	Title	Credits
JPN 1131	Advanced Japanese I	3
JPN 1132	Advanced Japanese II	3
JPN 1133	Advanced Japanese III	3
JPN 1134	Advanced Japanese IV	3

Asian Studies Course with Attribute

Credits: 3

One Asian Studies elective with ASN attribute worth at least 3 credits.

Latin American Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: 610-519-6302

[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Program Notes:

- Courses taken as part of a study abroad may be counted.
- One internship course may be counted.
- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
GIS 5000	Special Topics	1
	LAS Language Requirement	6
	LAS Electives	12
	Study Abroad	

Category Descriptions

LAS Language Requirement

Credits: 6

Two advanced Spanish courses above the intermediate level.

Item #	Title	Credits
SPA 1131	Conversation & Composition I	3
SPA 1132	Conversation & Composition II	3

LAS Electives

Credits: 12

Four courses with the LAS attribute.

Study Abroad

One semester of Study Abroad.

Peace and Justice Major (GIS)

Chair: Kathryn Getek Soltis, S.T.L., Ph.D.

Office Location: 106 Corr Hall

Telephone: 610-519-6849

[\[Website\]](#)

About

The interdisciplinary curriculum of the Center for Peace and Justice Education is rooted in Villanova's Augustinian tradition of education in the service of peace and social justice, with particular emphasis on the poor and marginalized in society. Students are prepared to understand the essential elements of a moral and just society, reflect on models for socially responsible resolution of injustice and conflict, and learn the necessary skills to be advocates for a just and peaceful world.

Type: Bachelor of Arts

MAJOR (30 credits)

The major in Peace and Justice Studies is offered in collaboration with the Department of Global Interdisciplinary Studies. To complete the major, students take five required courses and five elective courses in Peace and Justice, courses with a Peace and Justice attribute, or courses otherwise earning Peace and Justice credit.

Program Notes:

- Electives should be determined in consultation with the program director and tailored to the student's field(s) of interest.
- Up to 3 credits in courses fewer than 3 credits with the PJ attribute can be bundled to count as one elective.

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
PJ 2800	Race, Class, & Gender	3
PJ 2993	Internship	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
	PJ Electives for the B.A.	15

Category Descriptions

PJ Electives for the B.A.

Credits: 15

5 Classes in courses of 3 credits or more in PJ 1000:9999, or any course number in any subject with PJ attribute (15 cr).

Russian Area Studies Major (GIS)

Chairperson: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: 610-519-6302

[\[Website\]](#)

About

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

Type: Bachelor of Arts

MAJOR (31-34 credits)

Program Notes:

- Up to two courses taken as part of a study abroad program may be counted.
- For GIS 5011, Team-taught Topics Student takes two different topics, the first of which counts as the Junior Research Seminar for the Major (6 credits).

Required Major Courses:

Item #	Title	Credits
GIS 2000	Intro to Global Interd Studies	3
GIS 5011	GIS Select	3
GIS 5011	GIS Select	3
GIS 6500	Capstone I: Research	3
GIS 6600	Capstone 2:Thesis	3
GIS 5000	Special Topics	1
	Study Abroad	
	RAS Language Requirement	6
	RAS Electives	12

Category Descriptions

Study Abroad

One semester of Study Abroad.

RAS Language Requirement

Credits: 6

Two Russian language courses at the intermediate level or higher.

Item #	Title	Credits
RUS 1123	Intermediate Russian I	3
RUS 1124	Intermediate Russian II	3
RUS 1131	Conversation Composition	3
RUS 1132	Advanced Convers & Comp	3

RAS Electives

Credits: 12

Four Courses with the RAS attribute for a minimum of 12 credits.

Arabic Language & Cultural Studies Minor

Coordinator: Chiji Akoma, Ph.D.

Office Location: 36 Garey Hall

Telephone: (610) 519-6302

[Website](#)

About

The Arabic Language and Cultural Studies program offers Arabic language and linguistic study, and classical and modern literature and cultural study. Arabic is the language of a rich culture and civilization dating back many centuries; it is also the language of Islam and the Quran. This culture has produced such figures as Averroes, the medieval Aristotelian philosopher, Ibn Khaldun, the first social historian, and the modern poet Khalil Gibran. Between the 8th and 15th centuries the volume of literary, scholarly, and scientific book production in Arabic and the level of urban literacy among readers of Arabic were greater than any the world had even known until that time.

The program represents a cutting-edge intellectual experience that provides its minors with an advantage in critiquing, understanding, and navigating the global landscape.

Type: Minor

MINOR (28 credits)

Students can earn a minor in Arabic Language and Cultural Studies with six courses, listed below.

Required Minor Courses:

Item #	Title	Credits
ARB 1111	Basic Arabic I	6
ARB 1112	Basic Arabic II	6
ARB 1121	Intermediate Arabic I	5
ARB 1122	Intermediate Arabic II	5
	ARB Cultural Studies Elective	3
	ARB Cultural Studies Elective	3

Category Descriptions

ARB Cultural Studies Elective

Credits: 3

Choose one course of three or more credits from the following list, or another culture-based course with the Arab and Islamic Studies (AIS) attribute.

ARB Cultural Studies courses

Item #	Title	Credits
ARB 1131	Intensive Adv Arabic I	3
ARB 1132	Intensive Adv Arabic II	3
ARB 2142	Arab Culture Thru Film & Text	3
ARB 2143	Arab Culinary Culture	3
ARB 3412	Special Topics	3
ARB 5900	ARB: Independent Study	3

Chinese Language and Cultural Studies Minor

Coordinator: HaiLin Zhou, Ph.D.
Office Location: Gary Hall Rm. 036
Telephone: (610) 519-6302
[Website](#)

About

The Chinese Language and Cultural Studies program opens the way to the study of various elements of Chinese life. Chinese Language and Cultural Studies includes the rich heritage of novels, short stories, poetry, culinary art, film and the Chinese classics. Chinese Language and Cultural Studies represents a cutting-edge intellectual experience that provides its minors with a real advantage in critiquing, understanding, and navigating the global landscape.

Type: Minor

MINOR (28 credits or 6 courses)

The Chinese Language and Cultural Studies minor is open to all students and requires 6 courses (28 credits), four courses in language and two in electives.

Program Notes:

- Other culture-based courses with ASN attribute found across disciplines also qualify for the cultural studies elective.
- Advanced Chinese (CHI 1131) course and the Translation (CHI 1151) course may count as electives if the student has fulfilled the required language courses.
- Pertinent GIS team-taught courses and contents courses from other departments with ASN (Chinese) attribute also qualify for CHI electives.
- Courses on Chinese/China taken as part of a study abroad will be counted.
- An internship related to Chinese Studies may be counted as an independent study.

Required Minor Courses:

Item #	Title	Credits
	Chinese Language Course	3-6
	Chinese Language Course	3-6
	Chinese Language Course	3-6
	Chinese Language Course	3-6
	Chinese Cultural Studies Elective	3
	Chinese Cultural Studies Elective	3

Category Descriptions

Chinese Language Course

Credits: 3-6

Note: *Advanced Chinese courses and the Translation course may count as electives if student has fulfilled the required four language courses*

Item #	Title	Credits
CHI 1111	Basic Chinese I	6
CHI 1112	Basic Chinese II	6
CHI 1121	Intermediate Chinese I	5
CHI 1122	Intermediate Chinese II	5
CHI 1131	Advanced Chinese I	3
CHI 1132	Advanced Chinese II	3
CHI 1133	Advanced Chinese III	3
CHI 1134	Advanced Chinese IV	3
CHI 1151	Spec. Top. in Chinese Language	3

Chinese Cultural Studies Elective

Credits: 3

Choose from the following list, or another culture-based course with the ASN attribute found across other disciplines.

Item #	Title	Credits
CHI 1131	Advanced Chinese I	3
CHI 1132	Advanced Chinese II	3
CHI 1133	Advanced Chinese III	3
CHI 1134	Advanced Chinese IV	3
CHI 3412	Chinese Special Topics	3
CHI 3413	Chinese Calligraphy	3
GIS 4281	The Tale of Shanghai and Tokyo	3
GIS 4675	East Asian Comparative Lit	3

Japanese Language and Cultural Studies Minor

Coordinator: Kayo Shintaku, Ph.D.
Office Location: Garey Hall 38C
Telephone: 610-519-5076
kayo.shintaku@villanova.edu

About

The Japanese Language and Cultural Studies program offers a variety of courses, including language, traditional and popular culture, society, history, and literature. The program represents a cutting-edge intellectual experience that

provides its minors with a real advantage in critiquing, understanding, and navigating the global landscape.

Type: Minor

MINOR (28 credits)

A minor is open to all students and requires six courses with a maximum of 28 credits.

Program Notes:

- GIS team-taught courses and contents courses from other departments with ASN attribute also qualify for JPN electives.
- Courses taken as part of a study abroad will be counted.
- Internship related to Japanese studies may be counted as an independent study.

Required Minor Courses:

Item #	Title	Credits
	Japanese Language Requirement	16-22
	JPN Elective	3
	JPN Elective	3

Category Descriptions

Japanese Language Requirement

Credits: 16-22

Choose four courses from Japanese language. Language courses may count toward elective requirements if the four language requirements are met.

Item #	Title	Credits
JPN 1111	Introductory Japanese I	6
JPN 1112	Introductory Japanese II	6
JPN 1121	Intermediate Japanese I	5
JPN 1122	Intermediate Japanese II	5
JPN 1131	Advanced Japanese I	3
JPN 1132	Advanced Japanese II	3

JPN Elective

Credits: 3

Language courses may count toward elective requirements if the four language requirements course requirement is met.

The JPN 3412 topics course has the following eligible courses.

- JPN 3412: Japanese Popular Culture (3 cr)
- JPN 3412: Japanese Videogames and Gaming (3 cr)
- JPN 3412: Japanese Culture and Sustainability (3 cr)
- JPN 3412: Marginal Voices in Japanese Literature (3 cr)

Item #	Title	Credits
JPN 2102	Japanese Film	3
JPN 3412	Special Topics	3
JPN 5900	JPN:Independent Study	3

Russian Language & Cultural Studies Minor

Russian Program Coordinator: Boris Briker, Ph.D.
Office Location: 36 Garey Hall
Telephone: 610-519-6302
[\[Website\]](#)

About

The Russian Studies Program offers courses that cover from language study to all aspects of Russia — the history, literature, culture, folklore, music, film, news media, and women's studies. This allows students to become familiar with Russian culture and society and the life experiences of Russians. Students also become familiar with Russia through courses on Russian history and politics offered by other departments on campus.

Type: Minor

MINOR (24 credits)

The Russian Language and Cultural Studies minor represents a cutting-edge intellectual experience that provides students with a real advantage in critiquing, understanding, and navigating the global landscape.

Program Notes:

- Other culture-based courses with RAS attribute found across disciplines also qualify

Required Minor Courses:

Item #	Title	Credits
RUS 1111	Introductory Russian I	6
RUS 1112	Introductory Russian II	6
RUS 1123	Intermediate Russian I	3
RUS 1124	Intermediate Russian II	3
	RUS Elective	3
	RUS Elective	3

Category Descriptions

RUS Elective

Credits: 3

Choose a 3-credit course with the RUS attribute.

Sustainability Studies Minor

Program Director: Frank Galgano, Ph.D.
Office Location: Mendel Science Center G67E
Telephone: 610-519-3337
[\[Website\]](#)

Type: Minor

MINOR (18 credits)

The sustainability minor is open to all students and requires 6 courses and ~21 credits (dependent on lab course selections). It is designed for students who wish to deepen and broaden their knowledge of sustainability with a distinctive program of study encompassing the relationship between the environment and society. In addition to taking GEV 3001 (which will replace one course from either the Humanities or Policy Stem), students will select two courses from each of the three stems below: Humanities, Policy, and Science and Technology.

Program Notes:

- Students may count 2 sustainability-approved courses from their primary major or a relevant core course (including relevant MSE courses) toward the minor.
- Course list may be supplemented by the program director as new courses become available
- For PJ 3000, PJ 5000, ECO 4200, GEV 3000, GEV 4330, GEV 4340, GEV 4510, PSC 4275, CEE 4612, CHE 4831/32, MSE 20XX: Permission of program director required
- BIO 4451/52, CHE 4831/32, CHM 1311/01, GEV 1050, GEV 1051, GEV 432X, MSE 20XX: Associated Lab Required, see advisor

Required Minor Courses:

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3
Humanities Stem Courses		
Policy and Management Stem Courses		
Science and Technology Stem Courses		

Category Descriptions

Humanities Stem Courses

Choose two courses from the Humanities Stem.

- The required GEV 3001 course counts towards either one Humanities Stem or one Policy Stem requirement.

- Listed topics courses may only count toward the minor if they fall within the Sustainability Studies list of approved courses. If in doubt, see program director.

Humanities Stem

The list below also includes:

- ENG 4690 (Post-200 American Apocalypse or Literature and the Environment sections)
- PJ 4250

Item #	Title	Credits
CHI 3412	Chinese Special Topics	3
ENG 1975	Core Lit and Writing Seminar	3
ENG 2018	Nature Writing Workshop	3
ENG 2304	Cont World Lit & Environment	3
ENG 4703	21st C. American Apocalypse	3
ETH 3010	Topics in Ethics	3
GEV 2525	Population Geography	3
GEV 3004	Geographies Envrnl Justice	3
GIS 4100	Topics in GIS	3
GIS 5000	Special Topics	1
HIS 1065	Topics Nature, Environ & Tech	3
HIS 1065	Topics Nature, Environ & Tech	3
HIS 2276	American Environmental Hist	3
HIS 4998	Topics in Public History	3
JPN 3412	Special Topics	3
LAS 3412	Special Topics	3
PHI 2121	Environmental Ethics	3
PHI 2550	Technology & Society	3
PHI 4210	Environmental Philosophy	3
PJ 3000	Selected Topics	1
PJ 5000	Selected Topics	3
SPA 3412	Special Topics	3
SPA 3485	Nature in the Middle Ages	3
THL 2460	Bible and Environment	3
THL 4100	THM Catholic Ethics	3
THL 4330	Christian Environmental Ethics	3
THL 4490	THM Christian Ethics	3

Policy and Management Stem Courses

Choose two courses from Policy Stem.

- The required GEV 3001 course counts towards either one Humanities Stem or one Policy Stem requirement.
- Listed topics courses may only count toward the minor if they fall within the Sustainability Studies list of approved courses. If in doubt, see program director.

The following courses are included in the list below:

- PSY 2500

Item #	Title	Credits
ECO 3108	Global Political Econ	3
ECO 3200	Topics in Economic	3
GEV 2500	Global Change in Local Places	3
GEV 3000	Special Topics	3
GEV 3001	Intro to Sustainability Study	3
GEV 3002	Ecosystem Services	3
GEV 3522	Geography of the Middle East	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 3590	Topical Research Problems	3
GEV 4001	Advanced Sustainability Study	4
GEV 4300	Selected Topics	1
GEV 4331	Env. Policy & Management	3
GEV 4333	Politics and the Env.	3
GEV 4336	Environmental Economics	3
GEV 4516	Environmental Security	3
MGT 2208	International Topics	3
MGT 2208	International Topics	3
PA 2000	Public Policy	3
PA 3000	Overview of Non-Profit Sector	3
PJ 5000	Selected Topics	3
PSC 4275	Topics in Internat'l Relations	3
VIA 3020	Creating Social Impact	3
VIA 3050	Building What Matters	3

Science and Technology Stem Courses

Choose two courses from the Science and Technology Stem.

- Listed topics courses may only count toward the minor if they fall within the Sustainability Studies list of approved courses. If in doubt, see program director.

Science and Technology Stem

Students may also choose:

- MSE 20XX: Mendel Science Experience courses
- MSE 2508

Item #	Title	Credits
BIO 3661	Environment and Human Health	3
BIO 3952	Special Topics in Biology LAB	1
BIO 4801	Conservation Biology	3
BIO 3485	Marine Biology	4
BIO 3385	Global Change Ecology	4
CEE 2211	Transportation Engineering	3
CEE 4612	CEE Undergraduate Research	3
CHE 5001	Industrial Liq & Sld Waste	3
CHE 5715	Alternative Energy	3
CHE 4831	Senior Project Studio I	3
EGR 2110	Sus Eng: Risks & Opportunities	3
EGR 7110	Fundamentals-Sustainable Engr	3
GEV 1004	Climate Change	3
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1052	Environmental Studies	3
GEV 1053	Environmental Studies II	3
GEV 3000	Special Topics	3
GEV 3308	Environmental Health	3
GEV 3503	Earth's Weather Systems	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3550	Natural Hazards	3
GEV 4300	Selected Topics	1
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4331	Env. Policy & Management	3
GEV 4360	Field Methods in Env Science	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4518	COVID-19 Pandemic	3
MET 1221	Severe & Hazardous Weather	3
MET 1222	Climate Change:Past & Present	3

MSE 2205	BIO:Biodiversity& Conservation	4
MSE 2301	CHM: Water	4
MSE 2304	CHM:Our Energy Future	4
MSE 2305	Perspective on Plastic	4
MSE 2500	GEV: Env. Sustainability	4
MSE 2502	GEV: Climate, Env., & Society	4
MSE 2506	GEV:Energy Extraction from Env	4
MSE 2507	GEV:Environmental Pollution	4
SCI 5300	Capstone Seminar	3
VIA 3010	Indoor Air Quality/Hum Hlth	3

History

History Major

Chair: Lynne Hartnett, Ph.D.

Office Location: 403 Saint Augustine Center

Telephone: 610-519-4662

[\[Website\]](#)

About

The History Department at Villanova offers students a dynamic liberal arts education with courses that span from antiquity to the modern world and traverse every region of the globe. The undergraduate History program focuses on the attainment of deep historical knowledge and a critical understanding of the enduring influence of the past on contemporary societies. The Faculty members of the History Department work closely with our students and prioritize individual development. Our rigorous courses provide the essential transferable skills that make our students competitive on the job market after graduation, prepare them for graduate and professional training, and stimulate the intellectual curiosity our students need to become engaged citizens of the world.

History seeks to understand and to explain the story of human experience, since the past provides the only laboratory of human experience actually lived. Historical study complements and builds on the foundational courses in the core through its appreciation of the complexity of humankind, recognizing in the men and women who make history the

intellectual, the material, social, and spiritual diversity of the human condition. History further advances the goals of the core curriculum through an interdisciplinary methodology that seeks to reconstruct our collective past. It is the story of individuals, and the story of the political, religious, economic, and social ideologies and institutions they create in their search for identity, purpose, and value. History recognizes both the commonality of the human experience and the reality of cultural, class, racial, and gender distinctions that enrich that experience.

Type: Bachelor of Arts

MAJOR (33 credits)

Program Notes:

- The major is 33 credits and consists of 10 courses in history and one in art history.
- Majors must complete at least 18 credits/6 courses at Villanova.
- The Art History course required for the History major does not satisfy the Core Fine Arts requirement unless the History major is the student's secondary or tertiary major. Students for whom History is the primary major need to take an Art History course for the major and a different course with the Fine Arts attribute for the Core

Required Major Courses:

Item #	Title	Credits
	Core History Course	3
	HIS 2000 or HIS 2001	3
HIS 5001	Junior Research Seminar	3
	HIS 5501 or HIS 5515	3
	History: Art History Elective	3
	HIS Electives	18

Category Descriptions

Core History Course

Credits: 3

Choose one of the specially designated core history courses (HIS 1060 through HIS 1250).

HIS 2000 or HIS 2001

Credits: 3

Item #	Title	Credits
HIS 2000	Investigating U.S. History I	3
HIS 2001	Investigating US History II	3

HIS 5501 or HIS 5515

Credits: 3

Item #	Title	Credits
HIS 5501	Sem in Historical Methodology	3
HIS 5515	Independent Research	3

History: Art History Elective

Credits: 3

1 Class in any course of 3 credits or more in AAH 0000:9999.

* This course does not fulfill the Fine Arts requirement.

HIS Electives

Credits: 18

6 Classes in courses of 3 credits or more in AAH 1101, 1102, HIS 0000:9999 (18 cr), or any course with the HIS attribute

History Minor

Chair: Lynne Hartnett, Ph.D.

Office Location: 403 Saint Augustine Center

Telephone: 610-519-4662

[\[Website\]](#)

About

The History Department at Villanova offers students a dynamic liberal arts education with courses that span from antiquity to the modern world and traverse every region of the globe. The undergraduate History program focuses on the attainment of deep historical knowledge and a critical understanding of the enduring influence of the past on contemporary societies. The Faculty members of the History Department work closely with our students and prioritize individual development. Our rigorous coursework provides the essential transferable skills that make our students competitive on the job market

after graduation, and stimulates the intellectual curiosity our students need to become engaged citizens of the world.

Type: Minor

MINOR (18 credits)

A minor is open to all students and requires 6 history courses for 18 credits, these 18 credit hours must include one specially designated core course.

History Courses (18 cr) – Select 6 Classes in AAH 1101, 1102, HIS 0000:9999, or any course with the HIS attribute.

Program Notes:

- History Minors must earn at least half (9 credits/3 courses) at Villanova
- See History Department Undergraduate Programs website for details on AP Credit Policy as it related to Major/Minor.

Humanities

Humanities Major

Chair: Michael Tomko, Ph.D.
Office Location: 304 Saint Augustine Center
Telephone: 610-519-6165
[Website](#)

About

The Department of Humanities offers a coordinated series of seminars and courses designed to inquire into the human condition from an interdisciplinary perspective. Drawing on wisdom ancient and new, the curriculum encourages critical thinking about what is needed for human flourishing. Humanities faculty are specialists in complementary disciplines, including theology, philosophy, literature, political science, history, economics, and architectural history. Humanities courses fulfill certain requirements for the Core Curriculum of the College of Liberal Arts and Sciences.

Type: Bachelor of Arts

MAJOR (30 credits)

The Humanities major requires the completion of ten courses. All majors are required to take the four Gateway courses. In their final semester students also take the Senior Symposium. Students also take five free electives, three of which must be taken within the Department of Humanities.

Program Notes:

- Three of the five humanities electives must have the HUM subject code.

Required Major Courses:

Item #	Title	Credits
HUM 2001	THL:God	3
HUM 2002	Human Person	3
HUM 2003	PHI:World	3
HUM 2004	PSC:Society	3
HUM 6500	Senior Seminar	3
Humanities Elective for B.A.		15

Category Descriptions

Humanities Elective for B.A.

Credits: 15

Select 5 Classes in courses of 3 credits or more in HUM 1975, 2100:6950, or any course of three or more credits with the HUM attribute.

Humanities Minor

Chair: Michael Tomko, Ph.D.
Office Location: 304 Saint Augustine Center
Telephone: 610-519-6165
[Website](#)

About

The Department of Humanities offers a coordinated series of seminars and courses designed to inquire into the human condition from an interdisciplinary perspective. Drawing on wisdom ancient and new, the curriculum encourages critical thinking about what is needed for human flourishing. Humanities faculty are specialists in complementary disciplines,

including theology, philosophy, literature, political science, history, economics, and architectural history. Humanities courses fulfill certain requirements for the Core Curriculum of the College of Liberal Arts and Sciences.

Type: Minor

MINOR (15 credits)

Students take two of the four Gateway courses, plus 3 electives, 2 of which must be taken in the Department of Humanities.

Program Notes:

- Two of the required electives must have the HUM subject code

Required Minor Courses:

Item #	Title	Credits
	Humanities Gateway Courses	6
	Humanities Elective for Minor	9

Category Descriptions

Humanities Gateway Courses

Credits: 6

Choose two of the following:

Item #	Title	Credits
HUM 2001	THL:God	3
HUM 2002	Human Person	3
HUM 2003	PHI:World	3
HUM 2004	PSC:Society	3

Humanities Elective for Minor

Credits: 9

Select 3 Classes in HUM 1975:6950 or any course of three or more credits with the HUM attribute.

Italian

Italian Major

Program Coordinator: James Kriesel, Ph.D.
Office Location: 333 Saint Augustine Center
Telephone: 610-519-7478

[Website](#)

About

Our current economic and social realities require a dynamic education. Italian Studies provides students with the analytic and creative thinking skills to engage a multimedia world of fraught complexities and exciting opportunities. Students develop advanced fluency in Italian and are exposed to all aspects of Italian culture—literature, visual art, film, music, etc. They gain perspective by studying one of the world's most influential cultures, which is at the crossroads of the world's eastern and western hemispheres.

Type: Bachelor of Arts

MAJOR (31 credits)

The Italian Studies Program, within the Department of Romance Languages and Literatures, is designed to make students fluent in Italian, to expose them to Italian culture in all its aspects (literature, visual arts, design, history, cinema), to broaden their intellectual horizon, and to introduce them to the professional world. Italian offers a flexible major or minor, which can be easily combined with majors in psychology, communications, humanities, economics, business, nursing, law and politics.

Program Notes:

- Majors and minors can earn up to six of their credits by studying in Italy through the affiliated programs in Perugia, Rome, and Milan.
- Students may, but do not have to, take one course in English with an ITA or RLL attribute.

Required Major Courses:

Item #	Title	Credits
	ITA 1131 or ITA 1132	3
	ITA 1138 or ITA 1140	3
	ITA 2220 or ITA 2221 or ITA 2324	3
	RLL 3413 or RLL 3412	3
ITA 3971	Directed Research in Italian	1
	Italian Electives	18

Category Descriptions

ITA 1131 or ITA 1132

Credits: 3

Item #	Title	Credits
ITA 1131	Conversation & Composition I	3
ITA 1132	Conversation & Composition II	3

ITA 1138 or ITA 1140

Credits: 3

Item #	Title	Credits
ITA 1138	Advanced Grammar	3
ITA 1140	Writing & Stylistics in Ita.	3

ITA 2220 or ITA 2221 or ITA 2324

Credits: 3

Item #	Title	Credits
ITA 2220	Italian Lit and Culture I	3
ITA 2221	Italian Lit. and Culture II	3
ITA 2324	Diversity, Gender, Race	3

RLL 3413 or RLL 3412

Credits: 3

Note: Topics courses must have ITA attribute.

Item #	Title	Credits
RLL 3413	Topics on Italy and Beauty	3
RLL 3412	Topics	3

Italian Electives

Credits: 18

6 Classes in ITA 1123:9999 (18cr).

Italian Minor

Program Coordinator: James Kriesel, Ph.D.
Office Location: 337 Saint Augustine Center
Telephone: 610-519-7478

[Website](#)

About

Our current economic and social realities require a dynamic education. Italian Studies provides students with the analytic and creative thinking skills to engage a multimedia world of fraught complexities and exciting opportunities. Students develop advanced fluency in Italian and are exposed to all aspects of Italian culture—literature, visual art, film, music, etc. They gain perspective by studying one of the world's most influential cultures, which is at the crossroads of the world's eastern and western hemispheres.

Type: Minor

MINOR (15 credits)

A minor is open to all students and requires 5 Italian courses.

Program Notes:

- Once a sequence of courses has begun, a student may not revert to a lower-level course.
- Five classes at ITA 1131 level or above will fulfill the minor requirement.
- Majors and minors can earn up to six of their credits by studying in Italy through the affiliated programs in Perugia, Rome, and Milan.
- Students may, but do not have to, take one course in English with an ITA or RLL attribute.

Required Minor Courses:

Item #	Title	Credits
ITA 1131	Conversation & Composition I	3
	RLL 3413 or RLL 3412	3
	Upper-Level Italian Electives	9

Category Descriptions

RLL 3413 or RLL 3412

Credits: 3

Note: Topics courses must have ITA attribute.

Item #	Title	Credits
RLL 3413	Topics on Italy and Beauty	3
RLL 3412	Topics	3

Upper-Level Italian Electives

Credits: 9

Select 3 Classes in ITA 1130:9999 (9 cr).

Latin American Studies

Latin American Studies Minor

Program Director: Raúl Diego Rivera Hernández, Ph.D.

Office Location: 341 Saint Augustine Center
Telephone: (610) 519-3018
[\[Website\]](#)

About

The Villanova Latin American Studies Program, established in 1988, offers students in all of the university's four undergraduate colleges the opportunity to acquire a broad multi-disciplinary understanding and appreciation of Latin America. Students may pursue either a minor or the more comprehensive major (GLAS). Both are designed to complement a variety of majors; many concentration and minor courses can also be used to satisfy core curriculum requirements.

Since language is essential to understanding any culture, a degree of language proficiency is an integral part of both the major and the minor. And, since living in Latin America offers invaluable experience in language, culture, and contemporary life issues, students in the program are strongly encouraged to spend a summer or semester in the region.

Type: Minor

MINOR (18 credits)

A minor is open to all students and requires 6 courses for 18 credits.

Program Notes:

- The Latin American Studies program allows up to two courses, or six credits, to be counted in both the LAS minor and the Spanish major or minor. Overall, no more than two courses, or six credits, from the department of Spanish Studies may count as electives for the LAS minor.

Required Minor Courses:

Item #	Title	Credits
	LAS Elective	12
	Spanish Elective	6

Major (34 credits)

The Department of Global Interdisciplinary Studies (GIS) offers a major with a specialization in Latin American Studies. Please see [that page](#) for detailed requirements of the major.

Category Descriptions

LAS Elective

Credits: 12

Four elective courses with the LAS attribute (12 cr).

Spanish Elective

Credits: 6

Two Spanish courses at the intermediate level (1121 and 1122) or above (6 cr).

an introduction to the major branches of mathematics as an academic discipline within the context of a comprehensive education in the liberal arts and sciences. Students who complete the Mathematics program will be prepared for a broad range of opportunities in business, government, and service industries, as well as being prepared to undertake graduate study in mathematics and related disciplines.

Type: Bachelor of Science

Liberal Arts

Liberal Arts Major

Chair: Susan Jacobs, M.A.
Office Location: 107 Saint Augustine Center
Telephone: 610-519-3900

MAJOR (30 credits)

The Liberal Arts Major is a rigorous academic major, which requires students to complete an intensive course of study that includes at least 122 credits. The Liberal Arts Major requires a plan of study outlined with a faculty advisor as part of the application process and is granted by special permission from the Assistant Dean for Undergraduate Students. Please contact OUS for more details.

Type: Bachelor of Arts

Mathematics and Statistics

Mathematics Major

Chair: Timothy Feeman, Ph.D.
Office Location: 305 Saint Augustine Center
Telephone: 610-519-4850
[Website](#)

About

The Department of Mathematics & Statistics offers a standard course of study for a mathematics major to provide the student with

MAJOR (59 credits)

The program leading to a degree of Bachelor of Science with a Mathematics major is designed to introduce students to the major aspects of contemporary mathematics.

By selecting appropriate electives students may become well prepared either for positions in industry or for graduate study in mathematics and related disciplines. The mathematics major can prepare one for a career in actuarial science, operations research, computer science, statistics, biostatistics, mathematical physics, or any of many other areas which use mathematics.

Program Notes:

- A student pursuing a double major in mathematics and some other field may petition to have an approved upper-division course from their other major count as one of the four math electives. The course must have substantial mathematical content and may not significantly overlap with any of the other courses that the student is counting towards the major. A student pursuing a double major in mathematics and a closely related field such as computer science or engineering may petition to have two approved upper-division courses from their other major count as math electives.
- MAT majors may only count one course outside of the MAT and STAT subject code toward their elective credit within the major.

Required Major Courses:

Item #	Title	Credits
MAT 1000	Math and Stat Communities	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
MAT 2600	Foundation of Math I	3
MAT 2705	Diff Equation with Linear Alg	4
MAT 3300	Advanced Calculus	3
MAT 3400	Linear Algebra	3
MAT 3500	Modern Algebra I	3
MAT 5900	Seminar in Mathematics	3
	MAT Upper-Level Analysis	3
	Mathematics & Statistics Electives	12
	MAT Natural Science Elective	8

Additional Math Science Elective 4

Category Descriptions

MAT Upper-Level Analysis

Credits: 3

Choose an approved upper-level analysis course from the list below(3 cr).

- Note: MAT 5700 and 8400 are inactive courses that satisfy this requirement.

Item #	Title	Credits
MAT 3305	Topics in Analysis	3
MAT 4270	Numerical Analysis	3
MAT 5400	Complex Analysis	3
MAT 5600	Differential Geometry	3
STAT 5700	Math Statistics I	3

Mathematics & Statistics Electives

Credits: 12

4 additional mathematics courses numbered 3000 or higher.

MAT Natural Science Elective

Credits: 8

Choose a two-semester sequence of natural science courses with lab at the science-major level from those listed below (8 cr minimum).

Astronomy Sequence

Item #	Title	Credits
AST 2122	Understanding Our Universe	3
MSE 2151	AST:Astronomy Lab - Stars	1
AST 2121	Solar System Astronomy	3
MSE 2150	AST:Astronomy Lab - Planets	1

Biology Sequence

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

Chemistry Sequence

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1

Environmental Science Sequence

Item #	Title	Credits
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4

Physics Sequence, Option 1

Item #	Title	Credits
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

Physics Sequence, Option 2

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1

Additional Math Science Elective

Credits: 4

Choose one additional science course at the science-major level with lab if appropriate (4 cr minimum).

Biology Selection 1

Select 1 class in ENV 1050, ENV 1051, or one of the other courses listed in this section:

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

Chemistry Selection 1

or 2 classes in:

Item #	Title	Credits
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4

Chemistry Selection 2

or 2 classes in:

Item #	Title	Credits
CHM 1104	General Chemistry Lab II	1
CHM 1152	General Chemistry II	4

Chemistry Selection 3

Or 2 classes in:

Item #	Title	Credits
CHM 2201	Organic Chemistry Lab I	1
CHM 2211	Organic Chemistry I	3

Computer Science Selection 1

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4

Physics Selection 1

or 2 classes in:

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1

Physics Selection 2

or 2 classes in:

Item #	Title	Credits
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1

Physics Selection 3

or 2 classes in:

Item #	Title	Credits
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1

Statistics Major

Chair: Timothy Feeman, Ph.D.

Office Location: 305 Saint Augustine Center

Telephone: 610-519-4850

[Website](#)

About

A major in Statistics provides students with the statistical expertise needed to secure employment in statistics and related fields, such as data science and biostatistics.

Type: Bachelor of Science

Major (55 credits)

Students who are interested in the Major in Statistics should state this intention in their initial application to Villanova. Alternatively, after starting as a student at Villanova, students can switch to a Statistics Major or, if they are initially undeclared, declare a Statistics Major.

Item #	Title	Credits
MAT 1000	Math and Stat Communities	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
	Linear Algebra Course	3
STAT 4310	Stat Methods	3
STAT 4315	Applied Statistical Models	3
STAT 4380	Data Science	3
STAT 5700	Math Statistics I	3
STAT 5705	Math Statistics II	3
CSC 1051	Algorithms & Data Struc I	4
	Statistics Major Electives	9
	Statistics Natural Science Elective	8
STAT 5905	Seminar in Statistics	3

Category Descriptions

Linear Algebra Course

Credits: 3

Select one linear algebra course from below.

Item #	Title	Credits
MAT 2705	Diff Equation with Linear Alg	4
MAT 3100	Applied Linear Algebra	3

Statistics Major Electives

Credits: 9

Any three courses with the subject code STAT numbered 3000:9000 or from the list below.

Item #	Title	Credits
MAT 4600	Deterministic Oper Res	3

Statistics Natural Science Elective

Credits: 8

Choose a two-semester sequence of natural science courses with lab at the science-major level.

Astronomy Sequence

Item #	Title	Credits
AST 2122	Understanding Our Universe	3
MSE 2151	AST:Astronomy Lab - Stars	1
AST 2121	Solar System Astronomy	3
MSE 2150	AST:Astronomy Lab - Planets	1

Biology Sequence

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

Chemistry Sequence

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1152	General Chemistry II	4
CHM 1103	General Chemistry Lab I	1
CHM 1104	General Chemistry Lab II	1

Environmental Science Sequence

Item #	Title	Credits
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4

Physics Sequence, Option 1

Item #	Title	Credits
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

Physics Sequence, Option 2

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1

Mathematics Minor

Chair: Timothy Feeman, Ph.D.
Office Location: 305 Saint Augustine Center
Telephone: 610-519-4850
[Website](#)

About

Pursuing a minor in mathematics is a way for students who are not mathematics majors to demonstrate expertise in mathematics.

Type: Minor

MINOR (27 credits)

Students who plan to pursue a mathematics minor should declare their intention by completing the Application to Add a CLAS Minor, preferably by the fall semester of their junior year. To receive a math minor certificate, the student should contact Dr. Paul Pasles prior to course registration for their final semester. Students may consult Dr. Pasles at any time for information and advice. If all requirements are satisfied, then the certificate will be issued about two weeks after graduation. The minor will also appear on the student's transcript.

Program Notes:

- A student may petition to replace at most one of the five math minor electives with an upper division course from their own major. The proposed substitution must contain substantial mathematical content and not overlap with any other math minor elective courses. Examples of acceptable substitutions can be found at <https://www1.villanova.edu/villanova/artsci/mathematics/academic-programs/undergrad/minor.html>. Any course not listed there must be approved for substitution by the Department of Mathematics and Statistics.

Mathematics Minor Required Courses:

Item #	Title	Credits
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
	Mathematics & Statistics Electives for Minor	15

Category Descriptions

Mathematics & Statistics Electives for Minor

Credits: 15

Select 5 classes in MAT 2600, 2705, 3000:9999, STAT 3000:9999 (15 cr).

- One of the five electives may be an approved very mathematical course from the student's major.
- One of the five electives may be obtained by bundling one-credit and two-credit MAT and STAT courses numbered 3000 and above.
- CSC Majors only: Students may count only one of MAT 2400 and 3100.

Statistics Minor

Chair: Timothy Feeman, Ph.D.
Office Location: 305 Saint Augustine Center
Telephone: 610-519-4850
[Website](#)

About

Pursuing a minor in statistics is a way for students who are not statistics majors to demonstrate expertise in statistics.

Type: Minor

MINOR: STATISTICS (27 credits)

Students who plan to get a minor in statistics should declare their intention as early as possible. Students may consult statistics minor coordinator Dr. Yimin Zhang (yimin.z@villanova.edu) at any time for information and advice. If all requirements for the minor are satisfied, then the certificate will be issued about two weeks after graduation. The minor will also appear on the student's transcript.

Program Notes:

- A student who is not a mathematics major may petition to have an upper-division course from their major count as one of the two statistics electives. The course must have substantial statistical content and must not substantially overlap with any of the other courses that the student is counting towards the minor.
- For mathematics majors, four courses may be counted towards both the mathematics major and the statistics minor: MAT 1500, 1505, 2500 and either STAT 4310 or STAT 5700. No other courses count towards both. Thus, obtaining the statistics minor requires taking four additional courses beyond those required for the mathematics major.
- For those students who pursue both the mathematics minor and the statistics minor, exactly four courses (no more) may be counted towards both minors simultaneously: MAT 1500, MAT 1505, MAT 2500, and STAT 4310. No other courses count towards both. Thus, obtaining the statistics minor requires taking four additional courses beyond those required for the mathematics minor.
- For students doing the Applied Quantitative Finance concentration, STAT 4310 can be replaced with an extra elective chosen from MAT 4600 and three-credit STAT courses numbered 3000 and above.

Statistics Minor Required Courses:

Item #	Title	Credits
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
STAT 4310	Stat Methods	3
STAT 4315	Applied Statistical Models	3
STAT 5700	Math Statistics I	3

Category Descriptions

Two Statistics Electives for the Minor

Credits: 6

Select two electives of three credits or more chosen from MAT 4600 and STAT courses numbered 3000 and above.

- One of the two electives may be an approved very statistical course from the student's major.
- One of the two electives may be obtained by bundling one-credit and two-credit STAT courses (or approved MAT courses) numbered 3000 and above.

Military Science (Army ROTC)

Military Sciences (Army ROTC)

Director: Major Michael J. Repasky, U.S. Army
Telephone: 610-519-5953

About

Villanova students are eligible to participate in the Army Reserve Officers Training Corps (ROTC) Program through a partnership agreement with the Widener University Department of Military Science. Army ROTC offers students the opportunity to graduate with a college degree and a commission in the United States Army, Army National Guard, or United States Army Reserve. All Army ROTC classes are conducted on the Villanova University campus.

Detailed information may be obtained from the Professor of Military Science, Widener University, Chester, PA 19013, (610) 499-4098. Go to www.armyrotc.villanova.edu for further details.

Type: Program

Required Courses

- MS 101: Army Critical Thinking Introduction
- MS 102: Adaptive Leadership and Professional Competence
- MS 201: Foundations of Leadership
- MS 202: Foundations of Tactical Leadership
- MSL 301: Training Management and the Warfighting Functions
- MSL 302: Applied Leadership In Small Unit Operations
- MS 401: Mission Command and the Army Profession
- MS 402: Mission Command and the Company Grade Officer

Naval Science (Navy ROTC)

Naval Science Program and Minor (Navy ROTC)

About

Villanova University, in a long-standing relationship with the United States Navy, maintains one of approximately 60 Naval Reserve Officers Training Corps units in the United States. The objective of the Unit is to educate prospective officers for the Navy and Marine Corps. Reserve commissions as Ensign or 2nd Lieutenant are awarded upon successful completion of prescribed naval science courses and graduation from the University. These commissioned officers will serve on active duty for a period of four to nine years, depending upon choice of warfare specialty.

All Scholarship and College Program students may select any major at the University. Midshipmen at Villanova study in a wide variety of majors in engineering, arts, sciences, business, and nursing. Detailed NROTC information may be obtained from the Naval Science Office, Room 103, John Barry Hall.

Type: Program

Peace and Justice

- [Peace and Justice, B.A. \(GIS\)](#)

Location: Corr Hall, Rm. 106

Peace and Justice Minor

Chair: Kathryn Getek Soltis, S.T.L., Ph.D.

Office Location: 106 Corr Hall

Telephone: 610-519-6849

[\[Website\]](#)

About

The interdisciplinary curriculum of the Center for Peace and Justice Education is rooted in Villanova's Augustinian tradition of education in the service of peace and social justice, with particular emphasis on the poor and marginalized in society. Students are prepared to understand the essential elements of a moral and just society, reflect on models for socially responsible resolution of injustice and conflict, and learn the necessary skills to be advocates for a just and peaceful world.

Type: Minor

MINOR (18 credits)

To complete a minor in Peace and Justice, students must take six courses, including one of the foundational courses and five other courses in Peace and Justice, courses with a Peace and Justice attribute, or courses otherwise earning Peace and Justice credit.

Program Notes:

- PJ ePortfolio (three pieces of work and a short reflection).
 - PJ ePortfolio to be completed during Senior year.
- No more than three foundational courses may receive credit for the minor.
- Up to 3 credits in courses fewer than 3 credits with the PJ attribute can be bundled to count as one elective.

Required Minor Courses:

Item #	Title	Credits
	PJ Foundational Course	3
	PJ Electives for the Minor	15

Category Descriptions

PJ Foundational Course

Credits: 3

Choose one Peace and Justice foundational course:

Item #	Title	Credits
PJ 2250	Violence & Justice in the Wrld	3
PHI 2450	Catholic Social Thought	3
PJ 2700	Peacemakers & Peacemaking	3
PJ 2800	Race, Class, & Gender	3
PJ 2900	Ethical Issues in P & J	3

PJ Electives for the Minor

Credits: 15

5 Classes in courses of 3 credits or more in PJ 1000:9999, or any course number in any subject with PJ attribute (15 cr).

Philosophy

Philosophy Major

Chair: John Carvalho, Ph.D.
Office Location: 108 Saint Augustine Center
Telephone: 610-519-4690
[Website](#)

About

The Philosophy department offers interesting courses that help students better understand the world and their place in it. Philosophy courses teach students to analyze difficult texts, to write clearly and precisely, to defend their views with cogent arguments and to take pleasure in the struggle with complex ideas and questions.

Type: Bachelor of Arts

MAJOR (10 courses, 30 credits)

The philosophy major consists of 10 courses and 30 credits.

Double Majors

Because of the interdisciplinary nature of philosophy, the department welcomes and encourages double majors. With the permission of the chair, philosophy majors may count up to two related courses from the second major toward fulfillment of the philosophy major requirements.

Item #	Title	Credits
PHI 1000	Knowledge, Reality, Self	3
	Ancient Philosophy Requirement	3
	Medieval Philosophy Requirement	3
	Modern Philosophy Requirement	3
	PHI Research Requirement	3
	Advanced Seminar for Philosophy Majors (Capstone)	3
	PHI Electives for B.A.	12

Category Descriptions

Ancient Philosophy Requirement

Credits: 3

Choose one of the following Ancient Philosophy courses or an approved Topics course.

Item #	Title	Credits
PHI 3020	History of Ancient Philosophy	3

Medieval Philosophy Requirement

Credits: 3

Choose one of the following medieval philosophy courses, or an approved Topics course.

Item #	Title	Credits
PHI 3030	History of Medieval Philosophy	3
PHI 3100	Augustine & Antiquity	3
PHI 3160	History of Islamic Phil	3

Modern Philosophy Requirement

Credits: 3

Choose one of the following Modern Philosophy courses or an approved Topics course.

Item #	Title	Credits
PHI 3040	Hist of Early Mod Philosophy	3
PHI 3050	Kant & 19th Cent Philosophy	3
PHI 3720	Marx & Marxism	3

PHI Research Requirement

Credits: 3

Select 1 course from those listed below, or any PHI course with the RSRC attribute.

Item #	Title	Credits
PHI 4140	Phil of Contemporary Music	3
PHI 4600	Psychoanalysis & Philosophy	3
PHI 4990	Independent Study & Research	3
PHI 5000	Adv Sem for Phil Majors	3
PHI 6000	Senior Thesis	3

Advanced Seminar for Philosophy Majors (Capstone)

Credits: 3

Item #	Title	Credits
PHI 5000	Adv Sem for Phil Majors	3
PHI 6000	Senior Thesis	3
HON 4300/Philosophy 4301		3

PHI Electives for B.A.

Credits: 12

Choose 4 Philosophy courses worth 3 credits each from PHI 1000:9999 for a total 12 credits.

Philosophy Minor

Chair: John Carvalho, Ph.D.
Office Location: 108 Saint Augustine Center
Telephone: 610-519-4690
[Website](#)

About

The Philosophy department offers interesting courses that help students better understand the world and their place in it. Philosophy courses teach students to analyze difficult texts, to write clearly and precisely, to defend their views with cogent arguments and to take pleasure in the struggle with complex ideas and questions.

Type: Minor

MINOR (5 courses)

Philosophy minors take any five courses in the philosophy department.

Required Minor Courses:

Item #	Title	Credits
	PHI Electives	15

Category Descriptions

PHI Electives

Credits: 15

Choose 5 Philosophy courses worth 3 credits each from PHI 1000:9999 for a total 15 credits.

Physics

Physics Major (BA)

Chair: David Chuss, Ph.D.
Office Location: 347 Mendel Science Center
Telephone: 610-519-4860
[Website](#)

About

Physics is an experimental science in which its practitioners investigate nature at the most fundamental level on scales ranging from subatomic distances to the size of the universe. It is a quest to understand the origin and behavior of all forces: forces that account for the observed stability and in some cases instability of the atomic nucleus; forces that account for the stability of the atom; and forces that account for the stability of matter and the large-scale structures of the universe.

In this sense, it is the most fundamental of all physical sciences, and the successful physics student will be adept at solving problems using techniques that probe the fundamental building blocks of nature. Being trained to analyze phenomena at the most fundamental level makes the physics major versatile. Therefore, the student who successfully completes the degree in physics will not only be well prepared for graduate studies in physics, but also for employment in research-oriented industries or study in professional fields.

Type: Bachelor of Arts

MAJOR (B.A.) (67 credits)

The BA program provides a solid foundation in Physics along with problem solving and critical thinking skills that are applicable to careers in Physics and beyond, including medicine, law, business, journalism, and education. The BA provides a more flexible curriculum than the BS and is a good match for students with interdisciplinary interests.

Program Notes:

- 3-credit PHY elective OR technical elective. Approval of the Physics chairperson required.

Major (B.A.) Required Courses:

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
PHY 2601	Computational Phy Lab I	1
PHY 2603	Computational Phy Lab II	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1
PHY 2416	Modern Physics	3
PHY 2417	Lab:Modern Physics	1
PHY 3310	Electronics	3
PHY 3311	Electronics Lab	1
PHY 4200	Mathematical Physics I	3
MAT 2500	Calculus III	4
MAT 2705	Diff Equation with Linear Alg	4
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
CHM 1152	General Chemistry II	4
PHY 4100	Mechanics I	3
PHY 4301	Experimental Methods I	2
PHY 4303	Experimental Methods II	2
PHY 4000	Elec & Magnetism I	3
PHY 4001	Elec & Magnetism I Lab	1
PHY 5100	Quantum Mechanics	3
	PHY Elective for B.A.	3

Category Descriptions

PHY Elective for B.A.

Credits: 3

Select 1 class in PHY 3000:6700 for a total of 3 credits.

Physics Major (BS)

Chair: David Chuss, Ph.D.

Office Location: 347 Mendel Science Center

Telephone: 610-519-4860

[Website](#)

About

Physics is an experimental science in which its practitioners investigate nature at the most fundamental level on scales ranging from subatomic distances to the size of the universe. It is a quest to understand the origin and behavior of all forces: forces that account for the observed stability and in some cases instability of the atomic nucleus; forces that account for the stability of the atom; and forces that account for the stability of matter and the large-scale structures of the universe.

In this sense, it is the most fundamental of all physical sciences, and the successful physics student will be adept at solving problems using techniques that probe the fundamental building blocks of nature. Being trained to analyze phenomena at the most fundamental level makes the physics major versatile. Therefore, the student who successfully completes the degree in physics will not only be well prepared for graduate studies in physics, but also for employment in research-oriented industries or study in professional fields.

Type: Bachelor of Science

MAJOR (B.S.) (88 credits)

The BS program consists of a rigorous and focused curriculum that provides a deep background in fundamental physics. The BS is excellent preparation for the student who aspires to graduate studies in Physics, but also provides comprehensive training in problem solving and critical thinking that are applicable to a wide range of career paths.

Required Courses:

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
PHY 2601	Computational Phy Lab I	1
PHY 2603	Computational Phy Lab II	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1
PHY 2416	Modern Physics	3
PHY 2417	Lab:Modern Physics	1
PHY 3310	Electronics	3
PHY 3311	Electronics Lab	1
PHY 4200	Mathematical Physics I	3
MAT 2500	Calculus III	4
MAT 2705	Diff Equation with Linear Alg	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
PHY 4100	Mechanics I	3
PHY 4102	Mechanics II	3
PHY 4301	Experimental Methods I	2
PHY 4000	Elec & Magnetism I	3
PHY 4001	Elec & Magnetism I Lab	1
PHY 4002	Elec & Magnetism II	3
PHY 4003	Elec & Magnetism II Lab	1
PHY 4202	Mathematical Physics II	3
PHY 5100	Quantum Mechanics	3
PHY 5200	Thermo/Statistical Mech	3
PHY 5300	Subatomic Physics	3
	PHY Electives for B.S.	6
	Science Electives for Physics B.S.	3

Category Descriptions

PHY Electives for B.S.

Credits: 6

Select 2 Classes in PHY 3000:6700 for a total of 6 credits.

Science Electives for Physics B.S.

Credits: 3

Select 4 Credits in AST 2000:5999, BIO 1205:5999, CHM 2211:5999, CSC 1051:5999, MAT 2300:5999, MET 1221:5999, PHY 3000:5999

Physics Minor

Chair: David Chuss, Ph.D.
Office Location: 347 Mendel Science Center
Telephone: 610-519-4860
[Website](#)

About

Physics is an experimental science in which its practitioners investigate nature at the most fundamental level on scales ranging from subatomic distances to the size of the universe. It is a quest to understand the origin and behavior of all forces: forces that account for the observed stability and in some cases instability of the atomic nucleus; forces that account for the stability of the atom; and forces that account for the stability of matter and the large-scale structures of the universe.

In this sense, it is the most fundamental of all physical sciences, and the successful physics student will be adept at solving problems using techniques that probe the fundamental building blocks of nature. Being trained to analyze phenomena at the most fundamental level makes the physics major versatile. Therefore, the student who successfully completes the degree in physics will not only be well prepared for graduate studies in physics, but also for employment in research-oriented industries or study in professional fields.

Type: Minor

MINOR (31 credits)

The Physics Department offers a minor in physics to qualified students whose major area of study lies outside of physics. In general, a student in any area of study, other than physics, may obtain a minor in physics.

Program Notes:

- The Minor in Applied Physics for Math Majors requires all of the Math courses required for the Math degree, plus MAT 4310, PHY 2410/2411, through PHY 2416/2417, PHY 3310/3311, and PHY 4301/4303

Required Minor Courses:

Item #	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1
PHY 2416	Modern Physics	3
PHY 2417	Lab:Modern Physics	1
Physics Elective for Minor		15

Category Descriptions

Physics Elective for Minor

Credits: 15

Select 5 Classes of 3 or more credits in PHY 2418:9999 for a total of 15 credits.

Political Science

Political Science Major

Interim Chair: Crystal Lucky, Ph.D.
Office Location: 202 Saint Augustine Center
Telephone: 610-519-4710
[Website](#)

About

Today, no less than in the past, it is essential for citizens in a democracy to be educated about the political system in which they live and to know how that system relates to other governments and international issues. The study of political science will educate you about timely and important political issues on a national and global scale while helping you develop a set of analytical, reasoning and research skills to last a lifetime. As a political science major, you will learn about American politics, comparative politics, international relations and political theory; become familiar with the methodology of social science inquiry and learn how to conduct research; build competence in oral and written expression; develop reasoning and analytical skills; become a politically engaged citizen-leader; prepare for any number of politically-oriented careers or for [graduate or professional training](#). As a political science major, you will learn how political leaders operate; governments make decisions; politics shapes public policy; governments respond to internal and international conflicts; people develop political attitudes and preferences; groups attempt to influence government; and governments can best serve their people.

Type: Bachelor of Arts

MAJOR (33 credits)

In the context of the liberal arts tradition, the Department of Political Science seeks to encourage in its students a commitment to intellectual curiosity, academic excellence, and responsible civic engagement. The Department is committed to helping students improve their skills of observation, critical reading, rigorous thought, careful evidence-based argumentation, and effective communication, and to develop values of good citizenship.

Program Notes:

- Foundational courses should be taken immediately upon declaring the major. They serve as prerequisites for many of the upper division courses and the senior seminar.
- With the exception of internships (up to 3 credits), courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the major.
- Any senior with a GPA of 3.0 or above may request to take a graduate PSC course.

Required Major Courses:

Item #	Title	Credits
PSC 1100	American Government	3
PSC 1200	International Relations	3
PSC 1300	Comparative Politics	3
PSC 1400	Political Theory	3
PSC 1900	Research Seminar	3
PSC 6900	Political Sci Seminar	3
	Upper-Level PSC Electives for B.A.	15

Category Descriptions

Upper-Level PSC Electives for B.A.

Credits: 15

Select any course of 3 or more credits numbered from PSC 2000:6999 (15 cr)

Political Science Minor

Interim Chair: Crystal Lucky, Ph.D.
Office Location: 202 Saint Augustine Center
Telephone: 610-519-4710
[Website](#)

About

Today, no less than in the past, it is essential for citizens in a democracy to be educated about the political system in which they live and to know how that system relates to other governments and international issues. The study of political science will educate you about timely and important political issues on a national and global scale while helping you develop a set of analytical, reasoning and research skills to last a lifetime. As a political science major, you will learn about American politics, comparative politics, international relations and political theory; become familiar with the methodology of social science inquiry and learn how to conduct research; build competence in oral and written expression; develop reasoning and analytical skills; become a politically engaged citizen-leader; prepare for any number of politically-oriented careers or for [graduate or professional training](#). As a political science major, you will learn how political leaders operate; governments make decisions; politics shapes public policy; governments respond to internal and international conflicts; people develop political attitudes and preferences; groups attempt to influence government; and governments can best serve their people.

Type: Minor

MINOR (18 credits)

A minor is open to all students and requires 6 courses and 18 credits.

Program Notes:

- Students completing the minor are encouraged to focus on one or two subfields, although they are not required to do so.
- Internship credit will not be applied to the Political Science minor.

Required Minor Courses:

Item #	Title	Credits
	PSC Foundational Elective	6
	Upper-Level PSC Electives for Minor	12

Category Descriptions

PSC Foundational Elective

Credits: 6

Choose at least two of the following foundational courses.

Item #	Title	Credits
PSC 1100	American Government	3
PSC 1200	International Relations	3
PSC 1300	Comparative Politics	3
PSC 1400	Political Theory	3

Upper-Level PSC Electives for Minor

Credits: 12

Select 4 courses numbered from PSC 2000:6999 except PSC 6503 (12 cr).

Psychological and Brain Sciences

Psychology Major (BA)

Chair: Michael Brown, Ph.D.
Office Location: 334 Tolentine Hall
Telephone: 610-519-4722
[\[Website\]](#)

About

Psychology is the basic and applied science of mind and behavior. Psychologists use the methods of both natural and social science to advance our knowledge and understanding of thought, emotion, and behavior in humans and other organisms. Psychologists also apply this knowledge to improve the conditions of individuals and society. The Department of Psychological and Brain Sciences offers two majors in psychology, a Bachelor of Science (B.S.) with a Psychology major and a Bachelor of Arts (B.A.) with a Psychology major. To declare either major students must have completed PSY 1000 or PSY 1001, or have AP credit for PSY 1000. In addition, they must have a C+ or higher in PSY 1000 or PSY 1001, or have an overall minimum GPA of 3.00.

Type: Bachelor of Arts

MAJOR (31 credits)

Program Notes:

- Courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the major, except for PSY 2100: Seminar in Professional Development and PSY 2150, PSY 2905, PSY 2993, and PSY 2996.

Required Major Courses:

Item #	Title	Credits
	PSY 1000 or PSY 1001	3
PSY 2000	Intro Statistics	3
PSY 2050	Research Methods in Psy.	3
PSY 2100	Sem Professional Development	1
	PSY 5150 or PSY 5250	3
	PSY 4200 or PSY 4500	3
	Psychology Foundation Courses for B.A.	9
	Psychology Electives for B.A.	6

Category Descriptions

PSY 1000 or PSY 1001

Credits: 3

Item #	Title	Credits
PSY 1000	General Psychology	3
PSY 1001	Intro to Brain and Behavior	3

PSY 5150 or PSY 5250

Credits: 3

Item #	Title	Credits
PSY 5150	Foundations of Modern Psych	3
PSY 5250	Contemp Research Issues in Psy	3

PSY 4200 or PSY 4500

Credits: 3

Item #	Title	Credits
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3

Psychology Foundation Courses for B.A.

Credits: 9

Select 3 Classes of three or more credits in PSY 3000:4500 (9 cr).

Psychology Electives for B.A.

Credits: 6

Select 2 Classes of three or more credits in PSY 2000:7999, or any course with the PSY attribute.

Cognitive and Behavioral Neuroscience Major

Chair: Michael Brown, Ph.D.

Office Location: Tolentine Hall, Room 334

Telephone: (610) 519-4720

The major in Cognitive and Behavioral Neuroscience (CBN) provides an intensive course of study focused on brain-behavior relationships, ranging from genetic to whole brain contributions to behavior and mental processes. The program is excellent preparation for a variety of careers focusing on research and/or practice in neuroscience, medicine, allied health fields, and psychology, as well as for more general careers in areas such as public policy and education.

Students are accepted into Villanova University as declared CBN majors. Therefore, prospective students who are interested in the major should select the CBN program when applying to the University. Students who have already entered Villanova may appeal directly to the Department of Psychological and Brain Sciences for special permission into the major.

Type: Bachelor of Science

MAJOR (65-70 credits)

Program Notes:

- PSY 2900 is a topics course and the topic must be approved for it to count as a CBN elective. The following topics have been approved: "Drugs & Behavior", "Emotion", "Neuroethics". Other topics do not count without approval.
- BIO 4950 is a topics course and the topic must be approved for it to count as a CBN elective. The following topic has been approved: "Sex, Brains & Behavior. Other topics do not count without approval.
- PSY 5900 is an independent research course and can count as a CBN elective only with pre-approval

Item #	Title	Credits
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3351	Genetics	4
	MAT 1312 or MAT 1500	4
	MAT 1314 or MAT 1505	3-4
	PSY 1000 or PSY 1001 for CBN	3
PSY 2000	Intro Statistics	3
PSY 2050	Research Methods in Psy.	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
CBN 4000	Cell & Behavioral Neuroscience	3
CBN 4100	Cognitive Neuroscience	3
	CBN 5000 or CBN 6002	3
	CBN Approved Elective	12

Category Descriptions

MAT 1312 or MAT 1500

Credits: 4

- MAT 1312 and MAT 1314 must be taken as a sequence.
- MAT 1500 and MAT 1505 must be taken as a sequence.

Item #	Title	Credits
MAT 1312	Biocalculus	4
MAT 1500	Calculus I	4

MAT 1314 or MAT 1505

Credits: 3-4

- MAT 1312 and MAT 1314 must be taken as a sequence.
- MAT 1500 and MAT 1505 must be taken as a sequence.

Item #	Title	Credits
MAT 1314	Modeling for the Life Sciences	3
MAT 1505	Calculus II	4

PSY 1000 or PSY 1001 for CBN

Credits: 3

- PSY 1001 is recommended by the department.

Item #	Title	Credits
PSY 1000	General Psychology	3
PSY 1001	Intro to Brain and Behavior	3

CBN 5000 or CBN 6002

Credits: 3

Item #	Title	Credits
CBN 5000	Seminar in Neuroscience	3
CBN 6002	Thesis Research II	3

CBN Approved Elective

Credits: 12

CBN students are required to take four elective courses. Although the electives are organized into four categories, there is no requirement to use this organization when selecting electives.

Students can choose to concentrate in a particular area by taking electives from one category or they can sample broadly across any or all categories.

Notes:

- Students should consult individual courses via the courses tool to determine pre-requisites.
- The 1-credit lab is optional when taking BIO 4251 and CHM 4611.
- BIO 4950 courses offered are available in the Master Schedule accessible through MyNova but must be approved by the CBN program.
 - Already pre-approved as CBN elective: "Sex, Brains & Behavior"
- CHM 4621 is recommended for Chemistry and Biochemistry majors)
- PSY 2900 courses offered are available in the Master Schedule accessible through MyNova but must be approved by the CBN program.
- There is restriction such that no more than 2 courses (6 credits) of the CBN elective requirement may come from: PSY 5900, CBN 5900, CBN 6001, CBN 6002

Category 1 - Behavioral/ Psychological Science

Item #	Title	Credits
PSY 3200	Human Development	3
PSY 3300	Perception	3
PSY 3500	Psych of Personality	3
PSY 3600	Social Psychology	3
PSY 3700	Psychopathology	3
PSY 4600	Animal Learning & Cognition	3

Category 2 - Biological/Life Science

Item #	Title	Credits
BIO 3015	Animal Behavior	4
BIO 3055	Human Physiology	4
BIO 4205	Cell Biology	4
BIO 4251	Endocrine Physiol/ Pharmacology	3
BIO 4285	Developmental Biology	4
BIO 4305	Evolution	4
BIO 4505	Molecular Biology	4
BIO 4605	Neurobiology	4
BIO 4950	Advanced Topics in Biology	3
CHM 4611	Survey of Biochemistry	3
CHM 4621	Biochemistry I: Structure	3

Category 3 - Cognitive Science

Item #	Title	Credits
PHI 4610	Philosophy of Mind	3
CGS 5900	Cognitive Science Seminar	3
CGS 5910	Psychology of Language	3

Category 4 - Special Topics & Research

- CBN 6002 generally counts as the required capstone course and NOT as an elective. It may count as an elective only if CBN 5000 is taken as the required capstone option.

Item #	Title	Credits
CBN 2900	Topics in Cog & Behav Neuro	3
CBN 5900	Undergraduate Research in CBN	3
PSY 5900	Independent Research Project	3
CBN 6001	Thesis Research I	3
CBN 6002	Thesis Research II	3

Psychology Major (BS)

Chair: Michael Brown, Ph.D.

Office Location: 334 Tolentine Hall

Telephone: 610-519-4722

[\[Website\]](#)

About

Psychology is the basic and applied science of mind and behavior. Psychologists use the methods of both natural and social science to advance our knowledge and understanding of thought, emotion, and behavior in humans and other organisms. Psychologists also apply this knowledge to improve the conditions of individuals and society. The Department of Psychological and Brain Sciences offers two majors in psychology, a Bachelor of Science (B.S.) with a Psychology major and a Bachelor of Arts (B.A.) with a Psychology major. To declare either major students must have completed PSY 1000 or PSY 1001, or have AP credit for PSY 1000. In addition, they must have a C+ or higher in PSY 1000 or PSY 1001, or have an overall minimum GPA of 3.00.

Type: Bachelor of Science

MAJOR (53 credits)

Program Notes:

- Courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the major, except for PSY 2100: Seminar in Professional Development.

Required Major Courses:

Item #	Title	Credits
	PSY 1000 or PSY 1001	3
PSY 2000	Intro Statistics	3
PSY 2050	Research Methods in Psy.	3
PSY 2100	Sem Professional Development	1
	PSY 5150 or PSY 5250	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
	Psychology Foundation Courses for B.S.	9
	Psychology Electives for B.S.	6
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
CSC 1051	Algorithms & Data Struc I	4
	Mathematics for Psychology B.S.	7-8

Category Descriptions

PSY 1000 or PSY 1001

Credits: 3

Item #	Title	Credits
PSY 1000	General Psychology	3
PSY 1001	Intro to Brain and Behavior	3

PSY 5150 or PSY 5250

Credits: 3

Item #	Title	Credits
PSY 5150	Foundations of Modern Psych	3
PSY 5250	Contemp Research Issues in Psy	3

Psychology Foundation Courses for B.S.

Credits: 9

Select 3 Classes of three or more credits in PSY 3000:3999 (9 cr).

Psychology Electives for B.S.

Credits: 6

Select 2 Classes of three or more credits in PSY 2000:9999, or any course with the PSY attribute.

Mathematics for Psychology B.S.

Credits: 7-8

Select 1 option.

Option 1

Item #	Title	Credits
MAT 1312	Biocalculus	4
MAT 1314	Modeling for the Life Sciences	3

Option 2

Item #	Title	Credits
MAT 1500	Calculus I	4
MAT 1314	Modeling for the Life Sciences	3

Option 3

Item #	Title	Credits
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4

Psychology Minor

Chair: Michael Brown, Ph.D.
Office Location: 334 Tolentine Hall
Telephone: 610-519-4722
[\[Website\]](#)

About

Psychology is the basic and applied science of mind and behavior. Psychologists use the methods of both natural and social science to advance our knowledge and understanding of thought, emotion, and behavior in humans and other organisms. Psychologists also apply this knowledge to improve the conditions of individuals and society. The Department of Psychological and Brain Sciences offer two majors in psychology, a Bachelor of Science (B.S.) and a Bachelor of Arts (B.A.).

Type: Minor

MINOR (15 credits)

A minor is open to all students and requires 5 courses and 15 credits.

Program Notes:

- Courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the minor.
- No more than two prior approved psychology courses may be taken at another institution (AP courses, transfer courses, courses taken abroad, etc.) and be counted toward the minor.
- Before declaring the psychology minor, students must have completed PSY 1000 or 1001 or have AP credit for PSY 1000.

Required Minor Courses:

Item #	Title	Credits
	PSY 1000 or PSY 1001	3
	Psychology Electives for Minor	12

Category Descriptions

[PSY 1000 or PSY 1001](#)

Credits: 3

Item #	Title	Credits
PSY 1000	General Psychology	3
PSY 1001	Intro to Brain and Behavior	3

Psychology Electives for Minor

Credits: 12

Select 4 Classes of three or more credits in PSY 2000:7999, or any course with the PSY attribute. (12 cr)

Public Administration

Public Service & Administration Major

Chair: Catherine E. Wilson, Ph.D.
Office Location: 205 Saint Augustine Center
Telephone: 610-519-3934
[Website](#)

The major in Public Service and Administration (PSA) in the College of Liberal Arts and Sciences (CLAS) provides undergraduate students with an interdisciplinary course of study to: (1) reflect on the long tradition of public service both in the United States and abroad; (2) engage critically with the scholarly literature in the field; (3) examine historical and modern-day examples of public service leadership; and (4) equip them with the relevant competencies and skills to lead and serve as ethical, intelligent, inclusive, and creative leaders in public service organizations, from nonprofit organizations, to local, state, and federal government, to the private sector.

Type: B.A. or B.I.S.

Major Requirements (30 Credits)

All students majoring in PSA would be required to take the seven (7) courses listed below and at least one (1) elective PSA course.

Program Notes:

- Students would be permitted to count six (6) credits from already-approved courses in other departments towards the PSA major
- CPS students currently enrolled in the PSA major will complete the existing curriculum, but new CPS students enrolled in Fall 2022 will complete the new curriculum.
- CLAS students completing the PSA major will not be permitted to enroll in Fast Forward sections offered by CPS (unless they have been given special permission), but the CLAS students may take online PSA summer courses offered by CPS.
- Students are required to take a research methods-style course. PA 5000 meets that requirement.

Item #	Title	Credits
PA 1050	Public Administration	3
PA 2000	Public Policy	3
PA 4100	Public Budgeting	3
PA 4200	Organizational Development	3
PA 5000	Special Topics	3
PA 6000	Vocation of Public Service	3
PA 6100	PSA Internship	3
	Public Service Elective	9

Electives

Item #	Title	Credits
COM 2440	Theories of Organizational Com	3
COM 3203	Communication Law & Policy	3
CRM 3001	Justice and Society	3
ECO 3112	Public Sector Economics	3
ECO 3127	Development Economics	3
ECO 3140	Urban Economics	3
EDU 3253	Educational Policy Analysis	3
ENG 2060	Desktop Publishing	3
GEV 3001	Intro to Sustainability Study	3
GEV 3308	Environmental Health	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 4310	Environmental Issues Seminar	3
GEV 4330	Spec Topics in Environm Policy	3
GEV 4340	Spec Topics in Environm Issues	3
GEV 4350	Spec Topics in Environm Sci	3
GEV 4510	Special Topics in Geography	3
HS 3700	Human Service Systems	3
HUM 2900	Topics	3
MGT 2155	Organizational Behavior	3
MGT 2250	Global Corp Responsibility	3
MGT 2360	Global Leadership	3
MKT 2230	Marketing of Services	3
NS 4100	Leadership and Management	3
NS 4200	Leadership and Ethics	3
NUR 3122	Imper for Global & Pub Health	3
NUR 4114	Nursing and Health Policy	2
PA 2000	Public Policy	3
PA 2100	City and Suburb	3
PA 3000	Overview of Non-Profit Sector	3
PA 5000	Special Topics	3
PA 5100	Independent Study	3
PA 6000	Vocation of Public Service	3
PA 6100	PSA Internship	3
PJ 2500	Education & Social Justice	3
PJ 2700	Peacemakers & Peacemaking	3
PJ 2800	Race, Class, & Gender	3
PJ 2900	Ethical Issues in P & J	3
PJ 5100	Discrimination, Justice & Law	3
PSC 2110	U.S. State & Local Government	3
PSC 2125	U.S. Presidency	3

PSC 2180	U.S. National Security Policy	3
PSC 2210	Globalization	3
PSC 2230	International Organization	3
PSC 2240	Internat'l Political Economy	3
PSC 3140	Race, Ethnicity & Pol. in U.S.	3
PSC 3210	American Foreign Policy	3
PSC 3230	Development and Aid	3
PSC 3240	East Asia Political Economy	3
PSC 3250	Genocide and Mass Killing	3
SOC 2900	Politics, Economy and Society	3
SOC 2950	Perspectives on US Poverty	3
THL 5000	THM Religion	3
VIA 3020	Creating Social Impact	3

Category Descriptions

Public Service Elective

Credits: 9

3 of these 9 credits must be taken in PSA. PA 6200 may also fulfill this requirement.

Item #	Title	Credits
PA 2100	City and Suburb	3
PA 3000	Overview of Non-Profit Sector	3
PA 5100	Independent Study	3

Public Service and Administration Minor

Chair: Catherine E. Wilson, Ph.D.
Office Location: 205 Saint Augustine Center
Telephone: 610-519-3934
[Website](#)

About

The Department of Public Administration offers a Minor in Public Service and Administration for undergraduate students. The minor is an interdisciplinary course of study, open to students from all Colleges, that prepares students to be responsibly engaged citizens, government managers, and community leaders working in the "new public sector." The "new public sector" refers to the complex relationships that exist between government at all levels, nonprofit organizations, higher education, and the private

sector. Now more than ever before, these groups have been called upon to cooperate in order to address society's most pressing and challenging problems.

Type: Minor

MINOR (18 credits)

In the Public Service and Administration Minor, you will be introduced to ethical, philosophical, theological, historical, social, and political perspectives that influence the leadership and management of government and nonprofit organizations. The specific goals of this minor are to help prepare you to understand and pursue the common good; assist in the creation, implementation, and analysis of public programs; strengthen communities through innovative leadership and engaged citizenship; reflect on how the citizen as public servant discovers meaning and purpose in one's life by forging and developing the bonds of community.

Program Notes:

- At least four of the courses (12 credits) must be within the Department of Public Administration and up to two pre-approved elective courses (6 credits) may be taken outside of the Department's course offerings.
- Additional approved electives outside the Department of Public Administration may be found on the Public Administration [website](#).
- All service learning courses can be approved as electives towards the Minor.
- Listed CPS courses may also count toward fulfillment of requirements - special permission from CPS is required.

Required Minor Courses:

Item #	Title	Credits
PA 1050	Public Administration	3
	PA 2000 or PA 6000	3
	Public Administration Electives	6
	Additional Public Administration Electives	6

Category Descriptions

PA 2000 or PA 6000

Credits: 3

Item #	Title	Credits
PA 2000	Public Policy	3
PA 6000	Vocation of Public Service	3

Public Administration Electives

Credits: 6

Select 2 classes from the the list (6 cr).

- PA 6200 may also count towards fulfilling the requirement.

Item #	Title	Credits
PA 2000	Public Policy	3
PA 2100	City and Suburb	3
PA 3000	Overview of Non-Profit Sector	3
PA 4100	Public Budgeting	3
PA 4200	Organizational Development	3
PA 5000	Special Topics	3
PA 5100	Independent Study	3
PA 6000	Vocation of Public Service	3
PA 6100	PSA Internship	3
VIA 3020	Creating Social Impact	3

Additional Public Administration Electives

Credits: 6

Select 2 classes from the the list (6 cr), or any course with the Service Learning attribute.

- COM 3440 may also count towards fulfilling this requirement.

Item #	Title	Credits
COM 2440	Theories of Organizational Com	3
COM 3203	Communication Law & Policy	3
CRM 3001	Justice and Society	3
ECO 3112	Public Sector Economics	3
ECO 3127	Development Economics	3
ECO 3140	Urban Economics	3
EDU 3253	Educational Policy Analysis	3
ENG 2060	Desktop Publishing	3
GEV 3001	Intro to Sustainability Study	3
GEV 3308	Environmental Health	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 4310	Environmental Issues Seminar	3
GEV 4330	Spec Topics in Environm Policy	3
GEV 4340	Spec Topics in Environm Issues	3
GEV 4350	Spec Topics in Environm Sci	3
GEV 4510	Special Topics in Geography	3
HS 3700	Human Service Systems	3
HUM 2900	Topics	3
MGT 2155	Organizational Behavior	3
MGT 2250	Global Corp Responsibility	3
MGT 2360	Global Leadership	3
MKT 2230	Marketing of Services	3
NS 4100	Leadership and Management	3
NS 4200	Leadership and Ethics	3
NUR 3122	Imper for Global & Pub Health	3
NUR 4114	Nursing and Health Policy	2
PA 2000	Public Policy	3
PA 2100	City and Suburb	3
PA 3000	Overview of Non-Profit Sector	3
PA 5000	Special Topics	3
PA 5100	Independent Study	3
PA 6000	Vocation of Public Service	3
PA 6100	PSA Internship	3
PJ 2500	Education & Social Justice	3
PJ 2700	Peacemakers & Peacemaking	3
PJ 2800	Race, Class, & Gender	3
PJ 2900	Ethical Issues in P & J	3
PJ 5100	Discrimination, Justice & Law	3
PSC 2110	U.S. State & Local Government	3

PSC 2125	U.S. Presidency	3
PSC 2180	U.S. National Security Policy	3
PSC 2210	Globalization	3
PSC 2230	International Organization	3
PSC 2240	Internat'l Political Economy	3
PSC 3140	Race, Ethnicity & Pol. in U.S.	3
PSC 3210	American Foreign Policy	3
PSC 3230	Development and Aid	3
PSC 3240	East Asia Political Economy	3
PSC 3250	Genocide and Mass Killing	3
SOC 2900	Politics, Economy and Society	3
SOC 2950	Perspectives on US Poverty	3
THL 5000	THM Religion	3
VIA 3020	Creating Social Impact	3

Russian Studies

Russian Area Studies Concentration (RASCON)

Director: Mark Schrad, Ph.D.
Office Location: 256 Saint Augustine Center
[\[Website\]](#)

About

The Concentration in Russian Area Studies promotes the study of the Russian language, and the cultures, societies, politics, and histories of the former Soviet space, which include but are not limited to Russia. With a rigorous and intellectually challenging program, students in the Russian Area Studies Concentration will become proficient in the language by taking at least two semesters of Russian language at the intermediate level and will gain well-rounded knowledge of the culture by taking four electives chosen from designated courses in History, Literature, Political Science, Economics, Theology and Religious Studies, and Art and Art History.

Type: Concentration

CONCENTRATION (18 credits)

The Russian Area Studies Concentration is open to all students enrolled in the University. The purpose of the concentration is to provide students with a multi-disciplinary comprehension of Russia through the study of this complex country's language, culture, literature, history, politics, religions and art.

Program Notes:

- Other appropriate special topics courses may count towards electives as approved by the director.

Required Concentration Courses:

Item #	Title	Credits
RUS 1123	Intermediate Russian I	3
RUS 1124	Intermediate Russian II	3
	Russian Studies Electives	12

Category Descriptions

Russian Studies Electives

Credits: 12

Russian Area Studies Electives – Select 4 Classes in HIS 3241, 3242, PSC 3320, RUS 1131, 1132, 3412, 4110, 4120, 4130, SAR 4007, THL 5200, Or any three-credit course with the RAS attribute (12 cr)

Sociology

Sociology Major

Chair: Rick Eckstein, Ph.D.
Office Location: 204 Saint Augustine Center
Telephone: 610-519-4742
[Website](#)

About

Sociology is the systematic study of social life. Sociologists believe that people's actions are strongly influenced by the conditions and situations in which they live, work, and play. Everybody makes decisions, but we recognize and study how social structures and institutions

affect and constrain those decisions. Our goal as researchers is to expose and analyze the impacts of those circumstances on human decisions, societies, and opportunities. Methodologically, we incorporate multiple perspectives and analytical approaches to help create a more holistic understanding of our society. Our mission as teachers is to empower students to think critically and rigorously about individuals and societies. Through our diverse offerings on local, regional, national and global social processes, we strive to create more complete human beings with a keen sense of humanity, social justice, and appropriate social policy.

Type: Bachelor of Arts

MAJOR (33 credits)

To declare the Major, a student must have completed Introduction to Sociology (SOC 1000) with a "C" or higher. The Major consists of 33 credits. A student must allow three full semesters after the declaration of the Major to complete all requirements. One of the Sociology electives for the Major can be satisfied by an internship for credit with approval from the department Chair, provided that the student has at least 15 credits toward the Major.

Program Notes:

- A student taking an internship in a field setting in the second semester of their junior year or during their senior year should consult with the department Chair.
- Students must have at least three full semesters remaining at Villanova University to declare a Sociology major.

Required Major Courses:

Item #	Title	Credits
SOC 1000	Intro to Sociology	3
SOC 5050	Soc Theory & Public Policy	3
SOC 5300	Data Analysis-Social Scientist	3
SOC 5400	Applied Research in Soc	3
SOC 6500	Seminar	3
	SOC Electives for B.A.	15
	CRM Elective for SOC B.A.	3

Category Descriptions

SOC Electives for B.A.

Credits: 15

5 Classes in courses of 3 credits or more in SOC 1000:9999, or any subject and course number with SOC attribute (15 cr)

CRM Elective for SOC B.A.

Credits: 3

1 Class in a course of 3 credits or more in CRM 1000:9999 (3 cr)

Sociology Minor

Chair: Rick Eckstein, Ph.D.

Office Location: 204 Saint Augustine Center

Telephone: 610-519-4742

[Website](#)

About

Sociology is the systematic study of social life. Sociologists believe that people's actions are strongly influenced by the conditions and situations in which they live, work, and play. Everybody makes decisions, but we recognize and study how social structures and institutions affect and constrain those decisions. Our goal as researchers is to expose and analyze the impacts of those circumstances on human decisions, societies, and opportunities. Methodologically, we incorporate multiple perspectives and analytical approaches to help create a more holistic understanding of our society. Our mission as teachers is to empower students to think critically and rigorously about individuals and societies. Through our diverse offerings on local, regional, national and global social processes, we strive to create more complete human beings with a keen sense of humanity, social justice, and appropriate social policy.

Type: Minor

MINOR (15 credits)

A Minor is open to all students and requires 5 courses and 15 credits. Courses taken on a satisfactory/unsatisfactory basis cannot be used to satisfy requirements for the Minor. Minors cannot receive Sociology credit for an internship.

Program Notes:

- Only one course may be transferred from another university.
- No course for the minor may be taken S/U, and no more than one course transferred from another university will be accepted.
- Minors cannot receive Sociology credit for an internship.

Required Minor Courses:

Item #	Title	Credits
SOC 1000	Intro to Sociology	3
	SOC Minor Elective	12

Category Descriptions

SOC Minor Elective

Credits: 12

4 Classes in courses of 3 credits or more in HON 4900:4951, SOC 2000:6500 (excluding SOC 1500, 2993, 2996, 5300:5400) (12 cr).

Spanish Studies

Spanish Studies Major

Chairperson: Veronika Ryjik, Ph.D.
Office Location: 303 Saint Augustine Center
Telephone: (610) 519-7794
[Website](#)

About

Spanish is the language that the majority of students in the United States (and in Villanova) chooses to study at the present time for very good reasons: It is the second major language spoken in the world (after Mandarin) and it is the second language spoken in the United States. Therefore it will be very

useful and advantageous to know Spanish in any career path that students may choose. Approximately 800 students take Spanish undergraduate courses every semester at Villanova. Students are encouraged to spend summers and semesters abroad in Spain and Central and South America, to obtain a greater proficiency in the language.

Type: Bachelor of Arts

MAJOR (30 credits)

The influence of Spanish crosses centuries as well as geographic boundaries. It is a dynamic and exciting language used in diverse parts of the world, such as: Central, South, North America, the Caribbean and Spain. Spanish and its different cultures are taught at Villanova in interdisciplinary courses, in the Liberal Arts Program, Cultural Studies program, and in courses that were designed in response to these developments. The classes provide students with a thorough grounding in the history, politics, cultural production (literatures, film, theater), linguistics, post-colonial experiences, and development of the Hispanic world.

Program Notes:

- One RLL course taught in English with SPA attribute may be accepted for the major.
- Students may obtain up to 6 credits through the Villanova summer program in Cádiz (Spain) or Valparaiso (Chile), and up to 9 credits through an authorized semester program. Contact the ISO for details.

Required Major Courses:

Item #	Title	Credits
SPA 1131	Conversation & Composition I	3
SPA 1132	Conversation & Composition II	3
	SPA 1138 or SPA 1140	3
	SPA 2220 or SPA 2221	3
SPA 3970	Research Seminar	3
	Spanish Electives for B.A.	15

Category Descriptions

SPA 1138 or SPA 1140

Credits: 3

Item #	Title	Credits
SPA 1138	Advanced Grammar	3
SPA 1140	Writing & Stylistics in Span.	3

SPA 2220 or SPA 2221

Credits: 3

Item #	Title	Credits
SPA 2220	Literature & Culture of Spain	3
SPA 2221	Lit. & Cult. of Latin America	3

Spanish Electives for B.A.

Credits: 15

Select 5 Classes of 3 or more credits from SPA 1123:9999 (15 cr)

- (Maximum of one class with subject RLL and Attribute SPA).

Spanish Studies Minor

Chairperson: Veronika Ryjik, Ph.D.

Office Location: 303 Saint Augustine Center

Telephone: (610) 519-7794

[Website](#)

About

Spanish is the language that the majority of students in the United States (and in Villanova) chooses to study at the present time for very good reasons: It is the second major language spoken in the world (after Mandarin) and it is the second language spoken in the United States. Therefore it will be very useful and advantageous to know Spanish in any career path that students may choose. Approximately 800 students take Spanish undergraduate courses every semester at Villanova. Students are encouraged to spend summers and semesters abroad in Spain and Central and South America, to obtain a greater proficiency in the language.

Type: Minor

MINOR (12 credits)

The department encourages students to obtain a minor in Spanish if their schedule does not permit them to complete a major. To do so, students may fill-out a form, which can be obtained on MyNova under 'OUS Forms'. At the time of graduation and upon completion of the minor requirements, students will be issued a Minor certificate and the minor will appear on their transcript

Program Notes:

- Of the four required courses, one must be at the 3000 level and taken at Villanova, or at a Villanova study abroad program (Cádiz or Valparaíso).
- Courses in English do not count for the minor.

Required Minor Courses:

Item #	Title	Credits
SPA 1131	Conversation & Composition I	3
SPA 1132	Conversation & Composition II	3
	Upper-Level Spanish course for Minor	3
	Elective for Spanish Minor	3

Category Descriptions

Upper-Level Spanish course for Minor

Credits: 3

Select 1 Upper-Level Course from SPA 1133:9999 (3 cr).

Elective for Spanish Minor

Credits: 3

1 course from SPA 3000:3999 taken at Villanova, or at the Villanova/Cádiz Program (3 cr)

Theatre

Music Minor

Chairperson: Valerie M. Joyce, Ph.D.
Office Location: 309 Mullen Center for the Performing Arts
Telephone: 610-519-4760
[\[Website\]](#)

Villanova has a vibrant musical culture, and students interested in Music can declare a minor in Music or take courses in Music taught by faculty from across the University. Develop your skills and learn how to get the most out of your experience as a performer and listener with a broad range of courses as a Music Minor.

Type: Minor

Minor (16 credits)

Music Minors must complete five Music courses.

Item #	Title	Credits
SAR 2100	Music Theory I	4
	SAR 2110 or SAR 2111	3
	Music Minor Elective	3
	Music Minor Elective	3
	Music Minor Elective	3

Category Descriptions

SAR 2110 or SAR 2111

Credits: 3

Item #	Title	Credits
SAR 2110	Western Music to 1750	3
SAR 2111	Western Music:1750-Present	3

Music Minor Elective

Credits: 3

Item #	Title	Credits
SAR 2114	Songwriting: Words & Music	3
SAR 2119	Jazz:America's Music	3
THE 2034	Musical Theatre	3
CSC 1043	Laptop Instrument	3
PHI 4140	Phil of Contemporary Music	3
COM 3354	Media Criticism	3

Studio Art Minor

Chairperson: Valerie M. Joyce, Ph.D.
Office Location: 309 Mullen Center for the Performing Arts
Telephone: 610-519-4760
[\[Website\]](#)

Students interested in Art can declare a minor in Studio Art or take courses taught by our inspiring faculty to develop a deeper appreciation and build skills in the arts.

Type: Minor

MINOR (15 credits)

Program Notes:

- Student do not have to take a course from the Studio Art Elective section; they may take all five required courses from the Studio Art Core section.

Item #	Title	Credits
	Studio Art Core	12
	Studio Art Elective	3

Category Descriptions

Studio Art Core

Credits: 12

Students must choose at least four courses from the below list. They may fulfill the requirement using all courses from this list, if they wish.

Item #	Title	Credits
SAR 2010	Intro to Calligraphy	3
SAR 2020	Basic Watercolor Techniques	3
SAR 2021	Basic Drawing Techniques	3
SAR 2022	Basic Oil Painting	3
SAR 3031	Special Topics in Studio Art	3
SAR 4007	Painting of Icons	3
SAR 5004	Basic Printmaking	3

Studio Art Elective

Credits: 3

One elective from the list in Studio Art Core or from the following:

Item #	Title	Credits
AAH 1101	His West Art: Ancient-Med	3
AAH 1102	His West Art: Renaiss - Cont	3
AAH 1103	Visual Arts in US 1607-1876	3
AAH 1104	Visual Arts in US 1877-Present	3
AAH 2000	Ancient Art	3
AAH 2001	Medieval Art	3
AAH 2002	Early Renaissance Art in Italy	3
AAH 2003	Age of Rembrandt & Bernini	3
AAH 2004	Modern Art	3
AAH 2009	Contemporary Art	3
AAH 2012	High Renaissance Art in Italy	3
AAH 3001	Women in Art	3
AAH 3002	Art of Philadelphia	3
AAH 3003	Romantic to Post-Impress	3
AAH 3005	Gender Sexuality Visl Culture	3
AAH 3007	The Art of Ireland	3
AAH 4010	Interpreting Art	3
FFS 3412	Special Topics	3
CHI 3413	Chinese Calligraphy	3
ITA 3075	Visual History of Italy	3
RLL 3413	Topics on Italy and Beauty	3
SPA 3025	Faces of Modernity	3
JPN 2143	Japanese Animation	3

Theatre Minor

Chairperson: Valerie M. Joyce, Ph.D.
Office Location: 309 Mullen Center for the
Performing Arts
Telephone: 610-519-4760
[\[Website\]](#)

About

The Villanova University Theatre Department aims to inform and inspire theatre artists, administrators, and scholars who will impact the future of this dynamic art form. Our culture of creativity engages in rigorous study and the practical application of theatrical theories and techniques. We believe art has the power to transform hearts and minds by challenging both individuals and communities.

Type: Minor

MINOR (15-16 credits)

Undergraduate students may fulfill a Theatre minor by completing five theatre courses (two required/three elective) and a theatre practicum.

Program Notes:

- To fulfill the theatre practicum, contact program coordinator [Kevin Esmond](#).
- THE 3030 is a topics course, and students may only count TOPICS course 'Scene Study' towards the 'THE Minor Focus' requirement, but may count any other THE 3030 Topics course towards the 'THE Electives' requirement.

Required Minor Courses:

Item #	Title	Credits
THE 2029	Fund Princ of Acting	3
	THE Minor Focus	3
	THE Electives	9
	Theatre Practicum	0-1

Category Descriptions

THE Minor Focus

Credits: 3

Select one of the three courses below.

- For the THE 3030 topics course, only THE 3030: Scene Study may count toward fulfilling this requirement.
- Other THE 3030 courses may count toward the Minor as electives.

Item #	Title	Credits
THE 2019	The Theatrical Expernce	3
THE 3030	Spec Topics in Theatre	3
THE 2051	Creativity	3

THE Electives

Credits: 9

Choose 3 courses from the following list (9 cr)

- SAR 3031 is a topics course. Only the Fashion in Costume Design topic may fulfill the minor requirement.

Item #	Title	Credits
THE 2019	The Theatrical Experience	3
THE 2030	Advanced Principles of Acting	3
THE 2032	Elements of Dance	3
THE 2033	Advanced Elements of Dance	3
THE 2034	Musical Theatre	3
THE 2051	Creativity	3
THE 3007	Playwriting	3
THE 3030	Special Topics in Theatre	3
THE 4011	Directing the Play	3
COM 2240	Theories of Performance Studies	3
COM 3243	Performance Art	3
COM 3245	Voice & Diction	3
ENG 3250	Shakespeare	3
HON 5100	Theatre Theory and Performance	3
HON 5400	Performing Arts: Dance	1
HON 5420	Performing Arts: Theatre	1
SAR 3031	Special Topics in Studio Art	3
SPA 3412	Special Topics	3
SPA 3064	Spanish Theatre of 20 & 21 c.	3

Theatre Practicum

Credits: 0-1

Theatre minors are required to complete a Practicum, and have the choice between THE 2040 (0cr) or THE 2041 (1cr).

- Practicum may be fulfilled by:
 - Working on a mainstage show (acting, stage management, run crew)
 - Working in a Villanova Theatre shop for minimum of 35 hours

Item #	Title	Credits
THE 2040	Theatre Practicum	0

Theology and Religious Studies

Theology and Religious Studies Major

Chairperson: Kevin Hughes, Ph.D.

Program Director: Mark Graham, Ph.D.

Office Location: 203 Saint Augustine Center

Telephone: 610-519-4730

[Website](#)

About

Theological and religious studies as conceived, studied, and advanced at Villanova are interdisciplinary and integrative. Students pursue their objectives from diverse theological and religious perspectives, places them in dialogue with each other, and integrate religious and theological knowledge with experience and other forms of knowing.

Our programs explore the intersections of Catholic theology, religion, and cultures(s) and prepare students for graduate studies and for careers in humanitarian, philanthropic or other non-profit, charitable organizations; and in religious organizations as campus, youth or parish minister, educator, catechist, retreat worker, administrator, counselor, spiritual director or in one of the many other positions such organizations offer.

Type: Bachelor of Arts

PRIMARY MAJOR (30 credits)

The primary major emphasizes a broad understanding of Christian and non-Christian theological and religious traditions. It is a stand-alone program, and students may take it in conjunction with another major (i.e., the traditional “double” major).

Program Notes:

- Total number of elective courses from outside the TRS Department (including courses taken overseas) must not exceed nine credit hours.
- Theology majors are required to select a concentration that will give shape and focus to the major.
- Students must also take 1 Portfolio Course: THL 6600 (0 cr).

Required Courses:

Item #	Title	Credits
THL 1000	Faith, Reason, and Culture	3
	Theology Major Seminars	6
THL 6300	Research Seminar	3
THL 6500	Advanced Seminar	3
	Theology Tracks for Primary Major	12
	THL Elective	3

SECONDARY MAJOR (24 credits)

The secondary major highlights the interdisciplinary and multidisciplinary nature of theological inquiry and of the study of religion. It must be taken in conjunction with another major and completed concurrently with it.

Program Notes:

- Total number of elective courses from outside the TRS Department (including courses taken overseas) must not exceed six credit hours.
- Theology majors are required to select a concentration that will give shape and focus to the major.
- Students must also take 1 Portfolio Course: THL 6600 (0 cr).

Required Courses:

Item #	Title	Credits
THL 1000	Faith, Reason, and Culture	3
	Theology Major Seminar	3
THL 6300	Research Seminar	3
THL 6500	Advanced Seminar	3
	Theology Tracks for Secondary Major	9
	THL Elective	3

Category Descriptions

Theology Major Seminars

Credits: 6

Take THL 5001 and THL 5002 (6cr)

Theology Tracks for Primary Major

Credits: 12

Select 1 focus track of four courses from the options below (12 cr)

Theology and Culture

Theology and Culture - take four courses with the number THL 5004 (12 cr).

This track allows Theology and Religious Studies students to explore faith, reason, and culture in their many textured relationships. The paradigm of theology engaging culture encourages Theology and Religious Studies students to breach the walls and barriers that often separate academic pursuits from everyday life and also to open new windows for understanding the way in which religious commitments shape and are influenced by larger cultural forces.

Catholic Studies

Catholic Studies - take four courses with the number THL 5003 (12 cr).

This track provides an academic context for exploring Catholic and Augustinian values at the heart of the university, as well as a platform for exploring the enormous intellectual, social, and cultural diversity within global Catholicism.

Global Religious Experience

Global Religious Experience - take four courses with the number THL 5005 (12 cr).

This track provides a broad-based religious literacy to Theology and Religious Studies students, which is one of the hallmarks of an Augustinian education, in addition to placing them in a prime position to understand and to appreciate various religious traditions as they exist and interact in our globalized context.

Self-Designed Studies

Self-Designed Studies - take any four THL courses with the CTHL attribute (12 cr).

This track allows a Theology and Religious Studies student whose academic interests lie outside the other three tracks an opportunity to sculpt an individualized course of studies in consultation with the Director of the Undergraduate Program.

THL Elective

Credits: 3

Select THL 6001 or any one course with the CTHL attribute (3 cr).

Theology Major Seminar

Credits: 3

Take THL 5001 (3 cr)

Theology Tracks for Secondary Major

Credits: 9

Select 1 focus track of three courses from the options below (9 cr)

Theology and Culture

Theology and Culture - take three courses with the number THL 5004 (9 cr).

This track allows Theology and Religious Studies students to explore faith, reason, and culture in their many textured relationships. The paradigm of theology engaging culture encourages Theology and Religious Studies students to breach the walls and barriers that often separate academic pursuits from everyday life and also to open new windows for understanding the way in which religious commitments shape and are influenced by larger cultural forces.

Catholic Studies

Catholic Studies - take three courses with the number THL 5003 (9 cr).

This track provides an academic context for exploring Catholic and Augustinian values at the heart of the university, as well as a platform for exploring the enormous intellectual, social, and cultural diversity within global Catholicism.

Global Religious Experience

Global Religious Experience - take three courses with the number THL 5005 (9 cr).

This track provides a broad-based religious literacy to Theology and Religious Studies students, which is one of the hallmarks of an Augustinian education, in addition to placing them in a prime position to understand and to appreciate various religious traditions as they exist and interact in our globalized context.

Self-Designed Studies

Self-Designed Studies - take any three THL courses with the CTHL attribute (9 cr). This track allows a Theology and Religious Studies student whose academic interests lie outside the other three tracks an opportunity to sculpt an individualized course of studies in consultation with the Director of the Undergraduate Program.

Theology and Religious Studies Minor

Chairperson: Kevin Hughes, Ph.D.
Program Director: Mark Graham, Ph.D.
Office Location: 203 Saint Augustine Center
Telephone: 610-519-4730
[Website](#)

About

Theological and religious studies as conceived, studied, and advanced at Villanova are interdisciplinary and integrative. Students pursue their objectives from diverse theological and religious perspectives, places them in dialogue with each other, and integrate religious and theological knowledge with experience and other forms of knowing.

Our programs explore the intersections of Catholic theology, religion, and cultures(s) and prepare students for graduate studies and for careers in humanitarian, philanthropic or other non-profit, charitable organizations; and in religious organizations as campus, youth or parish minister, educator, catechist, retreat worker, administrator, counselor, spiritual director or in one of the many other positions such organizations offer.

Type: Minor

MINOR (15 credits)

The minor is open to all students. Students can take the minor in conjunction with any other program in any Villanova College. Once the required coursework is completed, Villanova recognizes the minor at the time of graduation on the official transcript.

Program Notes:

- For the THL Elective: 3 credits may be taken from among the approved extra-departmental courses listed below the Required Minor Courses list. The TRS Director of Undergraduate Programs may approve additional courses (for example, a course taken overseas or particular themes or topic courses not listed explicitly in the University Catalog). Because such courses do not carry the Core Theology (CTHL) attribute, they will count toward the Major degree only with prior approval from the Director.
- Total number of elective courses from outside the TRS Department (including courses taken overseas) must not exceed three credit hours.

Required Minor Courses:

Item #	Title	Credits
THL 1000	Faith, Reason, and Culture	3
	THL Elective for Minor	12

Category Descriptions

THL Elective for Minor

Credits: 12

Take any four THL courses with the CTHL attribute

- one of these elective courses may come from among THL 6001, courses with the CTHL attribute, or GIS 4275, HIS 1060, HIS 2280, HIS 3018, HIS 4031, HIS 4076, HUM 4000, PHI 2450, PHI 2900, PHI 2910, PHI 3100, PHI 3120, PHI 3410, PJ 2600, PJ 2900, PJ 3400, PJ 4600, PJ 5400, PSC 3440, SOC 2600, THE 3010.

Writing and Rhetoric

Writing and Rhetoric Minor

Program Director: Ellen Bonds, Ph.D.
Office Location: 453 Saint Augustine Center
Telephone: 610-519-4657
[\[Website\]](#)

About

As an interdisciplinary program with courses from the Departments of English and Communication, the Program in Writing and Rhetoric offers students opportunities to gain significant knowledge of the rhetorical framework constituting professional, aesthetic and everyday writing. The program will allow students who want to pursue study in writing and communication to do so in a focused and comprehensive way with examination of the theoretical, historical, and philosophical aspects of these disciplines.

Type: Minor

MINOR (18 credits)

Students must complete 18 credit hours, comprising 6 advanced courses numbered 2000 and above.

Program Notes:

- Also required: A Grammar, Style and Punctuation Exam by the end of their first semester of work towards the minor, students will have studied for and passed a self-administered WebCT exam covering principles of Standard Edited English, a style sheet as that of the Associated Press, and other rules of grammar, punctuation, and mechanics.
- Some study abroad courses may count towards completion of the minor. Consult with the program director for approval.

Required Minor Courses:

Item #	Title	Credits
	Writing Practice Elective	9
	Composition/Rhetorical/ Critical Theory Elective	6
	Upper-Level English Lit	3

Category Descriptions

Writing Practice Elective

Credits: 9

Choose 3 courses primarily in writing practice at the intermediate or advanced level:

- ENG 2045 Special Topics, when these courses are focused on critical theory.

Item #	Title	Credits
ENG 1842	Perspectives in Literature	3
ENG 2000	Adv Expository Writing	3
ENG 2003	Intro to Creative Writing	3
ENG 2005	Writing of Short Story	3
ENG 2006	The Writing of Poetry	3
ENG 2007	The Writing of Screenplays	3
ENG 2009	Writing the Traditional Novel	3
ENG 2012	Advanced Creative Writing	3
ENG 2013	Writing of Memoir	3
ENG 2017	Writing Detective Fiction	3
ENG 2018	Nature Writing Workshop	3
ENG 2020	Digital Journalism	3
ENG 2041	Travel Writing	3
ENG 2045	Sp Top in Writing & Rhetoric	3
ENG 2050	Writing for Magazines	3
ENG 2060	Desktop Publishing	3
COM 3303	Screenwriting	3
COM 3341	Gender and Film	3
COM 3341	Gender and Film	3
COM 3352	Media & Technology	3
COM 3353	Media & Politics	3
COM 3354	Media Criticism	3
COM 3360	Introduction to Journalism	3
COM 3361	Journalism Practices	3
COM 3363	Broadcast Journalism	3
COM 3365	Sports Journalism	3
COM 3366	Multimedia Journalism	3
COM 3367	Journalism Topics	3
COM 3390	Spec Top in Media Studies	3
COM 3403	Intercultural Communication	3
COM 3406	Gender & Communication	3
COM 3462	Public Relations Writing	3
COM 4001	Qualitative Research in COM	3

Composition/Rhetorical/Critical Theory Elective

Credits: 6

Choose two courses in composition theory, rhetorical theory, critical theory or history of language/cultural texts:

- ENG 2045 Special Topics, when these courses are focused on critical theory.

Item #	Title	Credits
ENG 2043	Worldwide Popular Culture	3
ENG 2045	Sp Top in Writing & Rhetoric	3
ENG 2250	Ways of Reading:Lit Analysis	3
ENG 2800	Teaching Practicum	3
COM 2200	Theories of Rhetoric	3
COM 2280	Theories of Persuasion	3
COM 2300	Theories of Mass Communication	3
COM 2340	Theories of Visual Com & Cultu	3
COM 2440	Theories of Organizational Com	3
COM 3201	Rhetoric & Social Justice	3
COM 3202	Rhetoric, Identity & Conflict	3
COM 3203	Communication Law & Policy	3
COM 3204	Rhetoric and Democracy	3
COM 3207	African American Rhetoric	3
COM 3208	Rhetoric and Myth	3
COM 3290	Spec Top in Rhetoric & Perf	3
CST 2100	Intro. to Cultural Studies	3
PHI 2010	Logic & Critical Thinking	3
PHI 2170	Mass Media Ethics	3
PHI 2180	Computer Ethics	3
PHI 2710	Information Knowledge Inquiry	3
PHI 2760	Philosophy & Literature	3
PHI 3020	History of Ancient Philosophy	3
PHI 4140	Phil of Contemporary Music	3
PHI 4150	Philosophy & Film	3
PHI 4200	Philosophy of Language	3

Upper-Level English Lit

Credits: 3

Choose an upper level English literature course.

Writing and Rhetoric Concentration

Program Director: Ellen Bonds, Ph.D.

Office Location: 453 Saint Augustine Center

Telephone: 610-519-4657

[\[Website\]](#)

About

As an interdisciplinary program with courses primarily from the Departments of English and Communication, the Program in Writing and Rhetoric offers students opportunities to gain significant knowledge of the rhetorical framework constituting professional, aesthetic and everyday writing. The program will allow students who want to pursue study in writing and communication to do so in a focused and comprehensive way with examination of the theoretical, historical, and philosophical aspects of these disciplines.

Type: Concentration

CONCENTRATION (24 credits)

In keeping with the English Department's focus on literary texts, the notion of rhetoric informing the Concentration includes textual analysis as well as the more traditional uses of the term, thus bringing the wisdom and imagination of literary discourse into the Concentration. Such a focus on literary texts also underscores the well-known correlation between reading well and writing well. Furthering the Communication Department's focus on orality and persuasion, the Concentration will allow students to develop rhetorically complex understandings of audiences and master of the skills necessary to adapt the written and oral messages for identified audiences.

Program Notes:

- Also required: A Grammar, Style and Punctuation Exam by the end of their first semester of work towards the minor, students will have studied for and passed a self-administered WebCT exam covering principles of Standard Edited English, a style sheet as that of the Associated Press, and other rules of grammar, punctuation, and mechanics.
- Non-Credit bearing internships may fulfill the One Practicum Course requirement if they involve a substantial amount of writing. The internship must be approved by the Director of the Writing and Rhetoric Program.
- Some study abroad courses may count towards completion of the concentration. Consult with the program director for approval.

Required Concentration Courses:

Item #	Title	Credits
	Writing Practice Elective	9
	Composition/Rhetorical/ Critical Theory Elective	6
	Writing Practicum Elective	3
	Upper-Level English Lit	3
	Upper-Level English Lit	3

Category Descriptions

Writing Practice Elective

Credits: 9

Choose 3 courses primarily in writing practice at the intermediate or advanced level:

- ENG 2045 Special Topics, when these courses are focused on critical theory.

Item #	Title	Credits
ENG 1842	Perspectives in Literature	3
ENG 2000	Adv Expository Writing	3
ENG 2003	Intro to Creative Writing	3
ENG 2005	Writing of Short Story	3
ENG 2006	The Writing of Poetry	3
ENG 2007	The Writing of Screenplays	3
ENG 2009	Writing the Traditional Novel	3
ENG 2012	Advanced Creative Writing	3
ENG 2013	Writing of Memoir	3
ENG 2017	Writing Detective Fiction	3
ENG 2018	Nature Writing Workshop	3
ENG 2020	Digital Journalism	3
ENG 2041	Travel Writing	3
ENG 2045	Sp Top in Writing & Rhetoric	3
ENG 2050	Writing for Magazines	3
ENG 2060	Desktop Publishing	3
COM 3303	Screenwriting	3
COM 3341	Gender and Film	3
COM 3341	Gender and Film	3
COM 3352	Media & Technology	3
COM 3353	Media & Politics	3
COM 3354	Media Criticism	3
COM 3360	Introduction to Journalism	3
COM 3361	Journalism Practices	3
COM 3363	Broadcast Journalism	3
COM 3365	Sports Journalism	3
COM 3366	Multimedia Journalism	3
COM 3367	Journalism Topics	3
COM 3390	Spec Top in Media Studies	3
COM 3403	Intercultural Communication	3
COM 3406	Gender & Communication	3
COM 3462	Public Relations Writing	3
COM 4001	Qualitative Research in COM	3

Composition/Rhetorical/Critical Theory Elective

Credits: 6

Choose two courses in composition theory, rhetorical theory, critical theory or history of language/cultural texts:

- ENG 2045 Special Topics, when these courses are focused on critical theory.

Item #	Title	Credits
ENG 2043	Worldwide Popular Culture	3
ENG 2045	Sp Top in Writing & Rhetoric	3
ENG 2250	Ways of Reading:Lit Analysis	3
ENG 2800	Teaching Practicum	3
COM 2200	Theories of Rhetoric	3
COM 2280	Theories of Persuasion	3
COM 2300	Theories of Mass Communication	3
COM 2340	Theories of Visual Com & Cultu	3
COM 2440	Theories of Organizational Com	3
COM 3201	Rhetoric & Social Justice	3
COM 3202	Rhetoric, Identity & Conflict	3
COM 3203	Communication Law & Policy	3
COM 3204	Rhetoric and Democracy	3
COM 3207	African American Rhetoric	3
COM 3208	Rhetoric and Myth	3
COM 3290	Spec Top in Rhetoric & Perf	3
CST 2100	Intro. to Cultural Studies	3
PHI 2010	Logic & Critical Thinking	3
PHI 2170	Mass Media Ethics	3
PHI 2180	Computer Ethics	3
PHI 2710	Information Knowledge Inquiry	3
PHI 2760	Philosophy & Literature	3
PHI 3020	History of Ancient Philosophy	3
PHI 4140	Phil of Contemporary Music	3
PHI 4150	Philosophy & Film	3
PHI 4200	Philosophy of Language	3

Writing Practicum Elective

Credits: 3

- PJ 4650: Service Learning Practicum, when the practicum involves a good deal of writing.

Item #	Title	Credits
ENG 2030	Tutoring Writers	3
ENG 2060	Desktop Publishing	3
ENG 2993	Internship	3
ENG 2996	Internship	6
COM 2993	Communication Internship	3
COM 2996	Communication Internship	6

Upper-Level English Lit

Credits: 3

Choose an upper level English literature course.

Villanova School of Business

Villanova School of Business Directory

Joyce Russell, PhD, The Helen and William O'Toole Dean

Wen Mao, PhD, Vice Dean

Aronte Bennett, PhD, Associate Dean of Diversity, Equity and Inclusion (DEI)

Jonathan Doh, PhD, Associate Dean of Research

Melinda German, M.B.A., Associate Dean, Undergraduate Business Programs

Julie Pirsch, PhD, Associate Dean of Teaching & Learning

Manuel Nunez, M.B.A., Associate Dean, Graduate Programs

Jeffrey Kudisch, PhD, Associate Dean, Corporate Relations & Executive Education

Office: Bartley Hall 1045, Tel. 610-519-5424

Website: <https://www1.villanova.edu/university/business.html>

Always be dissatisfied with what you are, if you want to arrive at what you are not yet. Always add some more. Always keep on walking.

ALWAYS FORGE AHEAD!

St. Augustine, SERMON 169, 18

History

The original College of Commerce and Finance was founded in 1922 by the Rev. Joseph C. Bartley, OSA, who served as dean until his death in 1962. Since that time, the school underwent many changes to meet the needs of the ever-changing business community, but it has continued to attract outstanding undergraduate and graduate students from across the nation and the world. In 2006, the school was renamed the Villanova School of Business (VSB).

Today it offers the Bachelor of Business Administration degree with majors in Accountancy, Economics, Finance, Management, Management Information Systems, Marketing, and Real Estate. Co-majors in Business Analytic and International Business are also available and must be taken in conjunction with another business major. In addition, the Bachelor of

Business Administration, Honors degree is also available for qualified students. Graduate programs include the Executive MBA, Professional MBA, Master of Accounting with Data Analytics, Master of Business Taxation with Data Analytics, Master of Science in Business Analytics, Master of Science in Church Management, and Master of Science in Finance.

The undergraduate and graduate business programs of VSB are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB International). In addition, the accounting program is separately accredited by AACSB making it among a select number of accounting programs so designated.

VSB faculty include more than 115 full-time professors, with about 85% holding the terminal degree in their area of expertise. The faculty is widely recognized for its excellence in teaching, research and professional service, and adjunct professors are experts drawn from industry.

The School is also home to prestigious business research centers including the Daniel M. DiLella Center for Real Estate, the Center for Business Analytics, the Elenore and Robert F. Moran Sr. Center for Global Leadership, the Center for Marketing and Consumer Insights, and the Center for Church Management.

Academic Mission

The Villanova School of Business (VSB) fosters an atmosphere where students and our community can develop intellectual curiosity, experiences, and values needed for lifetime learning. We collaborate with the business and academic communities to create, share, and apply knowledge to produce strategic, innovative solutions that solve evolving business programs. Strengthened by our Catholic and Augustinian tradition, VSB is a community of mutual respect, inclusion, professional development, and continuous improvement.

Vision

To create a rigorous academic learning environment that transforms lives, nurtures creativity, embraces an analytical approach, espouses a global perspective and develops ethical leaders who positively impact society.

Core Values

- **Veritas:** Creative problem solvers tackling emerging business challenges with expertise and integrity, paired with courage, resolve, and strength of character.
- **Unitas:** An inclusive community of collaborative leaders who think holistically and work across disciplines.
- **Caritas:** Humble servant leaders who are ethical, empathetic decision makers, focused on the greater good.

Academic Services and Policies

VSB Office of Diversity, Equity and Inclusion

Aronte Bennett, PhD
Associate Dean of Diversity, Equity and Inclusion
(610) 519-6432
aronte.bennett@villanova.edu

Dr. Cheryl Carleton, PhD
Faculty Director, Villanova Women's Professional Network
(610) 519-4159
cheryl.carleton@villanova.edu

Dr. Holly Ferraro, PhD
Faculty Director, Diversity Equity and Inclusion
holly.ferraro@villanova.edu

Dr. Zakiya Newton, PhD
Assistant Director, Diversity Equity and Inclusion
(610) 519-3939
zakiya.newton@villanova.edu

Alicia Strandberg, PhD
Director and Founding Committee Member, Villanova Women in Tech (610) 519-4315
alicia.strandberg@villanova.edu

The Office of Diversity, Equity, and Inclusion (ODEI) is committed to cultivating a more inclusive VSB community, serving all members and stakeholders and reflecting the University's commitment to equality, justice, and mutual respect. ODEI offers programming, training, and support services to advance understanding of identity, inclusion, and belonging, embracing

collaborative conversation as an approach to helping all who join our community feel welcomed.

For more information, visit our [website](#) or email vsbdiversity@villanova.edu or call the main office at (610) 519-3099.

The VSB Centers of Excellence

Center for Business Analytics

Daniel Wright, PhD
Faculty Director, (610) 519-5522
daniel.wright@villanova.edu

Meredith Lockyer
Director, (610) 519-7016
meredith.lockyer@villanova.edu

The Center for Business Analytics (CBA) is dedicated to preparing VSB graduates to become analytics leaders in their organizations. The CBA brings together industry executives and world-class faculty to create curricula and experiential programming that positions students to deploy analytics techniques to solve increasingly complex business problems.

Center for Church Management

Matthew Manion
Faculty Director, (610) 519-6430
matthew.manion@villanova.edu

Daniel Guertin
Associate Director, (610) 519-8031
daniel.guertin@villanova.edu

Chesley Turner
Director, (610) 519-6015
chesley.turner@villanova.edu

VSB's Center for Church Management (CCM) enables current and future church leaders to steward the human, financial, and other resources of the church by teaching business best practices in a Christian context of mission and ministry. CCM offers the world's first and only Master of Science in Church Management, as well as performing research and conducting non-credit programs in church management throughout the year.

Daniel M. DiLella Center for Real Estate

Shawn Howton, PhD
Faculty Director, (610) 519-5638
shawn.howton@villanova.edu

Jessica Taylor
Director, (610) 519-4334
jessica.taylor@villanova.edu

The Daniel M. DiLella Center for Real Estate was established to provide outstanding academic and professional development opportunities to Villanova students in the field of real estate. The DiLella Center supports faculty research and teaching, ensuring relevance in the curriculum through the incorporation of site visits, experiential learning projects, industry- standard tools and the perspectives of industry experts.

Elenore and Robert F. Moran Sr. Center for Global Leadership

Michelle Casario, PhD
Co-Faculty, (610) 519-4362
michelle.casario@villanova.edu

Jonathan Doh, PhD
Co-Faculty Director, (610) 519-7798
jonathan.doh@villanova.edu

Kimberly Cahill
Director, (610) 519-3906
kimberly.cahill@villanova.edu

The Elenore and Robert F. Moran Sr. Center for Global Leadership serves as a hub of innovation for VSB's international curricular initiatives, faculty research, and service and outreach activities. The Center promotes the guiding principles of cross-cultural awareness, ethical international business practices, and responsible global leadership for the betterment of business and society.

Center for Marketing and Consumer Insights

Jeremy Kees, PhD
Faculty Director, (610) 519-6145
jeremy.kees@villanova.edu

Raymond Taylor, PhD
Faculty Associate Director, Faculty Initiatives/

Senior Research Fellow
(610) 519-4386
charles.r.taylor@villanova.edu

Julie Pirsch, PhD
Faculty Associate Director, Student Initiatives,
(610) 519-5967
julie.pirsch@villanova.edu

Lauren Higgins
Director, (610) 519-6146
lauren.higgins@villanova.edu

The Center for Marketing and Consumer Insights (CMCI) brings together our world-class faculty from the Villanova School of Business with top marketers from leading firms. The CMCI Advisory Council includes professionals at all levels of marketing who believe in sharing knowledge and opportunities to support future marketing leaders. CMCI and the Advisory Council create uncommon learning experiences and a strong community dedicated to supporting positive outcomes for students in marketing.

For more information, visit our [website](#) or call the main office at (610) 519-4395.

The Clay Center at VSB/The O'Donnell Center for Professional Development

Bartley Hall, Room # 1054 610-519-5532

The Clay Center at VSB, named in honor of VSB alumnus, faculty member and Dean Emeritus Alvin A. Clay, is a "one-stop-shop" resource where all academic support and informational resources are available to help undergraduate business students reach their goals. The Center is home to the Charlotte and James O'Donnell '63 Center for Professional Development. These resources help business students to explore and develop their educational and career goals, and to successfully apply their unique talents and knowledge to become a lifelong learner and socially-responsible member of the global business community.

THE CLAY CENTER MISSION

The Clay Center at VSB is dedicated to facilitating the intellectual, professional, and personal growth of all undergraduate VSB and Business Minor students by providing:

- educational planning and academic advising
- professional and personal development programs and resources
- experiential learning opportunities

The Clay Center, a community based on integrity, ethics, compassion and mutual respect, is committed to:

- championing a diverse and inclusive community to create an even greater sense of belonging for everyone
- guiding students as they identify their educational, professional, and personal goals
- empowering students to evaluate and pursue opportunities that support their goals
- creating a culture that promotes student responsibility and accountability
- partnering with the university community to meet the needs of our students
- continuously assessing the needs and interests of our students and the VSB business community, and adapting Clay Center services accordingly.

LINKS TO THE CLAY CENTER SERVICES

- [Academic Advising](#)
- [Davis Fund for Student Experiences](#)
- [The O'Donnell Center for Professional Development](#)

For more information, visit our [website](#) or email claycenter@villanova.edu or call the main office at (610) 519-5532.

Academic Advising

Julie Freedman, M.S., Assistant Dean

The Clay Center at VSB, #1054 Bartley Hall
610-519-5533
julie.freedman@villanova.edu

VSB employs a four-year, integrative advising program. The VSB advising team consisting of Academic Advisors, Peer Advisors, and Faculty Mentors, facilitates the exploration and development of academic and career goals, and empowers students to be responsible decision-makers and active participants in defining their futures. The advising team is a support system – from orientation to graduation – that provides exemplary academic resources enabling students to be active members of the Villanova student

body and to successfully apply their unique talents and knowledge to become socially responsible members of the global community.

Each incoming first-year student is connected with an Academic Advisor and a Peer Advisor who are available to their advisees throughout their VSB experience. During the first year, advisors support students in their transition from high school to college and assist in curricular planning and development of educational goals. More specifically, advisors provide guidance regarding course selection, registration, and study abroad opportunities, as well as support students as they explore experiential education and service opportunities, choice of major options, and post-graduation planning.

Faculty Mentors have a breadth of knowledge to share regarding why a student would declare a major/minor in a specific field. They are available to all students to offer guidance regarding opportunities and career paths and to suggest elective courses, as well as secondary majors and minors where appropriate, to further support students' interests and deepen their knowledge. Faculty Mentors are available to all VSB undergraduate students throughout their four years.

First-year students must meet with either their Peer Advisor or Academic Advisor each semester during the course registration period to discuss scheduling and to receive their registration PIN. These meetings are critical to ensure that students' progress successfully through their degree program. All students are encouraged to meet with their Peer Advisor, Academic Advisor, and Faculty Mentor at any time throughout the year.

VSB Peer Advisors are junior and senior business students who support VSB first year and sophomore students both individually and in group meetings. Peer advisors serve as a point of contact, providing support and guidance with regard to college transition issues, course selection, major and minor exploration, study abroad and professional opportunities, involvement on campus, and adjusting to college living. Starting with fall the 2022 semester, EY, one of the Big 4 public accounting firms, will sponsor the VSB Peer Advisor Program.

The VSB Peer Tutor Program is a free service that supports the academic success of undergraduate

students by providing drop-in office hours and the option to schedule individual tutoring appointments throughout the semester. VSB Peer Tutors facilitate students' independent learning process through a collaborative partnership that focuses on increased understanding of course content and exploration of successful strategies in approaching the material.

Transfer students are supported throughout their tenure in VSB by an academic advisor dedicated to working specifically with transfer students, addressing their unique challenges and concerns, and helping them navigate their transition from another college to VSB. Transfer students have full access to all VSB opportunities and programming and are further supported by the Transfer Student Professional Development Series and the Transfer Student Success Program.

Davis Fund for Student Experiences

Caitlin Gilmore, M.A., Associate Director

The Clay Center at VSB, #1054 Bartley Hall
610-519-4567
caitlin.gilmore@villanova.edu

Many thanks to the generosity of Jim C. Davis '81 VSB and Kim Davis, the Davis Fund for Student Experiences advances VSB's long-standing commitment to experiential learning. The Davis Fund provides financial support to VSB students to encourage engagement in experiences that will enhance academic and professional growth. Some examples that have been funded include global opportunities, research, independent studies, nonprofit service, conferences, case studies and other experiences that reflect the University's mission and values. To learn more about the Davis Fund and the application process, please visit the webpage: business.villanova.edu/davisfund.

For additional information, contact Ms. Caitlin Gilmore, Associate Director, Davis Fund for Student Experiences (caitlin.gilmore@villanova.edu).

The O'Donnell Center for Professional Development

Brenda Stover, M.S., Assistant Dean

The Clay Center at VSB, #1054 Bartley Hall
610-519-5898
brenda.stover@villanova.edu

The Clay Center at VSB is home to the Charlotte and James V. O'Donnell '63 Center for Professional Development. The O'Donnell Center helps to deliver the Backpack-to-Briefcase curriculum, provides professional development coaching, coordinates experiential education initiatives, and works closely with VSB faculty, Centers of Excellence, business societies, and the Villanova Career Center to offer career education and employer programs that help students explore areas of interest and prepare for the business world. The O'Donnell Center also manages the undergraduate Mentor Program.

Professional development is incorporated into the core business curriculum through our unique Backpack-to-Briefcase (B2B) program starting in the first year. The program combines class sessions and out of class activities that focus on an introduction to campus career resources, career exploration, developing internship/job search skills and development of soft skills. During the fall of the first year B2B requirements are embedded in the Business Dynamics course that is required of all VSB students, while during the spring semester B2B is delivered through a stand-alone course known as VSB 0099: First-Year Experience. As sophomores and juniors, students enroll in a one-credit B2B course each year.

VSB recognizes the importance of students gaining "hands-on" experience prior to graduation as a critical element of their education and a means of clarifying career goals and increasing marketability upon graduation. VSB students may earn academic credit for approved internships and CoOps. The O'Donnell Center collaborates with campus partners to develop employer relationships and identify externships, internships, and CoOp programs that support students' interests. Guidance on the search for opportunities is provided through individual coaching appointments and the Rise to the Top Experiential Education Workshop Series.

The O'Donnell Center also works with thirty (30) student business societies and the VSB Council of Presidents (student society oversight board) to assist the groups in establishing goals, as well as developing and hosting programs and events.

The VSB Mentor Program brings VSB students and alumni volunteers together in one-to-one relationships to support the student's career and professional development goals. Students are invited to participate in the Mentor Program during spring of sophomore year. All student mentees and alumni mentors opt in and are paired based on the student's primary career interests, desired work location, and mutual areas of interest. Mentors share their knowledge and experience to support mentee's goals and professional development, building a bridge between the classroom and the professional world.

Honors and Awards

Awards for distinguished scholarship in VSB are made annually at the Beta Gamma Sigma dinner when the top 10% of the senior class and the top 10% of the junior class are honored. Beta Gamma Sigma is the national scholastic honor society in the field of business administration.

Villanova's chapter is one of 157 from among 700 institutions offering undergraduate degrees in business. VSB awards the Bartley Medallion for distinguished scholarship and service each year **at the VSB Graduation Recognition Ceremony, held on the Saturday of Commencement weekend.** Other awards by professional organizations and departments are distributed on a regular basis at appropriate times.

Academic Policies and Information

Unless otherwise noted, VSB follows the general university academic policies and regulations listed in the University section of this catalog. The specific VSB policies are listed in the VSB Undergraduate Handbook, which is available at The Clay Center at VSB. It is the responsibility of the student to know and comply with all academic policies and regulations of the University and the Villanova School of Business. Such policies are subject to change without prior notice.

For more information, please contact The Clay Center at VSB at claycenter@villanova.edu or call the main office at (610) 519-5532.

Degree Program

Undergraduate Degree Offered

The Villanova School of Business offers the **Bachelor of Business Administration** degree with majors in Accountancy, Economics, Finance, Management, Management Information Systems, Marketing and Real Estate. In addition, a Business Analytics co-major and International Business co-major are also available and must be taken in conjunction with another business major. The **Bachelor of Business Administration, Honors** degree is also available for qualified students.

Baccalaureate Degree Requirements

The requirements for the Bachelor of Business Administration (BBA) degree are:

- Completion of all *core curriculum* requirements, *academic major course* requirements, and *elective* requirements for the degree with an overall cumulative quality point average (QPA) of not less than 2.00 and a cumulative technical quality point average of not less than 2.00.
- For transfer students, no more than 60 credits (20 courses) may be transferred into a program including AP, transfer, and study abroad. At least 50% of the business core credit hours required for the BBA degree must be completed at Villanova University.
- The final 30 credit hours of a student's academic program must be
- completed at Villanova (residency requirement). With permission of the Associate Dean, a student may study abroad during the first semester of senior year.
- Discharge of all financial obligations to Villanova University.

Students are responsible for the degree requirements in effect at the time of their initial enrollment. If they are formally readmitted to VSB, they must meet the requirements of their new graduating class. Transfer students' degree requirements are determined at time of transfer.

A student's eligibility for graduation is determined by the Dean. NOTE: it is the personal responsibility of the student to ensure that all requirements for graduation are met.

Students accepted to the Honors Program may earn the **Bachelor of Business Administration, Honors** degree by successfully completing the following degree requirements:

1. Complete ten (10) 3 cr. Honors courses plus VSB 2121 (1 cr.). At least four (4) of ten (10) 3 cr.
 - Honors courses must be a VSB Honors course: VSB 1015.
 - At least one of the following four required VSB courses must be an Honors course.
 - VSB 2004 Financial Accounting
 - VSB 2007 Corporate Responsibility & Regulation
 - VSB 2008 Business Analytics
 - VSB 2009 Principles of Finance
 - VSB 3900 Innovation and Design
 - VSB 4002 Strategic Thinking and Implementation
2. Complete all major courses, core requirements, and elective requirements, and earn at least of 126 credit hours.
3. Must achieve a minimum of 3.33 cumulative GPA and meet the minimum required technical GPA requirement.

Upon successful completion of VSB 2121, students will have an opportunity to serve as a research associate with a VSB professor for up to three years.

In addition to the course requirements, students will be presented with opportunities to engage with faculty, staff, corporate partners and alumni through a range of personal and professional development offerings. The goal is to provide Honors students with opportunities and challenging intellectual engagement across three areas at VSB:

- VSB Honors Classes
- Intellectual Engagement (research and other faculty engagement)
- Targeted Professional Development Opportunities

<https://www1.villanova.edu/villanova/provost/honors.html>

Basic Curriculum

The curriculum outlined below provides a suggested sequence to complete the baccalaureate degree requirements. However, this suggested sequence should not be viewed as limiting since individual adjustments are made to meet desired educational objectives.

First Year (33 Credits)

Item #	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
ECO 1001	Intro to Micro	3
ECO 1002	Intro to Macro	3
ENG 1050	The Literary Experience	3
MAT 1500	Calculus I	4
STAT 1430	Business Statistics	4
PHI 1000	Knowledge, Reality, Self	3
VSB 0099	B2B:FR Experience	0
VSB 1000	Information Technology	1
VSB 1015	Business Dynamics	3
VSB 2004	Financial Accounting	3

Sophomore Year (31 Credits)

Item #	Title	Credits
	Behavioral Science	3
	History Elective	3
	Humanities	3
THL 1000	Faith, Reason, and Culture	3
VSB 2000	Backpack-to-Briefcase:SO Sem	1
VSB 2006	Strategic Info Technology	3
VSB 2007	Corp Respon & Regulation	3
VSB 2008	Business Analytics	3
VSB 2009	Principles of Finance	3
VSB 2020	Competitive Effectiveness	6

Junior Year (31 Credits)

Item #	Title	Credits
ECO 3108	Global Political Econ	3
ETH 2050	The Good Life:Eth & Cont Prob	3
	Major Electives for BBA	9
	Computer Science OR Natural Science	3
	Computer Science OR Natural Science OR Social Science	3
VSB 3000	Backpack-to-Briefcase:JR Sem	1
VSB 3006	Prin of Managerial Accounting	3
VSB 3008	Operations Management	3
	Non-Business Elective	3

Senior Year (30 Credits)

Item #	Title	Credits
	Major Electives for BBA	9
	Theology Elective	3
VSB 4002	Strategic Think & Implem	3
	Free Electives	15

- **ECO 1001, ECO 1002, and ECO 3108** are not included in the technical GPA calculation.
- **ENG 1050, ETH 2050, PHI 1000, THL 1000, and all business courses** must be taken at Villanova.
- **BL 2185** is recommended for ACC majors who want to sit for CPA certification.

Category Descriptions

Behavioral Science

Credits: 3

Choose from any PSY or any SOC.

History Elective

Credits: 3

For VSB students: AAH 1101 or AAH 1102 may also fulfill HIS requirement or Social Science requirement.

Humanities

Credits: 3

Choose from Art & Art History, Classical Study, English (2000 level or higher), Humanities, Languages*, Philosophy, Studio Art & Music, Theater, or a course with the fine arts attribute.

*If a student completed 2 years of a language (*except Arabic, Chinese, Hebrew, Hindustani, Japanese, or Russian*) in high school, credit for introductory courses in that language taken at the college level will not satisfy degree requirements, including electives.

Major Electives for BBA

Credits: 9

Three Major Courses

Computer Science OR Natural Science

Credits: 3

Computer Science

Choose from

Item #	Title	Credits
CSC 1010	Programming for All	3
CSC 1035	Databases for Many Majors	3
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3

Natural Science

Choose from Astronomy & Astrophysics, Biology, Chemistry, Meteorology, Physics, Geography and the Environment ([GEV 1050](#), [GEV 1051](#), [GEV 1052](#), or [GEV 1053](#) only). A science lab is not required.

Computer Science OR Natural Science OR Social Science

Credits: 3

Computer Science

Item #	Title	Credits
CSC 1010	Programming for All	3
CSC 1035	Databases for Many Majors	3
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3

Natural Science

Choose from Astronomy & Astrophysics, Biology, Chemistry, Meteorology, Physics, Geography and the Environment ([GEV 1050](#), [GEV 1051](#), [GEV 1052](#), or [GEV 1053](#) only). A science lab is not required.

Social Science

Choose from Criminology, Geography and the Environment, History, Political Science, Psychology, Public Administration, Sociology, or Social Science.

Non-Business Elective

Credits: 3

Theology Elective

Credits: 3

Choose any core Theology elective.

Free Electives

Credits: 15

Five Free Electives

BL 2185 is recommended for ACC majors who want to sit for CPA certification.

Minors for Business Majors

VSB students may pursue a minor in various business disciplines. See course requirements listed under *Academic Programs* for more detailed information.

Non-Business Minors for Business Majors

Students enrolled in VSB may pursue minors in programs offered by other colleges of the University, including the Honors Program. Detailed information on the process for approval may be obtained in the department of the discipline of the minor.

Programs for Non-VSB Students

Business Minors

There are two options for students to earn a business minor: the **Academic Year Business Minor** and the **Summer Business Institute**. Both of these programs are application-based and administered by The Clay Center at VSB. The following provides an overview of the two options.

- [Academic Year Business Minor](#)
- [Summer Business Institute](#)

Global Business Concentration for Non-Business Students

The Moran Center for Global Leadership oversees the Global Business Concentration (GBC) with guidance from a GBC Committee of faculty and staff representatives from VSB and CLAS. All non-VSB students are invited to apply to the GBC after successful completion of ECO 1001 (Microeconomics) and ECO 1002 (Macroeconomics). The application process is competitive. Please apply online: <https://Explore.villanova.edu/apply/?sr=20ec0fca-360a-4893-b368-746d7b6fa43c>

- [Global Business Concentration](#)

Business

Accountancy Major

Chair: Michael Peters, PhD., Alvin A Clay
Professor of Accountancy
Associate Chair: James Emig, PhD.
Office: 3019 Bartley Hall
Telephone: 610-519-4340
[Website](#)

To earn an accounting major, students must complete the university core curriculum, the business core curriculum, along with all four required accounting courses plus two accounting elective courses. A major in Accounting leads to a degree of Bachelor of Business Administration.

The requirements for becoming a certified public accountant (CPA) differ by state but most include completing 150 credit hours in an accounting program at a college/university, passing the Uniform CPA Exam, and obtaining a specific amount of professional work experience. Today, most professional accounting firms require the completion of 150 credit hours prior to employment.

Many students earn their 150 credit hours by completing both an undergraduate and graduate degree; our two accounting graduate degrees include the Master of Accounting with Data Analytics (MAC) and Master of Business Taxation with Data Analytics (MBT). Students can earn both degrees over the course of four, four and a half, or five years. Alternatively, some students fulfill the 150 credit hours by overloading classes as undergraduates during the fall and spring semesters and/or by taking summer classes. Please contact your academic advisor and/or the accounting department for more information and guidance on earning 150 credit hours.

Type: Bachelor of Business Administration

Course Requirements for Accountancy Major (6 Courses)

Item #	Title	Credits
ACC 2310	Intermediate Accounting I	3
ACC 2320	Intermediate Accounting II	3
ACC 2360	Federal Income Tax	3
ACC 2430	Auditing	3
Plus two (2) Accounting elective courses		

Category Descriptions

Plus two (2) Accounting elective courses

Please Note: ACC 3430, ACC 3460 (6 cr.), ACC 3470 (6 cr.), and ACC 3500 **do not count** toward **Accounting** elective courses.

Business Analytics Co-Major

Chair: Kevin Clark PhD.

Associate Chair: Ward Utter, M.B.A.

Office: 2083 Bartley Hall

Telephone: 610-519-6924

[Website](#)

A co-major in Business Analytics will give you exposure to business intelligence, business performance management, and analytic tools such as statistical analysis and data mining that businesses need today. You will build strong analytical skills and the ability to develop business analytics solutions that can improve performance and add value to a wide range of businesses.

The Business Analytics co-major must be taken in conjunction with a major in Accountancy, Economics, Finance, Management, Management Information Systems, Marketing, or Real Estate.

Type: Bachelor of Business Administration

Course Requirements for Business Analytics Co-Major (5 Courses)

Item #	Title	Credits
MGT 3170	Data Mining	3
MGT 4170	Advanced Analytics	3
MIS 3060	Bus Intelligence and Perf Mgmt	3

Plus two (2) **Business Analytics** elective courses from the following:

Item #	Title	Credits
ECO 3137	Intro to Econometrics	3
MGT 3600	Sports Analytics	3
MKT 2240	Marketing Analytics	3
	MIS 3050 or MIS 2030	3

Please Note:

1. Only one course may “double dip” to also fulfill another VSB major.

2. For students pursuing both BUSA/MSBA (Master of Science in Business Analytics) programs:

- MSA 8105 (Programming in R & Python) may fulfill a BUSA elective
- In addition, one of the following may satisfy a BUSA requirement:
 - MSA 8110 (Data Models & Struct Analysis) may fulfill MIS 2030
 - MSA 8240 (Business Intelligence) may fulfill MIS 3060

Category Descriptions

MIS 3050 or MIS 2030

Credits: 3

Item #	Title	Credits
MIS 3050	CRM and Data Analytics	3
MIS 2030	Database Management	3

Economics Major

Chair: Erasmus Kersting, Ph.D.

Associate Chair: Mary Kelly, Ph.D.

Office Location: 2014 Bartley Hall

Telephone: 610-519-4370

[Website](#)

Majoring in Economics provides a rigorous curriculum that will prepare you to think critically in almost every enterprise. This program is designed to promote quantitative thinking while fostering written and verbal communication skills so you are equipped to critically examine the effects of economic factors on market participants in the private and public sectors. Because of the growing complexity of the global economy, there is an increase in the demand for individuals who can provide and communicate quantitative analysis of economic variables and their effects on forecasting sales, managing costs, allocating budgets and choosing investment options. Economics graduates find employment in private industry, consulting, think tanks and policy institutes, the public sector, and academia. Economics is also a perfect preparation for Law School.

Major in Economics leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course Requirements for Economics Major (6 Courses)

Item #	Title	Credits
ECO 2101	Macroeconomic Theory	3
ECO 2102	Microeconomic Theory	3
ECO 3137	Intro to Econometrics	3
Plus three (3) Economics elective courses with course number of 3000 or above		

Category Descriptions

Plus three (3) Economics elective courses with course number of 3000 or above

(except ECO 3108, ECO 3120 and ECO 3130)

Finance Major

Chair: Shelly Howton, PhD.

Associate Chair: Benjamin Scheick, PhD.

Office: 2019 Bartley Hall

Telephone: 610-519-7395

[Website](#)

Today's financial and non-financial corporations are actively seeking bright individuals with the right knowledge for making sound financial decisions. As a finance major at VSB, you will learn finance theory alongside of technology, quantitative methods and communication, while also developing an understanding of global and ethical issues. A minor will supplement any business degree by providing greater financial acumen and critical thinking skills that enable you to add value to any organization.

Major in Finance leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course Requirements for Finance Major

Item #	Title	Credits
FIN 2114	Intermediate Corp Finance	3
FIN 2227	Fixed Inc Markets & Valuation	3
FIN 2323	Equity Markets and Valuation	3
Plus three (3) Finance elective courses		

Category Descriptions

Plus three (3) Finance elective courses

Please note: FIN 3350, FIN 3360, and FIN 3470 (6 cr.) do not count toward Finance elective requirements.

International Business Co-Major

Chair: Kevin Clark, PhD.
Associate Chair: Ward Utter, M.B.A.
Office: 2083 Bartley Hall
Telephone: 610-519-6924
[Website](#)

As a result of the extraordinary changes brought on by globalization, companies need new kinds of managers—individuals who not only have strong business skills, but who are comfortable managing and communicating across cultures. In the International Business co-major, you will learn the potential and risks of new markets and develop the ability to think globally while acting locally.

The International Business co-major must be taken in conjunction with a major in Accountancy, Economics, Finance, Management, Management Information Systems, Marketing or Real Estate.

Type: Bachelor of Business Administration

Course Requirements for International Business Co-Major

Please note: IB co-majors are required to take an international course in their major discipline if such course is offered. An international course in each major is required if a student has more than one major. This course will also satisfy a major elective requirement. Also, ECO 3108 (Global Political Economy) is a core requirement and does not fulfill a major elective requirement for IB co-major.

Item #	Title	Credits
MGT 2350	Global Business Management	3

Plus three (3) International Business elective courses (must be from two different disciplines):

Item #	Title	Credits
ACC 2420	International Accounting	3
BL 2160	International Business Law	3
ECO 3109	International Economics	3
ECO 3127	Development Economics	3
ECO 4203	Pol Eco of Development Aid	3
ECO 4209	International Macroeconomics	3
FIN 2335	Intl Financial Management	3
MGT 2208	International Topics	3
MGT 2250	Global Corp Responsibility	3
MGT 2352	Business in Emerging Markets	3
MGT 2360	Global Leadership	3
MGT 2370	Global Business Ethics	3
MKT 2280	Global Marketing	3
Other Approved IB Electives		

Plus One (1) international-related History or international-related Social Science selected from Geography and the Environment, History, Political Science, Psychology, or Sociology.

Plus competency in a foreign language fulfilled by one of the following: Successful completion of Intermediate I and Intermediate II if French, Greek, Italian, Latin, or Spanish is chosen.

OR Placement beyond the intermediate levels on language placement exam administered by the Classical & Modern Languages department.

OR Successful completion of two semesters of Arabic, Chinese, Hebrew, Hindustani, Japanese, or Russian at any level.

If a student completed 2 years of a language (except Arabic, Chinese, Hebrew, Hindustani, Japanese, or Russian) in high school, credit for introductory courses in that language taken at the college level will not satisfy degree requirements, including electives.

Language requirements are waived for all international students whose first language is not English. International experience is waived for all international students.

Plus approved 6-week international experience

Category Descriptions

Other Approved IB Electives

Management Information Systems Major

Chair: Michael Peters, PhD., Alvin A. Clay
Professor of Accountancy
Associate Chair: William Wagner, PhD.
Office: 3019 Bartley Hall
Telephone: 610-519-4340
[Website](#)

Management Information Systems (MIS) blends business knowledge with the use of information technology to solve complex business challenges. The focus of MIS isn't computer programming; instead, you will learn how to strategically apply technology to enhance the way people work and help companies innovate their products and services. From traders looking to capture market inefficiencies to marketers engaging with consumers to executives expanding businesses globally, technology impacts business in every way and with an MIS major, you will develop the skills to understand those business needs and create IT solutions that add value.

Major in Management Information Systems leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course Requirements for Management Information Systems Major

Choose two of the following:

Item #	Title	Credits
MIS 2020	Prog for Adaptive Prob Solving	3
MIS 2030	Database Management	3
MIS 2040	Systems Analysis & Design	3

Plus any four (4) MIS elective courses from the following:

Item #	Title	Credits
ACC 2340	Accounting Information Systems	3
MIS 3010	Business Data Communications	3
MIS 3020	Enterprise Systems & Appl	3
MIS 3030	Enabling Tech in E-Business	3
MIS 3040	MIS Seminar	3
MIS 3050	CRM and Data Analytics	3
MIS 3060	Bus Intelligence and Perf Mgmt	3
MIS 3070	Emerging Business Technologies	3
MIS 3080	Applied Machine Learning	3
MIS 3090	Special Topics in MIS	3
MIS 3300	AI & Machine Learning for Bus	3

Please note:

1. One MIS elective course can also include MIS 2020, MIS 2030, or MIS 2040. CSC 1052 may satisfy MIS 2020 if this course is not fulfilling the core Arts and Science requirement.
2. For students pursuing both BUSA/MSBA (Master of Science in Business Analytics) programs, MSA 8110 (Data Model & Struct Analysis) may satisfy MIS 2030; MSA 8240 (Business Intelligence) may satisfy MIS 3060.
3. ACC 2340 may fulfill an MIS elective only if this course is not also fulfilling an ACC major or ACC minor requirement.
4. Two out of 6 required MIS major courses may be a CSC course.

Management Major

Chair: Kevin Clark, PhD.
Associate Chair: Ward Utter, M.B.A.
Office: 2083 Bartley Hall
Telephone: 610-519-6924
[Website](#)

The study of management provides a distinct advantage to almost any discipline or career path. As a Management major, you will learn tools for effective teamwork, leadership, organizational dynamics, organizational culture, strategic planning, change management and human

resource management. You will also find the opportunity to develop and refine the analytical, quantitative and communication skills that are critical for a successful professional career, to start a company, or to pursue graduate study in business or law.

Major in Management leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course Requirements for Management Major

Item #	Title	Credits
MGT 2155	Organizational Behavior	3
MGT 2350	Global Business Management	3
VSB 3900	Innovation & Design Practicum	3
Plus three (3) Management elective courses		

Category Descriptions

Plus three (3) Management elective courses

Except MGT 3300 and MGT 3310

Marketing Major

Chair: Matthew Sarkees, PhD.
Associate Chair: Rishtee Batra, PhD.
Office: 3015 Bartley Hall
Telephone: 610-519-4350
[Website](#)

Marketing is the lifeline that connects organizations with consumers. The discipline covers a broad range of areas from knowledge of human behavior and market research to strategy and creative expression to drive a desired outcome. As a Marketing student, you will learn how to access real-time information, analyze data, solve problems and communicate results. You will also learn how to develop and implement consumer and business-to-business products and services, and how to strategically manage product pricing, promotion and distribution.

Plus, Marketing majors have the opportunity to further specialize with concentrations in Digital Marketing and in Business Development.

Major in Marketing leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course requirements for Marketing Major

Item #	Title	Credits
MKT 2197	Marketing Research	3
MKT 2375	Marketing Management	3

Plus four (4) additional Marketing elective courses from the following list:

Item #	Title	Credits
CHE 2900	Global Pharmaceutical Industry	3
MKT 2120	Buyer Behavior	3
MKT 2220	Integrated Marketing Communica	3
MKT 2224	Professional Selling	3
MKT 2225	Business Development Ldrship	3
MKT 2230	Marketing of Services	3
MKT 2235	Sports Marketing	3
MKT 2240	Marketing Analytics	3
MKT 2280	Global Marketing	3
MKT 2285	Social Media Marketing	3
MKT 2290	Digital Marketing	3
MKT 2349	Special Topics in Marketing	3
MKT 4132	Seminar in Marketing	3

Real Estate Major

Chair: Shelly Howton, PhD.
Associate Chair: Benjamin Scheick, PhD.
Office: 2019 Bartley Hall
Telephone: 610-519-7395
[Website](#)

As a Real Estate major at VSB, you will develop an understanding of real estate investment, development, modeling, capital markets, accounting and law, as well as the role of real estate in corporate strategy and the global economy. The curriculum incorporates site visits, case studies, expert perspectives and industry-standard software tools so that you learn how the theory ties to practice. Your course projects will

include completing valuations for actual retail centers and office buildings, and a capstone development project that includes site selection, market analysis, project completion and resale.

Major in Real Estate leads to a degree of Bachelor of Business Administration.

Type: Bachelor of Business Administration

Course Requirements for Real Estate Major

Item #	Title	Credits
RES 2150	Real Estate Fundamentals	3
RES 2250	Real Estate Law	3
RES 3150	Real Estate Investments	3
RES 4150	Real Estate Development	3

Plus two (2) of the following:

Item #	Title	Credits
ACC 2410	Accounting for Real Estate	3
	ECO 3112 or ECO 3140	3
FIN 2350	Real Estate Capital Markets	3
RES 2340	Contemp Topics in Real Estate	3
RES 3250	Advanced Real Estate Modeling	3

Category Descriptions

ECO 3112 or ECO 3140

Credits: 3

Item #	Title	Credits
ECO 3112	Public Sector Economics	3
ECO 3140	Urban Economics	3

Real Estate Minor

Chair: Shelly Howton, PhD.
Associate Chair: Benjamin Scheick, PhD.
Office: 2019 Bartley Hall
Telephone: 610-519-7395
[Website](#)

As a Real Estate minor at VSB, you will develop an understanding of real estate investment, development, modeling, capital markets, accounting and law, as well as the role of real estate in corporate strategy and the global economy. The curriculum incorporates site visits,

case studies, expert perspectives and industry-standard software tools so that you learn how the theory ties to practice. Your course projects will include completing valuations for actual retail centers and office buildings, and a capstone development project that includes site selection, market analysis, project completion and resale.

Type: Bachelor of Business Administration

Course Requirements for Real Estate Minor (3 Courses)

Item #	Title	Credits
RES 2150	Real Estate Fundamentals	3
RES 3150	Real Estate Investments	3

Plus one Real Estate elective course from the following:

Item #	Title	Credits
ACC 2410	Accounting for Real Estate	3
ECO 3112	Public Sector Economics	3
ECO 3140	Urban Economics	3
FIN 2350	Real Estate Capital Markets	3
RES 2250	Real Estate Law	3
RES 2340	Contemp Topics in Real Estate	3

Academic Year Business Minor

The **Academic Year Business Minor** is designed for full-time undergraduates enrolled in other Villanova colleges (**Note:** Due to scheduling conflicts, Nursing students should consider the Summer Business Institute program instead of the Academic Year Business Minor program). Students admitted to the program take classes with VSB students during the academic year. Four semesters are typically required to complete the minor.

Applications for the Academic Year Business Minor program are reviewed once per year after spring grades are posted. Acceptance is determined on a competitive basis. Students are required to attend an information session held by VSB before applying. Dates and times of information sessions are posted at the start of the fall and spring semesters on the program's website.

Applications are available online at business.villanova.edu. The application

deadline is May 1st and students are notified of acceptance in late May. Any questions should be directed to The Clay Center at (610) 519-5532 or by email at businessminor@villanova.edu.

All VSB-specific courses must be taken at Villanova. Microeconomics, Macroeconomics, and Statistics (4 cr.) may be taken elsewhere. Pre-approval by the applicant's college is necessary.

Type: Minor

The required business courses for the Academic Year Business Minor are:

Item #	Title	Credits
ECO 1001	Intro to Micro	3
ECO 1002	Intro to Macro	3
VSF 1000	Information Technology	1
VSF 1015	Business Dynamics	3
	VSF Option	3
VSF 2004	Financial Accounting	3
VSF 2009	Principles of Finance	3
VSF 2020	Competitive Effectiveness	6

The statistics requirement may be fulfilled by the one following:

Item #	Title	Credits
STAT 1235	Intro Statistics II	3
STAT 1430	Business Statistics	4
STAT 4310	Stat Methods	3

Credits from the Academic Year Business Minor program may apply to the degree requirements in the student's primary academic college. Students should confirm with their primary academic advisor.

Students who successfully complete the Academic Year Business Minor program may then pursue an additional VSB minor in Accountancy, Artificial Intelligence and Machine Learning, Business Analytics, Business Law and Corporate Governance, Consulting, Finance, International Business, Management Information Systems, Marketing, or Real Estate. **Prior to enrolling in any VSB discipline-specific minor course(s), VSB approval is required and additional pre-req coursework may also be required.** See minor course requirements listed under *Academic Programs* for more detailed information.

Category Descriptions

VSF Option

Credits: 3

Choice of one (1) business core course from:

Item #	Title	Credits
VSF 2006	Strategic Info Technology	3
VSF 2007	Corp Respon & Regulation	3
VSF 2008	Business Analytics	3

Accountancy Minor

Chair: Michael Peters, PhD., Alvin A Clay
Professor of Accountancy
Associate Chair: James Emig, PhD.
Office: 3019 Bartley Hall
Telephone: 610-519-4340
[Website](#)

To earn the accounting minor, students must complete two required accounting courses plus the choice of one other accounting course. A minor in Accounting will supplement almost any business degree. For example, many students pair an accounting minor with majors in Finance or Management Information Systems as jobs in these fields routinely engage with accounting.

Type: Minor

Course Requirements for Accountancy Minor (3 Courses)

Item #	Title	Credits
ACC 2310	Intermediate Accounting I	3
ACC 2320	Intermediate Accounting II	3

Plus one (1) **Accounting** elective course from the following:

Item #	Title	Credits
ACC 2340	Accounting Information Systems	3
ACC 2360	Federal Income Tax	3
ACC 2410	Accounting for Real Estate	3
ACC 2420	International Accounting	3
ACC 2430	Auditing	3
ACC 2435	Advanced Auditing	3
ACC 2450	Advanced Accounting	3
ACC 2470	Cost Accounting	3
ACC 2480	Advanced Taxes	3
ACC 3350	Fraud Examination	3

Artificial Intelligence and Machine Learning Minor

Chair: Michael Peters, PhD., Alvin A. Clay
Professor of Accountancy
Associate Chair: William Wagner, PhD.
Office: 3019 Bartley Hall
Telephone: 610-519-4340
[Website](#)

The Artificial Intelligence and Machine Learning (AIML) minor is a three-course minor program. It is open to all VSB students, with coursework that includes building prototype intelligent systems, natural language processing, expert systems, supervised and unsupervised learning, and robotics, among other areas that comprise the broad field of AI.

Artificial intelligence and machine learning have become increasingly important technologies across all business disciplines such as finance, banking, marketing, healthcare, accounting and real estate.

Type: Minor

Item #	Title	Credits
MIS 2020	Prog for Adaptive Prob Solving	3
MIS 3080	Applied Machine Learning	3
MIS 3300	AI & Machine Learning for Bus	3

Note: Students pursuing the AQF concentration may not also minor in AIML minor due to similarity of coursework.

Business Analytics Minor

Chair: Kevin Clark PhD.
Associate Chair: Ward Utter, M.B.A.
Office: 2083 Bartley Hall
Telephone: 610-519-6924
[Website](#)

A minor in Business Analytics will give you exposure to business intelligence, business performance management, and analytic tools such as statistical analysis and data mining that businesses need today. You will build strong analytical skills and the ability to develop business analytics solutions that can improve performance and add value to a wide range of businesses.

Type: Minor

Course Requirements for Business Analytics Minor (3 Courses)

Item #	Title	Credits
MGT 3170	Data Mining	3

Plus one (1) course from the following:

Item #	Title	Credits
MIS 3050	CRM and Data Analytics	3
MIS 3060	Bus Intelligence and Perf Mgmt	3

Plus one (1) **Business Analytics** elective course choosing from:

Item #	Title	Credits
ECO 3137	Intro to Econometrics	3
MGT 3600	Sports Analytics	3
MGT 4170	Advanced Analytics	3
MIS 2030	Database Management	3
MKT 2240	Marketing Analytics	3

Note: For students pursuing both BUSA/MSBA (Master of Science in Business Analytics) programs:

- MSA 8105 (Programming in R & Python) may fulfill a BUSA elective
- In addition, one of the following may satisfy a BUSA requirement:
 - MSA 8110 (Data Models & Struct Analysis) may fulfill MIS 2030
 - MSA 8240 (Business Intelligence) may fulfill for MIS 3060

Business Law & Corporate Governance Minor

Chair: Matthew Sarkees, PhD.
Associate Chair: Rishtee Batra, PhD.
Office: 3015 Bartley Hall
Telephone: 610-519-4350
[Website](#)

Minoring in Business Law & Corporate Governance will enable you to develop a robust understanding of the legal and ethical impact of business practices and the global economy. You will learn about contracts, commercial transactions, forms of business entities and other legal issues. You also learn how business entities are governed and managed and the rights and obligations of the entities' stakeholders. Most importantly, Business Law & Corporate Governance minors are presented with a focus on ethical decision making and socially responsible behavior.

Type: Minor

Course Requirements for Business Law & Corporate Governance Minor (3 Courses)

Three (3) courses listed below; two must be Business Law (BL) courses, one of which must be either BL 2135 or BL 2185.

Item #	Title	Credits
BL 2135	Bus. Entity Law, Gov, Ethics	3
BL 2149	Cont. Topics in Business Law	3
BL 2160	International Business Law	3
BL 2185	Law of Contracts & Sales	3
MGT 2212	Leadership	3
MGT 2250	Global Corp Responsibility	3
MGT 2360	Global Leadership	3
MGT 2370	Global Business Ethics	3
RES 2250	Real Estate Law	3

Consulting Minor for Non-Management Major

Chair: Kevin Clark, PhD.
Associate Chair: Ward Utter, M.B.A.
Office: 2083 Bartley Hall
Telephone: 610-519-6924
[Website](#)

Many want to pursue a career in consulting and want more exposure to the expectations and demands of this industry. The Consulting minor, open only to non-Management majors, combines the theoretical knowledge of management with consulting best practices and real-world consulting challenges to help prepare you for this field.

Type: Minor

Course Requirements for Consulting Minor for Non-Management Major (3 Courses)

Item #	Title	Credits
MGT 3070	Solving Complex Bus Problems	3
MGT 3080	Management Consulting Practicu	3
VSB 3900	Innovation & Design Practicum	3

Finance Minor

Chair: Shelly Howton, PhD.
Associate Chair: Benjamin Scheick, PhD.
Office: 2019 Bartley Hall
Telephone: 610-519-7395
[Website](#)

Today's financial and non-financial corporations are actively seeking bright individuals with the right knowledge for making sound financial decisions. A minor in finance will supplement any business degree by providing greater financial acumen and critical thinking skills that enable you to add value to any organization.

Type: Minor

Course Requirements for Finance Minor (3 Courses)

Item #	Title	Credits
FIN 2114	Intermediate Corp Finance	3
FIN 2227	Fixed Inc Markets & Valuation	3
FIN 2323	Equity Markets and Valuation	3

International Business Minor

Chair: Kevin Clark, PhD.

Associate Chair: Ward Utter, M.B.A.

Office: 2083 Bartley Hall

Telephone: 610-519-6924

[Website](#)

As a result of the extraordinary changes brought on by globalization, companies need new kinds of managers—individuals who not only have strong business skills, but who are comfortable managing and communicating across cultures. A minor in International Business will supplement a business degree by providing cross-cultural skills valued by global companies.

Type: Minor

Course Requirements for International Business Minor

Please note: IB minors are required to take an international course in their major discipline if such course is offered. An international course in each major is required if a student has more than one major. Also, ECO 3108 (Global Political Economy) is a core requirement and does not fulfill an IB minor requirement.

Item #	Title	Credits
MGT 2350	Global Business Management	3

Plus two (2) International Business elective courses (must be from two different disciplines)

Item #	Title	Credits
ACC 2420	International Accounting	3
BL 2160	International Business Law	3
ECO 3109	International Economics	3
ECO 3127	Development Economics	3
ECO 4203	Pol Eco of Development Aid	3
ECO 4209	International Macroeconomics	3
FIN 2335	Intl Financial Management	3
MGT 2208	International Topics	3
MGT 2250	Global Corp Responsibility	3
MGT 2352	Business in Emerging Markets	3
MGT 2360	Global Leadership	3
MGT 2370	Global Business Ethics	3
MKT 2280	Global Marketing	3
Other Approved IB Electives		

Plus One (1) international-related History or international-related Social Science selected from Geography and the Environment, History, Political Science, Psychology, or Sociology.

Language: If students have two years of a foreign language in high school, the language requirement is waived; otherwise, students are required to take two semesters of a foreign language (minimum 6 credits) at or above the introductory level.

International study experience is OPTIONAL.

Category Descriptions

[Other Approved IB Electives](#)

Management Information Systems Minor

Chair: Michael Peters, PhD., Alvin A. Clay

Professor of Accountancy

Associate Chair: William Wagner, PhD.

Office: 3019 Bartley Hall

Telephone: 610-519-4340

[Website](#)

Management Information Systems (MIS) blends business knowledge with the use of information technology to solve complex business challenges. The focus of MIS isn't computer programming; instead, you will learn how to strategically apply technology to enhance the way people work and help companies innovate their products and services. From traders looking to capture market inefficiencies to marketers engaging with consumers to executives expanding businesses globally, technology impacts business in every way and with an MIS minor, you will gain insight on the ways IT systems are designed, developed and deployed.

Type: Minor

Course Requirements for Management Information Systems Minor (3 Courses)

Choose two of the following:

Item #	Title	Credits
MIS 2020	Prog for Adaptive Prob Solving	3
MIS 2030	Database Management	3
MIS 2040	Systems Analysis & Design	3

Plus one (1) elective course choosing from the following:

Item #	Title	Credits
ACC 2340	Accounting Information Systems	3
MIS 3010	Business Data Communications	3
MIS 3020	Enterprise Systems & Appl	3
MIS 3030	Enabling Tech in E-Business	3
MIS 3040	MIS Seminar	3
MIS 3050	CRM and Data Analytics	3
MIS 3060	Bus Intelligence and Perf Mgmt	3
MIS 3070	Emerging Business Technologies	3
MIS 3080	Applied Machine Learning	3
MIS 3090	Special Topics in MIS	3
MIS 3300	AI & Machine Learning for Bus	3

Please note:

1. One MIS elective course can also include MIS 2020, MIS 2030, or MIS 2040. CSC 1052 may satisfy MIS 2020 if this course is not fulfilling the core Arts and Sciences requirement.
2. For students pursuing both BUSA/MSBA (Master of Science in Business Analytics) programs, MSA 8110 (Data Model & Struct Analysis) may satisfy MIS 2030 or MSA 8240 (Business Intelligence) may satisfy MIS 3060.
3. ACC 2340 may fulfill an MIS elective only if this course is not also fulfilling an ACC major or ACC minor requirement.
4. One out of three MIS minor courses may be a CSC course.

Marketing Minor

Chair: Matthew Sarkees, PhD.

Associate Chair: Rishtee Batra, PhD.

Office: 3015 Bartley Hall

Telephone: 610-519-4350

[Website](#)

Marketing is the lifeline that connects organizations with consumers. The discipline covers a broad range of areas from knowledge of human behavior and market research to strategy and creative expression to drive a desired outcome. As a Marketing minor will supplement a business degree by providing you more depth in areas where marketing plays a significant role in the achievement of an organization's goals. A large percentage of business professionals, regardless of their undergraduate major, will either rotate through marketing positions during their careers or spend most, if not all, of their careers in marketing.

Type: Minor

Course Requirements for Marketing Minor (3 Courses)

Please Note: MKT 3450 and MKT 3470 (6 cr.) do not count toward Marketing major or Marketing minor requirements. CHE 2900 Global Pharmaceutical Industry may fulfill a marketing elective requirement.

Item #	Title	Credits
	3 cr. MKT Minor Option Course	3
	Two (2) Marketing elective courses	6

Category Descriptions

3 cr. MKT Minor Option Course

Credits: 3

MKT 2120 Buyer Behavior, **OR**
MKT 2197 Marketing Research

Two (2) Marketing elective courses

Credits: 6

except MKT 2375, MKT 3450 and MKT 3470

Villanova Summer Business Institute

The Summer Business Institute (SBI) is a full-time, ten week accelerated program created exclusively for non-business majors. SBI's 16 credit program, scheduled from the end of May – end of July, uses a cohort-based model and is designed to be completed in one-summer with peers from other non-business majors. SBI is taught by VSB faculty members and covers key business disciplines beginning with an overall introduction to the fundamentals of business and exposure to Excel. The courses include accounting, economics, finance, analytics, information technology, management, and marketing. A professional development course, including events and workshops, completes the curriculum. Courses are delivered online in an integrated manner, so that the basics of business make sense within the larger context of other professional fields. Villanova students who successfully complete SBI earn a business minor. Non Villanova students earn a certificate in business.

Application is open to all qualified students and recent graduates from any accredited, 4-year college or institution. Note: International applicants must be matriculated in a full-time program of study at a U.S. institution.

SBI applications will be accepted from January 5 until April 15. Decisions are made on a rolling basis beginning mid-January; early submission of applications is encouraged. Complete information can be found online at business.villanova.edu/sbi. Questions should be directed to The Clay Center at (610) 519-5532 or via email sbi@villanova.edu.

For Villanova students, SBI credit may apply to the degree requirements in their primary academic college. Students should confirm with their Dean's Office or academic advisor to find out how the SBI coursework may apply. Non-Villanova students should check with their primary institution about how SBI credits may transfer.

Villanova students who successfully complete SBI will earn a business minor and may also pursue an additional VSB minor, or VSB coursework, in one of the following business disciplines: Accountancy, Artificial Intelligence and Machine Learning, Business Analytics, Business Law and

Corporate Governance, Consulting, Finance, International Business, Management Information Systems, Marketing, or Real Estate. **Prior to enrolling in any VSB discipline-specific minor course(s), VSB approval is required and additional pre-req coursework may also be required.** See minor course requirements listed under Academic Programs for more detailed information.

Type: Minor

SBI Courses include:

Item #	Title	Credits
SBI 0099	Excel	0
SBI 1000	Professional Success	1
SBI 1001	Business Fundamentals	1
SBI 1006	Business Law Basics	1
	SBI 2005 OR SBI 3145	3
SBI 2007	Analytics & Info Technologies	2
SBI 3010	Financial Accounting	2
SBI 3020	Principles of Finance	2
SBI 3030	Management Essentials	2
SBI 3040	Principles of Marketing	2

Category Descriptions

SBI 2005 OR SBI 3145

Credits: 3

SBI 3145 Managerial Economics - for those students who have credits for ECO 1001 Intro to Microeconomics.

Item #	Title	Credits
SBI 2005	Applied Economics	3
SBI 3145	Managerial Economics	3

Applied Quantitative Finance (AQF) Concentration

Chair: Shelly Howton, PhD.

Associate Chair: Benjamin Scheick, PhD.

Office: 2019 Bartley Hall

Telephone: 610-519-7395

[Website](#)

Students intending to major in Finance, may apply to pursue the AQF concentration. All interested students should apply to the AQF program director, Stephen Padovano

(stephen.padovano@villanova.edu) by July 15 prior to the start of sophomore year. A second application opportunity will occur for any remaining spots following the Fall semester. The application deadline for the second opportunity is before January 5.

Type: Concentration

Math Requirements

Note: If students receive AP credits for MAT 1505, they must take MAT 3100 (Applied Linear Algebra) or MAT 3400 (Linear Algebra) as the replacement course.

Item #	Title	Credits
MAT 1505	Calculus II	4
MAT 2705	Diff Equation with Linear Alg	4

Statistics Requirements

Before taking STAT 5700, students must pass a challenge exam on Double Integrals. (Double Integrals are covered in MAT 2500 – Calculus III).

Item #	Title	Credits
STAT 4315	Applied Statistical Models	3
STAT 5700	Math Statistics I	3

Computer Science/Analytics

Item #	Title	Credits
FIN 2121	Special Topics in Finance	1
MIS 2020	Prog for Adaptive Prob Solving	3
MIS 3080	Applied Machine Learning	3

Economics Requirement

Item #	Title	Credits
ECO 3137	Intro to Econometrics	3

Specific FIN electives for Quant Finance concentration

Item #	Title	Credits
FIN 2325	Introduction to Derivatives	3
FIN 2340	Contemporary Topics in Finance	3
	3 cr. FIN Elective	3

Note: the course title of FIN 2340 must be Top: Quantitative Finance

Category Descriptions

3 cr. FIN Elective

Credits: 3

Except FIN 3350, FIN 3360, and FIN 3470 (6 cr.).

Business Development Concentration for Marketing Major

Type: Concentration

Chair: Matthew Sarkees, PhD.

Associate Chair: Rishtee Batra, PhD.

Office: 3015 Bartley Hall

Telephone: 610-519-4350

[Website](#)

In addition to completing the requirements for a Marketing major, you can also earn a concentration in Business Development by completing three courses listed below.

Item #	Title	Credits
MKT 2224	Professional Selling	3
MKT 2225	Business Development Ldrship	3
	MKT 2120 or MKT 2349	3

Note: the course title for MKT 2349 must be Top: Sales for Social Impact

Category Descriptions

MKT 2120 or MKT 2349

Credits: 3

Item #	Title	Credits
MKT 2120	Buyer Behavior	3
MKT 2349	Special Topics in Marketing	3

Digital Marketing Concentration for Marketing Major

Chair: Matthew Sarkees, PhD.
Associate Chair: Rishtee Batra, PhD.
Office: 3015 Bartley Hall
Telephone: 610-519-4350
[Website](#)

In addition to completing the requirements for a Marketing major, you can also earn a concentration in Business Development by completing three courses listed below.

Type: Concentration

Item #	Title	Credits
MKT 2240	Marketing Analytics	3
MKT 2285	Social Media Marketing	3
MKT 2290	Digital Marketing	3

Global Business Concentration

The Moran Center for Global Leadership oversees the Global Business Concentration (GBC) with guidance from a GBC Committee of faculty and staff representatives from VSB and CLAS. All non-VSB students are invited to apply to the GBC after successful completion of ECO 1001 (Microeconomics) and ECO 1002 (Macroeconomics). The application process is competitive. Please apply online: <https://Explore.villanova.edu/apply/?sr=20ec0fca-360a-4893-b368-746d7b6fa43c>.

Contact Kim Cahill, Director, Moran Center for Global Leadership kimberly.cahill@villanova.edu; 610-519-3906; 2059 Bartley Hall.

Type: Concentration

Course Requirements for Global Business Concentration

Item #	Title	Credits
MGT 2350	Global Business Management	3
ECO 3108	Global Political Econ	3

Plus one of the following options:

Item #	Title	Credits
	Two (2) international business electives	
	One (1) international business elective combined with an approved international experience	

International Business Electives:

Or other global business courses by permission of department chair

Item #	Title	Credits
BL 2160	International Business Law	3
CHE 2900	Global Pharmaceutical Industry	3
ECO 3109	International Economics	3
ECO 3127	Development Economics	3
ECO 4203	Pol Eco of Development Aid	3
ECO 4209	International Macroeconomics	3
MGT 2208	International Topics	3
MGT 2250	Global Corp Responsibility	3
MGT 2352	Business in Emerging Markets	3
MGT 2360	Global Leadership	3
MGT 2370	Global Business Ethics	3
MKT 2280	Global Marketing	3

Foreign Language Requirement

Language proficiency is required: through the intermediate level in French, Italian and Spanish, **OR** through the introductory level in ancient Greek, Arabic, Chinese, Irish, Japanese and Russian. Students proficient in other foreign languages may petition for an exemption from the Core Curriculum Language Requirement subject to the conditions outlined in the CLAS Academic Handbook.

Language requirements are waived for all international students whose first language is not English.

Students are encouraged to take GIS 2000 - Intro to Global Studies or other international social science courses.

Category Descriptions

Two (2) international business electives

Note: Economics majors must take one IB elective outside of ECO courses.

One (1) international business elective combined with an approved international experience

Study, research, internship or volunteer experience – 6 week minimum

Management Consulting Concentration for Management Major

Chair: Kevin Clark, PhD.
Associate Chair: Ward Utter, M.B.A.
Office: 2083 Bartley Hall
Telephone: 610-519-6924
[Website](#)

Many want to pursue a career in management consulting and want more exposure to the expectations and demands of this industry. The Consulting concentration, open only to Management majors, combines the theoretical knowledge of management with consulting best practices and real-world consulting challenges to help prepare you for this field.

In addition to completing the requirements for a Management major, you can also earn a consulting concentration by completing MGT 3070 and MGT 3080.

Type: Concentration

Course Requirements for Management Consulting Concentration (Management Major Only)

Item #	Title	Credits
MGT 3070	Solving Complex Bus Problems	3
MGT 3080	Management Consulting Practicu	3

Economics

Chair: Erasmus Kersting, Ph.D.
Associate Chair: Mary Kelly, Ph.D.
Office Location: 2014 Bartley Hall
Telephone: 610-519-4370
[Website](#)

About

Economics is the science that studies the behavior of social systems – such as markets, legislatures, corporations, and families – in allocating scarce resources. It is a discipline which brings together the diverse worlds of business, social science, and public policy. The study of economics is an excellent preparation leading to many career options. Economics majors are well positioned to be the future managers and leaders in both the private and public sectors. The study of economics at the undergraduate level provides a solid basis for graduate study in the social sciences and for professional study in business administration, law, public administration, and in the health sciences.

Economics Minor – VSB

Chair: Erasmus Kersting, Ph.D.
Associate Chair: Mary Kelly, Ph.D.
Office Location: 2014 Bartley Hall
Telephone: 610-519-4370
[Website](#)

About

Economics addresses how individuals and firms make decisions in a world of scarcity and uncertainty while also presenting opportunities to learn how to analyze the performance and interaction of national economies. The curriculum is designed to promote the development of quantitative skills as well as written and verbal communication abilities, so students are equipped to critically examine the effects of economic factors on market participants in the private and public sectors. Because of the growing complexity of the global economy, there is an increase in the demand for individuals who can provide and communicate quantitative analysis of economic variables and their effects on forecasting sales, managing costs, allocating budgets, and choosing investment options. Economics graduates find employment in private industry, consulting, think tanks and

policy institutes, the public sector, and academia. Economics is also a perfect preparation for Law School.

Type: Minor

Course Requirements for Economics Minor (3 Courses)

Item #	Title	Credits
ECO 2101	Macroeconomic Theory	3
ECO 2102	Microeconomic Theory	3
	ECO Elective for ECC Minor	3

Category Descriptions

ECO Elective for ECC Minor

Credits: 3

One additional Economics (ECO) elective course with course number of 3000 or above (except ECO 3108, ECO 3120, and ECO 3130).

College of Engineering

College of Engineering Directory

Michele Marcolongo, Ph.D., P.E., Drosdick
Endowed Dean

Garrett M. Clayton, Ph.D., Associate Dean for
Graduate Studies

Noelle Comolli, Ph.D., Associate Dean for Faculty
Affairs

David Jamison, Ph.D., Associate Dean for
Academic Affairs

Stephen Jones, Ph.D., Associate Dean for
Student Success and Diversity, Equity & Inclusion

Sylvie Lorente, Ph.D., Associate Dean for
Research and Innovation

Keith M. Argue, M.S., Associate Dean for External
Relations

Office: Aldwyn 1, Room 205

Phone: 610-519-4940

Website: engineering.villanova.edu

History

The second degree-granting unit inaugurated at Villanova University was the College of Engineering, which began instruction in 1905 under the name of the School of Technology. It was the fourth engineering program to be established at a Catholic school of higher education in the United States. Dr. A.B. Carpenter, a graduate of Lehigh University, was hired in 1904 to organize and direct the school. He was ably assisted by the Rev. James J. Dean, a young faculty member in the sciences. It was their responsibility to develop the curricula, hire faculty and plan the facilities needed. Programs in Civil and Electrical Engineering were the first to be initiated, with a total of 12 students enrolled. In 1908, an undergraduate program in Mechanical Engineering was established, and in 1909, the first engineering bachelor's degrees were awarded. An undergraduate program in Chemical Engineering was established in 1919. In the years following World War II, the College expanded its degree offerings to the master's level, establishing graduate programs in each of its four engineering departments. A fifth undergraduate degree program in Computer

Engineering was added in 1993. A combined bachelor's/master's degree is available in all programs. In 2003, a doctoral degree was instituted in all programs. The undergraduate programs of Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, abet.org. All degree programs offer an Honors option.

The College of Engineering is dedicated to supporting the research activities of its faculty and students. This research is conducted through cooperation with government, industry and private foundations. The College also has extensive research programs in electronics, photonics and microelectromechanical systems devices; nanotechnology, materials and manufacturing; thermal and fluid sciences; sustainable energy systems; stormwater management; and structural engineering.

Academic Mission

Villanova University's College of Engineering is committed to an educational program that emphasizes technical excellence and a liberal education within the framework of the University's Augustinian and Catholic traditions. As a community of scholars, we seek to educate students to pursue both knowledge and wisdom, and to aspire to ethical and moral leadership within their chosen careers, their community and the world.

We value a spirit of community among all members of the College that respects academic freedom and inquiry, the discovery and cultivation of new knowledge, and continued innovation in all that we do.

Objectives

The College of Engineering strives to prepare its graduates to understand their roles in and make constructive contributions to a technological society, and to provide ethical and moral leadership in their profession and communities. These objectives are accomplished by various methods, but primarily by integrating into the curriculum the values and morality of Villanova University's Augustinian heritage. In addition to

being professionally competent, graduates are expected to have an understanding of their professional and ethical responsibilities, the impact on engineering solutions in a global and societal context, knowledge of contemporary issues, and an appreciation of humanistic concepts in literature, the arts and philosophy.

The College pursues these objectives by:

- Valuing all members of the Villanova community and beyond.
- Supporting innovation and excellence in teaching.
- Supporting faculty development through research and professional activities.
- Emphasizing design and the design process so that students are exposed to real-world situations.
- Graduating students who:
 - Apply scientific and mathematical concepts and principles to identify, formulate and solve problems in a real-world context.
 - Plan and conduct experimental investigations, and analyze and interpret their results.
 - Function effectively on project teams.
 - Contribute to teams.
 - Communicate ideas and information.
 - Understand the role of the engineering profession and technology, including appreciating concepts drawn from the humanities and social sciences.
 - Embody high professional and ethical standards.
 - Have the motivation and capability to acquire, evaluate, and assimilate knowledge and continue the learning experience.
 - Appreciate the value of service and other cultures.

Center of Resources for Engineering (CORE)

CORE Directory

David Jamison, Ph.D., Associate Dean for Academic Affairs

Stephen Jones, Ph.D., Associate Dean for Student Success and Diversity, Equity & Inclusion

Gayle Doyle, Associate Director, Undergraduate

Student Services and Program Operations

Jordan Ermilio, Ph.D., P.E., MSWRE, RPCV, Director, Center for Humanitarian Engineering and International Development, Associate Professor of Practice, Sustainable Engineering
Frank E. Falcone, AP, P.E. D.WRE, CAPT USN (ret), Director, Professional Development & Experiential Education

Laura Matthews, MPA, Manager, Academic Policies and Procedures

Lauri Olivier, Ph.D., MBA, Director of Engineering Entrepreneurship, Assistant Professor of the Practice

Emily Park, Assistant Director, Professional Development

George Simmons, Director, Villanova Multidisciplinary Design Laboratory

Richard Stumpf, Assistant Director of Engineering Entrepreneurship, Adjunct Professor

Therese Wosczyzna, Coordinator, CORE Team

Academic Policies

Unless otherwise noted, the College of Engineering follows the general academic policies and regulations listed in the University section of this Catalog. It is the responsibility of the student to know and comply with all academic policies and regulations of Villanova University and of the College of Engineering. Such policies may change without prior notice.

Academic Standing

To remain in good academic standing, undergraduate engineering students must maintain a cumulative Grade Point Average (GPA), a cumulative Technical Grade Point Average (TGPA), and a semester GPA of at least 2.00. Technical courses are defined as all engineering, science and mathematics courses.

Students who receive a grade of D, D-, F, N, NG, WX, W or Y, or whose overall or semester GPA or TGPA falls below 2.00, will be reviewed by the Academic Standing Committee. This review takes place at the end of each semester when grades are deemed final by the Registrar's Office.

Students who receive grades of D, D-, F or Y, but who have a semester, overall and technical GPA of at least 2.00, generally receive a letter of poor performance, emailed to the student.

Students with a semester, overall or technical GPA less than 2.00 may be placed on Academic Probation and will be notified by email from the Dean's Office. Normally, a student is not permitted to be on probation for more than one semester. Students on probation must meet with the Associate Dean for Student Success and Diversity, Equity & Inclusion at the beginning of the semester and at midterm to discuss how they will improve their grades. These students will formulate this improvement plan using the [Academic Improvement Plan](#).

Any student being reviewed may be asked to transfer out of the College of Engineering. A letter informing the students will be sent overnight and by email. This letter will contain instructions for the student as well as deadlines for actions that the student must take.

Advising

Starting as a first-year student, each individual is assigned an academic advisor. The academic advisor is a full-time faculty member of the department of the student's major. If the individual continues with the major to which they were admitted as an incoming student, their faculty advisor will remain unchanged for the full term of the program, with a few exceptions. *Thus, it is incumbent upon students to get to know their academic advisor.* The academic advisor can help students adjust to university life or point them in the right direction for answers. Students must consult with their advisor at least once a semester during preregistration to ensure proper course selection and advancement in the academic program. The academic advisor can assist in helping students select minors and concentrations, and answer questions about career choices, internships, postgraduation employment and graduate school. It is important to note that while a student's academic advisor may be called upon for assistance in making decisions, *it is ultimately the student's responsibility to understand the requirements of the chosen degree program and to plan for the orderly fulfillment of graduation requirements.* To this end, at preregistration time each semester, academic advisors will provide students with up-to-date summaries of the courses they have taken and will be required to take in the future to obtain the target degree.

During their first year, students are especially encouraged to speak with their academic advisor to learn about the engineering profession. In addition to the academic advisor, who can provide career-planning advisement and referrals when appropriate, the College of Engineering provides information about the engineering profession through annual sponsorship of programs that inform first-year students about career opportunities available in each major field of engineering.

Attendance

Class and laboratory attendance for first-year students is mandatory. A first-year student will receive a grade of "Y" (failure) whenever the number of unexcused absences in a course exceeds twice the number of weekly class meetings for the course. For students beyond the first year, attendance policies are determined by the instructors of the various courses. The full policy regarding attendance is [available on the Provost's website](#).

Students needing an excused absence should complete the Request for Excused Absence [form](#).

Appropriate Schedule

Students may only use their PIN for courses they have discussed and cleared with their academic advisor. Students who register for courses without their advisor's permission are in violation of the student code of conduct.

By university rule, a student who uses their PIN to register for courses that do not count toward a degree in Engineering will be notified by the Associate Dean of an inappropriate schedule. The student in this case will be dismissed from the COE at the end of the semester in which the discovery is made. That is, there can be an unconventional "try out another major" semester for a student, but the student will need to apply and be accepted in another college at Villanova to remain at Villanova. The normal procedure for a student who wishes to change a major from Engineering is to speak to a representative from the college of interest, then, if truly interested, apply and be accepted in the other college.

Undergraduates Enrolling in Graduate-Level Courses

The College of Engineering allows undergraduate students to enroll in graduate courses [in compliance with the University's policy](#). Students must meet the following requirements:

- Senior standing (in terms of credits, not in terms of years at Villanova)
- Minimum of 3.0 GPA
- Appropriate approvals (advisor, course instructor, chair and Associate Dean for Academic Affairs)

Mechanical, Electrical and Computer Engineering students may “double-count” up to nine credits permitting some graduate courses completed as an undergraduate to be applied toward the completion of both the bachelor’s degree and the master’s degree.

Permission to Register for Engineering Graduate Course Form can be found in [nolijlink](#).

In addition, students must complete the Confirm Graduate Course Credits for Degree [form](#) when they are in their senior year. The form is to be used by undergraduate students who have completed or are currently enrolled in graduate-level courses. It is used to determine which (if any) of the graduate-level courses taken as an undergraduate will be counted toward the undergraduate degree.

Transfers and Change of Major

Change Majors within the College of Engineering

[If you would like to change your major within the College of Engineering, you must complete the Request to Change Major/Transfer](#). There are two deadlines for major change applications: Dec. 1st and May 1st. Decisions will be made before the start of the following semester. The ability to change majors is dependent on merit and enrollment in each major.

Transfer into the College of Engineering from another College within Villanova

[If you would like to transfer into the College of Engineering from another college within Villanova, you must complete the Request to Change Major/Transfer](#). There are two deadlines for transfer applications: Dec. 1st and May 1st. Decisions on transfer applicants will be made before the start of the following semester.

Note to incoming first-year students: To be fair to those who have applied to Engineering as high school students and were not accepted, we regret that we cannot accept a student who was accepted by another college and wants to transfer immediately to Engineering upon entering campus in August. Since the acceptance criteria for each college differ, all of us recognize a possible unfair advantage to this. Most importantly, there is not enough time for Engineering to consider the application and work through the acceptance process without rushing to judgment. Students in this situation can apply to Engineering as an internal transfer student before Dec. 1st.

Please note: The ability to change majors is dependent on merit and enrollment in each major.

Grade Point Average (GPA)/Technical Grade Point Average (TGPA)

The cumulative Grade Point Average (GPA) calculation includes grades for all courses taken at Villanova. Transfer credits do not affect the student’s GPA. The Technical Grade Point Average (TGPA) calculation includes grades for courses from the following subject areas: Engineering (EGR), Chemical Engineering (CHE), Civil and Environmental Engineering (CEE), Electrical and Computer Engineering (ECE), Mechanical Engineering (ME), Chemistry (CHM), Mathematics (MAT) and Physics (PHY).

Repeated Course Effect on GPA and TGPA

If a student repeats a course, both grades remain in the GPA calculation, while only the second grade remains in the TGPA calculation. In both

cases, course credits can be earned only once. Transfer credit may not be used to replace a grade in the TGPA.

Academic Bankruptcy

The Academic Standing Committee may allow a first-year student to declare academic bankruptcy by repeating the fall or spring semester, or the entire first year. The grades from the bankrupted semester or year will not be included in the cumulative average (though a record of the semester's or year's work will remain on the transcript). Application must be made within 10 days of the end of the semester or year for which bankruptcy is sought. All repeated courses must be taken at Villanova. Interested students must complete the [Repeat First-Year Request Form](#).

Satisfactory/Unsatisfactory Grades

All non-first-year undergraduate engineering students may elect to take, on a Satisfactory/Unsatisfactory basis, one course per semester that meets all of the following criteria:

1. It is not specifically designated by course number in the curriculum of the student's major.
2. It is not being given by the department in which the student is majoring.
3. It is not designated as a Technical Elective in the curriculum of the student's major.
4. It is not being used to meet requirements for any minor offered by the College of Engineering.
5. Permission to take the course has been specifically granted by the chair of the department in which the student is majoring. Students must check with minors outside the College as to their acceptance of Satisfactory/Unsatisfactory credit.

To take a course on a Satisfactory/Unsatisfactory basis, the student must first register for the course by the normal procedure. After registration has been completed, the student must complete a Satisfactory/Unsatisfactory form.

Course Elsewhere

With recommendation of their Department Chair, and approval of the Associate Dean for Academic Affairs, active engineering students are permitted to earn course credit at other schools. To initiate a request to do this, the student must complete the Permission to Take Courses Elsewhere [form](#). A complete description of the substitute course content in the form of a copy of the other institution's official course catalog or a copy of the other institution's web description must be attached to this form. This information must be researched and compiled by the student before it is attached to the form. The student should allow 7-10 days for final action to be taken on the request. Questions concerning courses taken elsewhere should be directed toward the student's academic advisor or Department Chair.

Students who have completed approved courses elsewhere must request that institution to forward an official transcript to their Department Chair. Select "*Undergraduate Engineering—Course Elsewhere*" as the Villanova address when sending an electronic transcript. NOTE: Only courses in which a grade of "C" (or the equivalent) or better is received will be transferred for credit.

Course Overload

The individual engineering majors are composed of appropriately sequenced course groupings referred to as "regular semester course loads." Each semester can have a different credit and course load. Students may not take more than 19.5 credits in a semester without approval. More than 19.5 credits is considered a course or credit overload. An overload is generally approved for a maximum of one course or four credits provided that:

1. A first-year student has permission from the office of the Associate Dean for Academic Affairs. Normally, only second-semester first-year students with a GPA of at least 3.5 are permitted to overload, or
2. An upperclassman has approval from their advisor and Department Chair. A GPA of at least 3.0 is required in this case.

In addition to the requirements above, an overload is generally only approved for the

pursuing of a minor or second major, ROTC purposes, and for adjusting schedules to accommodate study abroad, if needed.

Students wishing to request permission to overload must complete the [Course Overload Form](#).

Course Withdrawal

Engineering student requests for authorized withdrawal from a course without penalty (WX) will be granted until approximately three-and-a-half weeks after midterm break. ([View the Academic Calendar](#) for official date.)

Any student wishing to withdraw (WX) during the appropriate time period, is personally responsible for completing the [Course Withdrawal Form](#).

Note that withdrawals without permission will receive a "W" grade, which is calculated as an "F" in computing one's Quality Point Average.

Advanced Placement (AP) Credit

All Advanced Placement (AP) credit must be accepted and approved before the completion of two semesters at Villanova.

If you have taken advanced placement (AP) exams and listed Villanova as a recipient of the scores, your scores will be sent directly to the Office of the Registrar. It is your responsibility to provide the College Board with full information, such as personal identification and Villanova's college code, 2959, so that the AP credit administration process can be accomplished efficiently.

Credit will be added to your academic record based on the below equivalency.

Advanced Placement (AP)

Credit Equivalencies 2022-2023

Test #	Subject	Score	Villanova Course(s)	Credits
7	United States History	4 or 5	HIS 1002 The United States to 1877	3
13	History of Art	4 or 5	AAH 1101 His West Art: Ancient-Med BIO 2105 General Biology I BIO 2106 General Biology II	3 4 4
20	Biology	4 or 5	CHM 1151 General Chemistry I CHM 1152 General Chemistry II	4 4
25	Chemistry	4 or 5	CHM 1103 General Chemistry Lab I CHM 1104 General Chemistry Lab II	1 1
28	Chinese Language & Culture	4 or 5	CHI 1111 Basic Chinese I CHI 1112 Basic Chinese II	6 6
31	Computer Science A	4 or 5	CSC 1051 Algorithms & Data Struc I	4
32	Computer Science Principles	4 or 5	CSC 1020 Computing and the Web	3
34	Economics: Microeconomics	4 or 5	ECO 1001 Intro to Micro	3
35	Economics: Macroeconomics	4 or 5	ECO 1002 Intro to Macro	3
36	English Language & Composition	4 or 5	ENG 1050 The Literary Experience	3
37	English Literature & Composition	4 or 5	ENG 1050 The Literary Experience	3
40	Environmental Science	4 or 5	GEV 1052 Environmental Studies	3
43	European History	4 or 5	HIS 1021 History of Western Civilization II FFS 1121 Intermediate French I	3 3
48	French Language and Culture	4 or 5	FFS 1122 Intermediate French II	3
53	Human Geography	4 or 5	GEV 1002 Geography of a Globalizing World	3
57	Government & Politics: US	4 or 5	PSC 1100 Intro to American Government	3
58	Government & Politics: Comp	4 or 5	PSC 1300 Comparable Politics LAT 1121 Intermediate Latin I	3 3
60	Latin	4 or 5	LAT 1122 Intermediate Latin II ITA 1121 Intermediate Italian I	3 3
62	Italian Language & Culture	4 or 5	ITA 1122 Intermediate Italian II	3

64	Japanese Language & Culture	4 or 5	JPN 1111 Introductory Japanese I JPN 1112 Introductory Japanese II	6 6
66	Calculus AB	4 or 5	MAT 1500 Calculus I	4
68	Calculus BC	4 or 5	MAT 1500 Calculus I MAT 1505 Calculus II	4 4
69	Calculus AB Subscore Grade	4 or 5	MAT 1500 Calculus I	4
80	Physics C - Mechanics	4 or 5	PHY 2400 Physics I PHY 2402 Physics II Elec	3 3
82	Physics C - Electricity & Magnetism	4 or 5	& Magnet PHY 2403 Physics Lab for Engineering	3 1
85	Psychology	4 or 5	PSY 1000 General Psychology SPA 1121 Intermediate Spanish I	3 3
87	Spanish Language	4 or 5	SPA 1122 Intermediate Spanish II SPA 1121 Intermediate Spanish I	3 3
89	Spanish Literature	4 or 5	SPA 1122 Intermediate Spanish II STAT 1230 Intro Statistics I	3 3
90	Statistics	4 or 5	HIS 1040 Themes Pre-Mod World History	3
93	World History	4 or 5		

International Baccalaureate (IB) Credit

All International Baccalaureate (IB) credit must be accepted and approved before the completion of two semesters at Villanova.

If you have taken International Baccalaureate (IB) exams and Villanova has received your official scores, you may receive Villanova credit. Villanova only awards credit for Higher Level exams. It is your responsibility to ensure your scores have been received.

Credit will be added to your academic record based on the below credit equivalency.

International Baccalaureate (IB)

Credit Equivalencies 2022-2023

Note: Credit is only given for Higher Level (HL) exams

Subject	Score	Villanova Course(s)	Credits
Anthropology	6 or 7	SOC 2100 Cultural Anthropology	3
Biology	6 or 7	BIO 2105 General Biology I BIO 2106 General Biology II	4 4
Chemistry	6 or 7	CHM 1151 General Chemistry I CHM 1152 General Chemistry II CHM 1103 General Chemistry Lab I CHM 1104 General Chemistry Lab II	4 4 1 1
Computer Science HL	5, 6, or 7	CSC 1051 Algorithms & Data Structure I	4
Information Technology	5, 6, or 7	SC 1930 Explorations in Computing	3
Economics	5, 6, or 7	ECO 1001 Intro to Micro ECO 1002 Intro to Macro	3 3
English	5, 6, or 7	ENG 1050 The Literary Experience	3
French A2 or B	6 or 7	FFS 1121 Intermediate French I FFS 1122 Intermediate French II	3 3
Geography	5, 6, or 7	GEV 1002 Geography of a Globalizing World	3
History Americas	6 or 7	HIS 4495 Topics in Latin American History	3
History Europe	6 or 7	HIS 1021 History of Western Civil II	3
Italian A2 or B	6 or 7	ITA 1121 Intermediate Italian I ITA 1122 Intermediate Italian II	3 3
Latin	6 or 7	LAT 1121 Intermediate Latin I LAT 1122 Intermediate Latin II	3 3
Mathematics	6 or 7	MAT 1500 Calculus I	4
Mathematics Further	5	MAT 1500 Calculus I	4
	6 or 7	MAT 1505 Calculus II	4
Music	6 or 7	SAR 3030 Special Topics in Music	3
Philosophy	6 or 7	PHI 2990 Topics in Philosophy	3
Physics	6 or 7	PHY 2400 Physics I Mechanics PHY 2402 Physics II Elec and Magnet PHY 2403 Physics Lab for Egr	3 1 1
Psychology	6 or 7	PSY 1000 General Psychology	3
Spanish A2 or B	6 or 7	SPA 1121 Intermediate Spanish I SPA 1122 Intermediate Spanish II	3 3

Pre-Matriculated Credit

All Pre-Matriculated credit must be accepted and approved before the completion of two semesters at Villanova.

College-level work completed prior to high school graduation may be awarded transfer credits upon receipt and review of the following: (1) an official letter from the high school principal, secondary school counselor or other educational professional describing the college-level program of study; (2) an official letter from the college/university stating that the courses were taught by members of the regular faculty, open to enrollment by and graded in competition with regularly matriculated undergraduates at the college and a regular part of the normal curriculum published in the college catalog; (3) a course syllabus; and (4) an official, seal-bearing transcript from the college/university showing a grade of C or better. **Credit or advanced standing for courses taught at the high school will not be accepted. Credit or advanced standing for courses in which the class is composed of only high school students will not be accepted.** With respect to courses taught in a distance-learning format, and for other requirements, each academic program will review on a case-by-case basis. Each supporting document is to be sent to [Laura Matthews](#), Villanova University, Aldwyn One, Second Floor, 800 Lancaster Ave., Villanova, PA 19085.

Audit a Course

A student may elect to audit a course to reinforce and strengthen their current knowledge or to explore new areas without the pressure of tests and grades. No academic credit is earned for auditing a course; however, the audited course is noted on the student's official record. Students must complete the Audit Request form accessible via the Forms Directory on the Office of Enrollment Management webpage. Permission to audit a course must be obtained from the student's advisor.

Exam Administration

Integrity is central to the mission of Villanova University. The Faculty of the College of Engineering is committed to creating an environment of academic integrity and ethical

decision-making. To encourage an atmosphere of honesty, integrity and fairness for all students, the following exam procedures are in place:

- Students must arrive before the start of the exam. Under exceptional circumstances, at the discretion of the professor, a student may need to arrive late, but can enter the exam no later than 5 minutes after the start of the exam.
- All communication devices (cellphones, smartwatches, etc.) must be turned off and stored away until the student exits the exam room.
- The official Villanova class attendance policy must be followed when requesting excuses for absences or lateness to an exam.
- Each student must *write and sign* the following statement, "*I have neither given nor received any unauthorized assistance in the completion of this exam.*"

Double Major and Dual Degree

Double Major: A double major is a program of study that meets the requirements of two distinct majors in a single bachelor's degree. Engineering students interested in pursuing more than one major should discuss the possibility with their academic advisor in Engineering before applying to the other program. Because of prerequisites and course scheduling, the College of Engineering makes no guarantee that students pursuing more than one major will be able to take any engineering course during any semester of their choosing. Students should not expect to complete more than one major in four years. Multiple majors, regardless of college, will appear on the student's transcript.

Engineering must be the primary major for all double-major students. Admission is based upon merit and space available in the intended second major. Applications are due Dec. 1 (for the following Spring Term) and May 1 (for the following Fall Term).

Dual Degree: Normally, a student may receive only one degree, regardless of how many majors the student earns. A Dual Degree is a second

degree that is completed at the same time as a first degree. A Dual Engineering Degree option is available to College of Engineering students only. In order to receive two degrees and two diplomas, the student must complete 43 or more additional credits beyond the greater of the two program credit requirements.

Students must request to pursue a second degree prior to completing their second semester sophomore year. Admission is based upon merit and space available in the intended major of the second degree. Applications are due Dec. 1 (for the following Spring Term) and May 1 (for the following Fall Term).

Graduation

May Graduation Procedure

Following the below instructions will assist both the College and the student in a timely diploma distribution. The detailed process below is to ensure students' names are included on the graduation list.

1. After students have completed registration for the Spring semester, they should review a copy of their CAPP compliance (degree audit) to be sure that every requirement is showing "met" either with a completed course or course registration; review all majors, minors, and concentrations.
 - Special attention should be paid to the use of graduate-level courses. If a student is planning to continue in a master's program at Villanova and they have taken courses as an undergrad, a [Confirm Graduate Course Credits for Degree form](#) should be used to verify proper use of courses.
 - Senior year is the time for the student to update their field of study and add or remove any majors, minors or concentrations. When requesting the removal of a minor or concentration, please add in the notes field on the form that the student wants the minor or concentration removed.
[Request to Pursue a Minor](#)
[Request to Pursue a Concentration](#)
2. Review the CAPP compliance with your advisor. Both the student and advisor sign and date the CAPP compliance.
3. The Degree Verification Representative in the student's department will review all CAPPs before the add/drop period is over verifying all curriculum requirements are fulfilled. The Degree Verification Representative will notify the student of any discrepancies.

Degree Verification Department Representatives:

CHE - [Dr. Dorothy Skaf](#)
CEE - [Dr. Eric Musselman](#)
CPE - [Mr. Edward Char](#)
EE - [Mr. Edward Char](#)
ME - [Dr. Ani Ural](#)

An Engineering student who has not attained the required credits for degree completion may apply for permission to "walk" in May graduation ceremonies if the student is an undergraduate who has no more than three courses left to complete the requirements for their degree and is registered to complete all of these requirements by the end of the next fall semester.

The student must complete the [Request to Participate in Graduation Ceremonies Form](#).

The student's name will appear in the May program following degree conferral. A diploma will be mailed to the student at their address of record after all requirements have been completed.

Withdrawal from University

Students who wish to leave and who do not plan to return to the University should request a withdrawal. Official withdrawal from the University must be authorized by the Associate Dean for Academic Affairs. Students should complete the [Withdrawal Request form](#).

Please Note: Students who request an official withdrawal during the semester may be eligible for refund of some or all of the tuition paid for that semester. A student who has withdrawn from the University who wishes to return, must apply directly to the college the student wishes to attend. (Admission is granted at the sole discretion of the Dean of that college.)

General Information

Grand Challenge Scholars Program

The Grand Challenges are an aspirational vision of what engineering needs to deliver in the 21st century. Its 14 corresponding goals are focused on “continuation of life on the planet, making our world more sustainable, secure, healthy and joyful.” The Grand Challenges Scholars Program is an engineering education supplement that broadens the reach of undergraduate study and is open to all engineering majors. Students must fulfill five competencies related to their selected challenge.

Student Organizations

To encourage close contact between our engineering students and practicing professional engineers, and to assist students in establishing their engineering identity, the College of Engineering maintains student chapters of many engineering professional societies. These groups, with the cooperation and support of the faculty and practicing professional engineers, organize and sponsor meetings, guest speakers and field trips of interest to engineering students.

Honor Societies:

- Eta Kappa Nu – International Honor Society of the Institute of Electrical and Electronics Engineers
- Pi Tau Sigma – International Honor Society for Mechanical Engineers
- Omega Chi Epsilon – Chemical Engineering Honor Society
- Tau Beta Pi – The Engineering Honor Society (representing the entire engineering profession)

Professional Organizations:

- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers

- Institute of Electrical and Electronics Engineers
- Institute of Transportation Engineers
- National Society of Black Engineers
- National Society of Professional Engineers
- Society of Asian Scientists and Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers

Engineering Student Council – A student organization that serves as the liaison between the students and the College administration. The broader professional and social interests of all engineering students are served by the Villanova University Engineering Student Council. Membership in this organization is open to all undergraduate engineering students.

Engineering Support:

Peers Enhancing Educational Resources for Students (PEERS) – A Villanova Engineering student organization providing peer mentoring to all students, with the emphasis on first-year and transitional students.

More information on the many student organizations can be found on the engineering website.

Laboratory Facilities

Dedication of the 88,400-square-foot Center for Engineering Education and Research (CEER) took place in June 1998. The multimillion-dollar facility provides leading-edge technological support for teaching and research in the College of Engineering. Construction is underway on a \$125 million, 150,000-square-foot addition to the facility that will usher in a new era for the College, furthering its commitment to igniting change through interdisciplinary research and innovative teaching and learning. The CEER expansion project will be completed in Fall 2024.

The Chemical and Biological Engineering Department's laboratories provide opportunities for students to integrate fundamental principles in thermodynamics, fluid mechanics, heat transfer, mass transfer and reaction kinetics with hands-on experimental planning, performance

and analysis. Students use state-of-the-art facilities to participate in biotechnology, materials science and catalysis research. Computer clusters support research, and a computer-equipped classroom enhances laboratory, process-control and process-simulation experiences.

The Civil and Environmental Engineering Department is committed to hands-on education in its experimental, computational and design laboratories. Facilities are dedicated to instruction and research capabilities in environmental engineering, geology, soils, structures, transportation and hydraulics. Facilities support undergraduate instruction as well as both undergraduate and graduate research. The department's Faris Structural Engineering Teaching and Research Lab provides 5,000 square feet of useable floor space to test full-scale structural members up to 90 feet in length and includes two smaller laboratories for testing construction materials under various environmental conditions. The University campus is also used as a working laboratory for education and research on stormwater management, through a vast network of interconnected sensors.

The Electrical and Computer Engineering Department laboratory facilities are available to serve as important components of study in specialized areas as well as for core studies. Laboratories are in place for instruction and research in control systems, digital systems and microprocessors, electronics, signal processing, solid state devices, microwaves, microcontrollers, advanced electronics, advanced computer systems, antenna anechoic chamber, antenna research, communications and student projects.

The Mechanical Engineering Department laboratories provide an environment for students to reinforce their understanding of the fundamental principles of mechanical engineering and apply that knowledge in experimental analysis and problem-solving. Facilities include a wind tunnel as well as laboratories for manufacturing processes, thermodynamics, engine testing, materials testing and material science, control, vibration, stress, heat transfer and fluid mechanics.

Computing

All students are required to own or purchase a Microsoft Windows-based laptop computer.

Students must bring their laptops to class as course work often requires the use of a computer.

Apple computers are not compatible with all engineering application software that is required for engineering course work.

College and University Computing

The entire campus is linked via a high-speed network and is connected to the internet. The College also provides a virtual desktop that allows students to run engineering software remotely. Information technology support is provided by University Information Technology (UNIT), the University's IT group, as well as by the College's IT group with a walk-in, online and telephone help desk system.

Software and Departmental Computing

The analysis and simulation software MATLAB and Mathcad, spreadsheet package Excel, drawing packages SolidWorks and AutoCAD, and data-acquisition software LabVIEW are available for use. In addition, some departments have their own computers and workstations in classrooms and laboratories. Besides computers for data acquisition and control in the laboratories, special-purpose computer software is installed on computers throughout the College. For example, the Chemical and Biological Engineering Department uses Aspen Plus for simulation of its chemical process systems and makes the software available in computer classrooms. The Civil and Environmental Engineering Department has industry-specific software packages installed on its computers, including STAAD and SimTraffic. Simulink and PSpice are used among many other packages in the Electrical and Computer Engineering Department. In the Mechanical Engineering Department, students use Ansys and Fluent for finite element analysis and computational fluid dynamic simulations.

Awards and Honors

Dean's List: An individual who has earned a semester GPA of 3.50 or above, is a full-time student, has completed 12 or more credits with final grades in the semester, and has no "N" or unreported grades is placed on the Dean's List. Approximately two months after the end of the

semester, an appropriate letter of acknowledgement is sent to the student at the permanent address on file with the University.

Dean's Award for Academic Achievement: This award was established to recognize the outstanding academic performance of senior undergraduate engineering students who will graduate within the current academic year. To be a recipient of the Academic Achievement Award, students must have a cumulative grade point average within the top 10 percent of their major at the end of the fall term.

Dean's Award for Meritorious Service: This award was established to recognize exceptional service to the College of Engineering by senior undergraduate engineering students who will graduate within the current academic year. To be eligible, nominees must be involved in extracurricular and/or service activities within the College for a sustained period. Preference is given to students who demonstrate noteworthy leadership in one or more activities.

Career Compass Professionalism: This award was established in 2016 to recognize students who exemplify professionalism and embrace the core values of the Career Compass program. To be eligible, nominees must attain a satisfactory grade in all six Career Compass courses and must exemplify a strong and vibrant work ethic and commitment to ethical behavior and innovation. Recipients are selected by the Director of Professional Development, College of Engineering.

National Honorary Engineering Societies: To recognize and encourage excellence in scholarship, chapters of the following national honorary engineering societies are maintained by the College: Tau Beta Pi, for all engineers; Chi Epsilon, for civil engineers; Eta Kappa Nu, for electrical engineers and computer engineers; and Pi Tau Sigma, for mechanical engineers.

Departmental Medallions: At graduation, each department awards a departmental medallion to an exceptional graduate selected by the department.

Robert D. Lynch Award: This award was instituted in 2003 in honor of Robert D. Lynch, the Dean of the College of Engineering from 1975 to 2000. Given on behalf of the Engineering Alumni Society, this prestigious award

acknowledges a graduating senior for outstanding academic achievements and exemplary dedication to serving the community, thus representing the highest values of Villanova University and the College of Engineering.

Curriculum

Degrees Offered

The College of Engineering offers full-time (day) academic programs leading to the following degrees:

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Chemical Engineering, Honors
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Civil Engineering, Honors
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Engineering, Honors
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering, Honors
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Mechanical Engineering, Honors

The undergraduate programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, abet.org.

Minors Offered

The College of Engineering offers the following minors:

- Aerospace Engineering
- Biochemical Engineering
- Biomedical Engineering
- Computer Engineering
- Cybersecurity
- Electrical Engineering
- Engineering Entrepreneurship & Engineering Entrepreneurship Summer Institute
- Mechatronics
- Humanitarian Engineering

- Sustainability Studies (joint offering between the College of Engineering and the College of Liberal Arts and Sciences)
- Sustainable Engineering
- Real Estate Development (joint offering between the College of Engineering and Villanova School of Business)

Degree Requirements

The undergraduate engineering curriculum provides the foundation for careers in engineering as well as the basis for further study in engineering and other professions such as law, medicine, business and management. Courses of study concentrate on mathematics, physics, chemistry, engineering science, and engineering analysis and design within a particular engineering discipline.

The curriculum places special emphasis upon developing oral and written communication skills, and it offers opportunities to develop an appreciation of the social sciences and humanities, and the flexibility to pursue minors. Courses in the humanities are included in each curriculum to make the student engineer more fully aware of social responsibilities and better able to consider non-technical factors in the engineering decision-making process. Extensive hands-on laboratory experience and required projects for all seniors ensure professional preparation in the fundamentals of the design process within the real constraints of problem solving. To qualify for a bachelor's degree in the College of Engineering, undergraduate engineering students must successfully complete all of the first-year core curriculum courses, those major courses required for the particular engineering degree sought, and a series of electives. They must also achieve cumulative overall and technical grade point averages of at least 2.00 in their course work.

At least half of all the engineering courses and, normally, the final 30 credits of an engineering bachelor's degree program, must be taken at Villanova University. All undergraduate degree requirements should be completed within a six-year period.

NOTE: It is the responsibility of each student to know and to fulfill all degree requirements. To keep the curriculum abreast of the latest

engineering developments, Villanova University reserves the right to change the program requirements without prior notice.

Core Curriculum

All engineering students have a common first semester consisting of the following courses:

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
MAT 1500	Calculus I	4
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Engineering Curriculum Requirements in Humanities and Social Science:

Item #	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
	Theology (THL) course at the 2000 level or above	3
	Department approved Ethics course	3
	One 3-credit course from:	3

Category Descriptions

Theology (THL) course at the 2000 level or above

Credits: 3

Or course with Core Theology (CTHL) attribute.

Department approved Ethics course

Credits: 3

One 3-credit course from:

Credits: 3

Item #	Title	Credits
	Theology (THL) course at the 2000 level or above	3
	Philosophy (PHI)	3
	Peace and Justice (PJ)	3
ETH 2050	The Good Life:Eth & Cont Prob	3
EGR 2930	Catholic Soc Teaching for EGRS	3

Career Compass

Developed in consultation with engineering alumni, faculty and students, Career Compass is a one-of-a-kind professional development curriculum unique to Villanova's College of Engineering. As part of our comprehensive undergraduate engineering program, students will learn not only the scientific, mathematical and engineering principles expected of every engineer, but also the professional skills needed to succeed in any career.

A graduation requirement that will appear on your transcript, Career Compass is a combination of self-directed online modules, in-person class sessions for first-semester students, and required activities, such as attending professional events on campus.

Academic Programs

College of Engineering

Engineering

Chemical Engineering, B.S.

Chemical and Biological Engineering Chair: Dr. Christopher Kitchens
Office: 217 White Hall
Telephone: 610-519-5498

About

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Chemical Engineering, Honors.

The chemical engineer typically uses the principles of mathematics, chemistry, biology, physics and engineering sciences to creatively solve technical and commercial problems arising in the design and manufacture of industrial scale processes. These solutions must respond to economic constraints as well as social, ethical, environmental and safety implications. Industrial scale processes can include fuels, bulk chemicals, polymers, foods and pharmaceuticals (including protein, gene and cell-based therapies). A chemical engineer is prepared to evaluate and think critically and can apply these skills in many fields outside of the traditional manufacture and research and development, including finance, management and patent law.

Mission Statement

The Chemical and Biological Engineering Department is committed to providing undergraduate and graduate students innovative and effective educational experiences that will prepare them for the technological, professional, and societal challenges of their careers. Through research that advances engineering and scientific knowledge, the department inspires students and brings value to the university and broader community.

Program Educational Objectives

Consistent with the University's Augustinian Mission that values broadly-educated, and well-rounded individuals, graduates of the Chemical Engineering Program are able to pursue the following career objectives:

- Conduct themselves in a manner that recognizes their professional responsibilities to society in areas such as sustainability, safety, ethics, and environmental protection.
- Apply the underlying scientific principles and technical capabilities needed to succeed in both the traditional and emerging fields of the chemical engineering profession.
- Continue to learn and grow by leveraging professional opportunities that facilitate the effective practice of their chosen profession.

Curricular Philosophy

The early years of the chemical engineering curriculum emphasize the basic principles of natural and engineering sciences. Later courses use these principles to develop skills in chemical engineering design including the solution of

open-ended problems requiring the exercise of judgment, and constrained by economics, safety, reliability or other requirements. Courses gradually develop the students' abilities, with the complexity of design experiences systematically increasing throughout the required courses in chemical engineering science and culminating in the senior process design and process controls courses.

Electives in the junior and senior years allow the student to tailor the program toward career goals. In the senior year, the student can develop the ability to work independently by carrying out an engineering research project. All stages of the curriculum apply computers in various modes, ranging from programming personal computers for the solution of simple problems, through the use of computers for process monitoring and control, to the use of sophisticated software packages for process design.

The curriculum includes several chemical and biological engineering and science electives, to be chosen from a list of approved courses under the guidance of a faculty member designated as the student's academic advisor.

Type: Bachelor of Science

Freshman Year

First Semester

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
MAT 1500	Calculus I	4
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Second Semester

Item #	Title	Credits
ACS 1001	Moderns	3
CHE 1102	Material Balances	3
MAT 1505	Calculus II	4
PHY 2400	Physics I Mechanics	3
CHM 1104	General Chemistry Lab II	1
CHM 1152	General Chemistry II	4
EGR 1002	Career Compass First Yr B	0.5

Sophomore Year

First Semester

Item #	Title	Credits
MAT 2705	Diff Equation with Linear Alg	4
CHE 2101	Thermodynamics 1	3
CHE 2201	Fluid Dynamics	3
CHE 2301	ChE Computational Methods	3
CHM 2201	Organic Chemistry Lab I	1
CHM 2211	Organic Chemistry I	3
EGR 2003	Career Compass Second Yr A	0.5

Second Semester

Item #	Title	Credits
CHE 2102	Thermodynamics 2	3
CHE 2202	Heat Transfer	3
CHE 2402	Technical Communications	3
CHM 2202	Organic Chemistry Lab II	1
CHM 2212	Organic Chemistry II	3
	Elective - Humanities/Social Sci	3
EGR 2004	Career Compass Second Yr B	0.5

Junior Year

First Semester

Item #	Title	Credits
CHE 3201	Mass Transfer	3
CHE 3301	ChE Applied Mathematics	3
CHE 3401	Unit Operations Lab 1	3
	Elective - CBE	3
	Elective - Science	3
	Elective - Humanities/Social Sci	3
EGR 3005	Career Compass Third Yr A	0.5

Second Semester

Item #	Title	Credits
CHE 3202	Reactor Design	3
CHE 3402	Unit Operations Lab 2	3
CHM 3402	Physical Chem Lab II	1
CHM 3416	Physical Chem for Engineers	3
	Elective - Ethics (for Chemical Engineering)	3
	Elective - CBE	3
EGR 3006	Career Compass Third Yr B	0.5

Senior Year

First Semester

Item #	Title	Credits
CHE 4201	Process Design	3
	Elective - CBE	3
	Elective - CBE	3
	Elective - Science	3

Second Semester

Item #	Title	Credits
CHE 4202	Process Controls	3
	Elective - THL (2000 or above)	3
	Elective - THL/PHI	3
	Elective - CBE	3
	Elective - Free	3

Category Descriptions

Elective - Humanities/Social Sci

Credits: 3

Select one humanities or social science elective from the list below:

Humanities

- Arab & Islamic Studies
- Art History
- Classical Studies
- Communications
- Ethics
- English (excluding internship courses)
- Global Interdisciplinary Studies
- History
- Honors Program (eligible students only)
- Humanities
- Modern Languages (except speaking courses in native language)
- Philosophy
- Theatre
- Theology (2000 and above or course section with core theology attribute)

Social Sciences

- Criminology
- Economics
- Geography and the Environment (courses with Core Social Science or Sustainability-Humanities STEM attribute)

- Humanities: HUM designated PSC
- Peace and Justice
- Political Science
- Public Administration
- Psychology
- Sociology
- Gender and Women's Studies

Elective - CBE

Credits: 3

- CBE Electives are typically only available to Juniors and Seniors.
- Students must take both Senior Project Studio courses if selected.
- Seniors must have special permission to take ChemE Graduate Courses (CHE ≥ 7000).
 - This form is available on Noli link. <https://nolijlink.villanova.edu/Advisor/thin>
- Any course counted towards a B.S. degree cannot also be counted towards an M.S. degree.
- Electives are available based upon instructor availability and student demand.

Advanced Chemical Engineering

Item #	Title	Credits
CHE 5032	Equipment Design & Spec.	3
CHE 5062	Chemical Engineering Economics	3
CHE 5232	Industrial Catalytic Processes	3
CHE 5842	Safety Analysis	3

Biological Engineering

Item #	Title	Credits
CHE 5133	Brewing Science & Tech	3
CHE 5530	Gene Therapy Methods & Research	3
CHE 5532	Intro to Biotechnology	3
CHE 5533	Bioseparations	3
CHE 5534	Biomaterials	3
CHE 5535	Bioengineering Lab Techniques	3
CHE 5536	Biochemical Data Analysis	3
CHE 5540	Cellular Engineering	3

Advanced Materials Engineering

Item #	Title	Credits
CHE 5534	Biomaterials	3
CHE 5632	Polymer Sci and Engr	3
CHE 5633	Nanomaterials & Surface Scienc	3
CHE 5634	Intro to Material Science	3

Industry Sponsored Research/Design

Item #	Title	Credits
CHE 4831	Senior Project Studio I	3
CHE 4832	Senior Project Studio II	3

Sustainable Engineering

Item #	Title	Credits
CHE 5001	Industrial Liq & Sld Waste	3
CHE 5002	Prin of Air Pol Control	3
CHE 5715	Alternative Energy	3
EGR 2111	Sus Eng: LCA & Circular Econ	3
EGR 7110	Fundamentals-Sustainable Engr	3

Other Approved Technical Courses

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
EGR 2021	Elements of Biomed Engr	3
GEV 4700	Geographic Information Systems	4
NS 2100	Naval Ships Systems I	3

Elective - Science

Credits: 3

Notes:

1. Science elective options should be discussed with a student's academic advisor.
2. A student may request that a science course not on the approved list be reviewed and considered as a special exception for a science elective.
3. Pre-requisites for science courses must be met, and the CBE Department cannot guarantee admission to a course offered by another department.

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3105	Biostatistics & Exp Design	4
BIO 3155	Comparative Anatomy	4
BIO 3255	Evolutionary Ecology	4
BIO 3351	Genetics	4
BIO 3385	Global Change Ecology	4
BIO 3455	Histology	4
BIO 3485	Marine Biology	4
BIO 3591	General Microbiology Lecture	3
BIO 3595	General Microbiology	4
BIO 3661	Environment and Human Health	3
BIO 4105	Medical Microbiology	4
BIO 4205	Cell Biology	4
BIO 4505	Molecular Biology	4
CHM 3311	Inorganic Chem II	3
CHM 3417	Biophysical Chemistry	3
CHM 3511	Instrumental Analysis	3
CHM 3514	Bioanalytical Chemistry	3
CHM 4222	Organic Struct Analysis	3
CHM 4229	Organic Reactions & Synthesis	3
CHM 4292	Advanced Organic Chemistry	3
CHM 4517	Environmental Chemistry	3
CHM 4610	Principles of Biochemistry	3
CHM 4611	Survey of Biochemistry	3
CHM 4621	Biochemistry I: Structure	3
CHM 4622	Biochemistry II:Metabolism	3
CHM 4623	Biochemistry III	3
PHY 2402	Physics II Elec & Magnet	3
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2416	Modern Physics	3
PHY 3310	Electronics	3
PHY 4000	Elec & Magnetism I	3
EGR 2020	Physiology for Engineers	3
AST 2123	Astroynamics:Kepler & Beyond	3
AST 3142	Intro to Astrophysics	3
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1052	Environmental Studies	3
GEV 2310	Environmental Chemistry	4
GEV 3302	Agricultural Science	3
GEV 3303	Soil Science	3
GEV 4322	Ocean Environments	4

Elective - Ethics (for Chemical Engineering)

Credits: 3

Item #	Title	Credits
ETH 2050	The Good Life:Eth & Cont Prob	3
NS 4200	Leadership and Ethics	3
PHI 2115	Ethics for Health Care Prof	3
PHI 2121	Environmental Ethics	3
PHI 2130	Business Ethics	3
PHI 2155	Engineering Ethics	3
PHI 2160	The Ethics of War	3
PHI 2170	Mass Media Ethics	3
PHI 2180	Computer Ethics	3
PHI 2550	Technology & Society	3
PHI 4125	Bioethics	3
PJ 2900	Ethical Issues in P & J	3
PJ 5400	Ethics, Justice and the Family	3
THL 4100	THM Catholic Ethics	3
THL 4200	Ethics of Life and Death	3
THL 4330	Christian Environmental Ethics	3
VSB 2007	Corp Respon & Regulation	3

Elective - THL (2000 or above)

Credits: 3

Theology (THL) course or course with CTHL attribute, at the 2000 level or above.

Elective - THL/PHI

Credits: 3

One 3-credit course from:

- Theology (THL) course or course with CTHL attribute, at the 2000 level or above
- Philosophy (PHI)
- Peace and Justice (PJ)
- ETH 2050 - The Good Life: Ethics & Cont Prob
- EGR 2930 - Catholic Social Teaching for EGRs
- Any Humanities or Social Science course with a PJ attribute

Elective - Free

Credits: 3

Any Villanova 3 credit course or Villanova courses that when combined add up to 3 credits (for example, three 1-credit Honors courses)

Civil Engineering, B.S.

Civil and Environmental Engineering Chair: Dr.

Eric Musselman

Office: 139 Tolentine Hall

Telephone: 610-519-4960

About

- Bachelor of Science in Civil Engineering
- Bachelor of Science in Civil Engineering, Honors

Civil engineers are involved in the planning, design, construction, and operation of facilities essential to modern life such as dams, bridges, highways, buildings, airports, harbors, river and shore protection, drinking water supplies, wastewater treatment, solid and hazardous waste management and disposal, offshore structures, and space platforms. Because these projects are often of a magnitude that affects large segments of the population, the responsibility of the civil engineer extends beyond mere physical facilities into the social, political, and economic welfare of those they serve.

Mission Statement

Villanova University's Department of Civil and Environmental Engineering provides our students with a high quality, contemporary, broad-based, personalized civil engineering education within the Augustinian, humanistic context. We prepare our students for professional practice, graduate study, and life-long learning.

Program Educational Objectives

Three to five years after graduation, we expect our graduates to be able to:

- Use their broad-based civil engineering backgrounds to perform as engineers in construction, environmental, geotechnical, structural, transportation, water resources, or general civil engineering.
- Succeed in graduate school in the disciplines listed above or closely related disciplines, as well as other areas such as business and law.
- Continue the process of life-long learning as required for long-term personal and professional growth.
- Serve society by being ethical members of their professional community.

- Use technical and interpersonal skills to help themselves and their employers succeed.
- Relate their personal and professional lives to the Augustinian, humanistic tradition.
- The broad-based curriculum provides flexibility and meets student needs through a selection of electives.

Type: Bachelor of Science

Freshman Year

First Semester

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
MAT 1500	Calculus I	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Second Semester

Item #	Title	Credits
ACS 1001	Moderns	3
CEE 1601	Civil Engineering Fundamentals	4
CHM 1152	General Chemistry II	4
MAT 1505	Calculus II	4
PHY 2400	Physics I Mechanics	3
EGR 1002	Career Compass First Yr B	0.5

Sophomore Year

First Semester

Item #	Title	Credits
CEE 2105	Mechanics I:Fund. Behavior	4
CEE 2211	Transportation Engineering	3
CEE 2701	CE Project Development	3
MAT 2500	Calculus III	4
	Elective	3
EGR 2003	Career Compass Second Yr A	0.5

Second Semester

Item #	Title	Credits
CEE 2103	Mechanics of Solids	3
CEE 2301	Environmental Eng. Science	4
CEE 2805	Geology for Engineers	3
MAT 2705	Diff Equation with Linear Alg	4
	Elective	3
EGR 2004	Career Compass Second Yr B	0.5

Junior Year

First Semester

Item #	Title	Credits
CEE 3107	Mechanics III: Fluid Behavior	4
CEE 3301	Unit Operations/Pro in Env Eng	4
CEE 3802	Soil Mechanics	4
	Elective	3
	Elective	3
EGR 3005	Career Compass Third Yr A	0.5

Second Semester

Item #	Title	Credits
CEE 3401	Structural Analysis	3
CEE 3507	Hydraulic Egr & Hydrology	4
CEE 3903	CE Materials	3
	Elective	3
	Elective	3
EGR 3006	Career Compass Third Yr B	0.5

Senior Year

First Semester

Item #	Title	Credits
CEE 4601	CEE Capstone Design 1	3
	Elective	3
	Elective	3
	Elective	3
	Elective	3

Second Semester

Item #	Title	Credits
CEE 4606	CEE Capstone Design 2	3
	Elective	3
	Elective	3
	Elective	3
	Elective	3

Category Descriptions

[Elective](#)

Credits: 3

[Electives for CE Majors](#)

Computer Engineering, B.S.

Electrical and Computer Engineering Chair: Dr. Bijan Mobasseri
Office: 411 Tolentine Hall
Telephone: 610-519-4970

About

- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Engineering, Honors

Computer Engineering is a discipline that bridges the fields of Computer Science and Electrical Engineering. It may be simplistic to state that computer engineers “build computers,” but it is not far from the truth. Computer engineers are unique in having the balanced skills to bring the hardware and software work together. Building computers alone does not begin to describe the scope of computer engineering. Computers are now embedded in smart phones, drones, wireless networks, internet devices, autonomous vehicles and are an integral part of AI, cybersecurity and machine learning. The Villanova computer engineering program is a balanced program bringing together such fundamentals as computer architecture, networks, operating systems, digital electronics, embedded systems as well as electives in biomedical engineering, machine learning and cybersecurity.

Mission Statement

The mission of Villanova University's Department of Electrical and Computer Engineering is to empower students to become leaders in their chosen professions and to prepare them for a life of service to others.

Program Educational Objectives

The Program Educational Objectives of the Computer Engineering program are to produce graduates who:

- Use their knowledge, analytical, and design skills to generate and validate sustainable and technically appropriate solutions to practical real-world problems in their chosen profession;

- Communicate and work effectively with others having different roles or responsibilities in their professional work environments;
- Continue to develop their professional knowledge and skills throughout their career;
- Succeed in their careers by practicing their chosen discipline with professionalism, care, and integrity.

The curriculum is structured to provide a thorough foundation in the fundamentals of electrical and computer engineering. Analysis and design are emphasized throughout the curriculum, using a project-based structure to teach students how to work on their own and in teams and to synthesize engineering solutions by utilizing their analytical skills and knowledge. Heavy emphasis is placed on developing oral and written communication skills. The curriculum also provides opportunities for an increased awareness of the broader implications of technology and of the social responsibilities of the profession. The design process is emphasized throughout all four years, and design projects are included in the laboratory courses. The sophomore and junior years include core courses that provide a foundation for the senior year, which includes technical and professional electives and an in-depth design project. The computer engineering curriculum not only provides a solid foundation in the core fundamentals but offers the flexibility for students to pursue other professional interests. The curriculum includes professional electives, free elective, science/math elective, computer engineering track electives, and humanities electives to serve this purpose. Students have used this flexibility to pursue minors in business, mechatronics, computer science, cognitive science, physics, astronomy, mathematics, foreign languages, history, and theology, to name a few; although, applying these electives towards a minor/concentration is not a requirement. In addition, students have used the flexibility of the curriculum to prepare for post-graduate study in medicine, law, business, education, and engineering.

The computer engineering program offers technical elective courses in the following specialized areas: computer architecture, digital signal processing, computer networks,

multimedia systems, microcontrollers, digital integrated electronics and microfabrication, embedded systems, and computer security.

Students in the computer engineering program acquire experience with computers and their engineering applications, beginning with the engineering programming and applications course in the freshman year and continuing throughout the curriculum in the sophomore-level fundamentals courses, junior-level core courses, and senior-level technical electives. In addition to the activities and services offered by the university and the College of Engineering, the Electrical and Computer Engineering (ECE) Department provides the following additional services and activities for its students: an academic advisor, to assist students with the implementations of their academic plans; the ECE Walk-in Tutoring Office, to assist ECE students with their upper-level courses; and college-level and departmental student organizations.

Type: Bachelor of Science

Freshman Year

First Semester

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
MAT 1500	Calculus I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Second Semester

Item #	Title	Credits
ACS 1001	Moderns	3
MAT 1505	Calculus II	4
PHY 2400	Physics I Mechanics	3
ECE 1205	ECE Freshman Projects	3
ECE 1260	EGR Prog and Applic	3
ECE 1261	EGR Prog and Applic Lab	1
EGR 1002	Career Compass First Yr B	0.5

Sophomore Year

First Semester

Item #	Title	Credits
ECE 2170	Fundamentals of CPE	3
ECE 2171	Fundamentals of CPE Lab	1
ECE 2160	C++ Algorithms & Data Struct	3
ECE 2161	C++ Algorithms&Data Struct Lab	1
MAT 2705	Diff Equation with Linear Alg	4
PHY 2402	Physics II Elec & Magnet	3
CSC 2014	Java Bootcamp	1
EGR 2003	Career Compass Second Yr A	0.5

Second Semester

Item #	Title	Credits
CSC 1300	Discrete Structures	3
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
ECE 2172	Digital Systems	3
ECE 2173	Digital Systems Lab	1
ECE 2800	Prof. Dev. Seminar	2
	Elective - Math/Science	3
EGR 2004	Career Compass Second Yr B	0.5

Junior Year

First Semester

Item #	Title	Credits
ECE 2292	Engineering Probability&Stats	3
ECE 3600	Operating Systems	3
ECE 3170	Computer Architecture	3
ECE 3171	Computer Architecture Lab	1
ECE 3450	Digital Electronics	3
	Elective - THL (2000 or above)	3
EGR 3005	Career Compass Third Yr A	0.5

Second Semester

Item #	Title	Credits
ECE 3180	Computer Networks	3
ECE 3242	Fundamentals of Signal Process	3
ECE 3476	Computer and Network Security	3
ECE 3971	Design Seminar - CPE	2
CSC 1700	Analysis of Algorithms	3
	Elective - Ethics	3
EGR 3006	Career Compass Third Yr B	0.5

Senior Year

First Semester

Item #	Title	Credits
ECE 4971	Design Project - CPE	3
	Elective - Technical	3
	Elective (Computer Engineering)	3
	Elective (Computer Engineering)	3
	Elective - Humanities from THL, PHI, ETH, PJ, EGR 2001	3

Second Semester

Item #	Title	Credits
ECE 4973	Design Project Report - CPE	1
	Elective - Technical	3
	Elective (Computer Engineering)	3
	Elective - Free	3
	Elective (Computer Engineering)	3

Category Descriptions

Elective - Math/Science

Credits: 3

Choose one of the following:

- AST 1072, 1074, 2120, 2121, 2122
- BIO 1055 through 8999
- CHM 1152 through 8999
- GEV 1050, 1051, 1750
- MAT 2500, 2600, 2930, 3000 through 8999
- MET 1221, 1222, 2001
- NS 3100

- PHY 2414, 2416, 4000-8999

Elective - THL (2000 or above)

Credits: 3

Theology (THL) course or course with CTHL attribute, at the 2000 level or above.

Elective - Ethics

Credits: 3

Choose one of the following:

Item #	Title	Credits
CRM 1001	Introduction to Criminology	3
ETH 2050	The Good Life:Eth & Cont Prob	3
PHI 2115	Ethics for Health Care Prof	3
PHI 2121	Environmental Ethics	3
PHI 2130	Business Ethics	3
PHI 2155	Engineering Ethics	3
PHI 2180	Computer Ethics	3
PHI 2550	Technology & Society	3
PHI 4125	Bioethics	3
PJ 5400	Ethics, Justice and the Family	3
NS 4200	Leadership and Ethics	3
SBI 2006	Corporate Responsibility	3
VSB 2007	Corp Respon & Regulation	3

Elective - Technical

Credits: 3

The three Computer Engineering Technical Electives can be taken from the list of approved classes below. A student can take all three electives from the ECE department or two ECE classes and one CSC class. If a student wishes to take a second CSC class as one of their three technical electives they must get permission from the Chair of the Electrical and Computer Engineering Department.

- Seniors can substitute ECE Graduate Level Courses ($ECE \geq 7000$) by completing the Permission to Register for Engineering Graduate Course Form.
 - This form is available on Noli link. <https://nolijlink.villanova.edu/Advisor/thin>

Item #	Title	Credits
ECE 5250	Biomedical Instrumentation	3
ECE 5251	Biomedical Signal Processing	3
ECE 5170	Intro to Post-Quantum Computin	3
ECE 5172	Fund of Digitl Hardware Design	3
ECE 5400	Applied Machine Learning	3
ECE 5450	Microcontrollers & Applic	3
ECE 5451	Adv Microcontroller App Design	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4480	Principles of Database Systems	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
CSC 4630	Software Dev and Systems	3
CSC 4700	Software Engineering	3
CSC 4730	Human Computer Interaction	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3

Elective (Computer Engineering)

Credits: 3

Professional Electives are pre-approved by the student's Academic Advisor, for the pursuit of minors, concentrations, and other academic plans.

Elective - Humanities from THL, PHI, ETH, PJ, EGR 2001

Credits: 3

One 3-credit course from:

- Theology (THL) course or course with CTHL attribute, at the 2000 level or above
- Philosophy (PHI)
- Peace and Justice (PJ)
- ETH 2050 - The Good Life: Ethics & Cont Prob
- EGR 2930 - Catholic Social Teaching for EGRs
- Any Humanities or Social Science course with a PJ attribute.

Elective - Free

Credits: 3

Any Villanova 3 credit course or Villanova courses that when combined add up to 3 credits (for example, three 1-credit Honors courses)

Electrical Engineering, B.S.

Electrical and Computer Engineering Chair: Dr. Bijan Mobasseri
Office: 411 Tolentine Hall
Telephone: 610-519-4970

About

- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering, Honors

Electrical Engineering is traditionally associated with the generation and distribution of power. While this is still true today, the field has branched out into numerous areas that may not be easily identified with electrical engineering, such as radio frequency (RF) systems, telecommunications, remote sensing, signal processing, digital circuits, instrumentation, audio, video and optoelectronics, satellites, GPS, radar and navigation, biomedical engineering and devices as well as renewable energy sources. The Villanova electrical engineering curriculum touches upon every one of these technology areas.

Mission Statement

The mission of Villanova University's Department of Electrical and Computer Engineering is to empower students to become leaders in their chosen professions and to prepare them for a life of service to others.

Program Educational Objectives

The Program Educational Objectives of the Computer Engineering program are to produce graduates who:

- Use their knowledge, analytical, and design skills to generate and validate sustainable and technically appropriate solutions to practical real world problems;
- Communicate and work effectively with others having different roles or responsibilities in their professional work environments;
- Continue to develop their professional knowledge and skills throughout their career;
- Succeed in the careers by practicing their chosen discipline with professionalism, care, and integrity.

The curriculum is structured to provide a thorough foundation in the fundamentals of electrical and computer engineering. Analysis and design are emphasized throughout the curriculum, using a project-based structure to teach students how to work on their own and in teams and to synthesize engineering solutions by utilizing their analytical skills and knowledge. Heavy emphasis is placed on developing oral and written communication skills. The curriculum also provides opportunities for an increased awareness of the broader implications of technology and of the social responsibilities of the profession. The design process is emphasized throughout all four years, and design projects are included in the laboratory courses. The sophomore and junior years include core courses that provide a foundation for the senior year, which includes technical and professional electives and an in-depth design project.

The electrical engineering program offers technical elective courses in the following specialized areas: microwave networks and high-frequency circuit design, digital signal processing, linear integrated electronics, communication electronics, optoelectronics, digital integrated electronics and microfabrication, embedded systems, control systems, electric machines and power systems, electronic measurement and conversion, and renewable energy systems.

Students in the electrical engineering program acquire experience with computers and their engineering applications, beginning with the engineering programming and applications course in the freshman year and continuing throughout the curriculum in the sophomore-level fundamentals courses, junior-level core courses, and senior-level technical electives.

In addition to the activities and services offered by the university and the College of Engineering, the Electrical and Computer Engineering (ECE) Department provides the following additional services and activities for its students: an academic advisor, to assist students with the implementations of their academic plans; the ECE Walk-in Tutoring Office, to assist ECE students with their upper-level courses; and college-level and departmental student organizations.

Type: Bachelor of Science

Freshman Year

First Semester

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
MAT 1500	Calculus I	4
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Second Semester

Item #	Title	Credits
ACS 1001	Moderns	3
MAT 1505	Calculus II	4
PHY 2400	Physics I Mechanics	3
ECE 1205	ECE Freshman Projects	3
ECE 1260	EGR Prog and Applic	3
ECE 1261	EGR Prog and Applic Lab	1
EGR 1002	Career Compass First Yr B	0.5

Sophomore Year

First Semester

Item #	Title	Credits
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
ECE 2800	Prof. Dev. Seminar	2
MAT 2705	Diff Equation with Linear Alg	4
PHY 2402	Physics II Elec & Magnet	3
PHY 2403	Phy Lab for Engineering	1
	Elective - Humanities from THL, PHI, ETH, PJ, EGR 2001	3
EGR 2003	Career Compass Second Yr A	0.5

Second Semester

Item #	Title	Credits
ECE 2292	Engineering Probability&Stats	3
ECE 2430	Embedded Systems	3
ECE 2431	Embedded Systems Lab	1
ECE 2530	Analog Electronics I	3
ECE 2531	Analog Electronics I Lab	1
MAT 2500	Calculus III	4
EGR 2004	Career Compass Second Yr B	0.5

Junior Year

First Semester

Item #	Title	Credits
ECE 2172	Digital Systems	3
ECE 2173	Digital Systems Lab	1
ECE 3020	Intro to Electric Energy Systems	3
ECE 3242	Fundamentals of Signal Process	3
ECE 3530	Analog Electronics II	3
ECE 3531	Analog Electronics II Lab	1
	Elective - Professional Electives	3
EGR 3005	Career Compass Third Yr A	0.5

Second Semester

Item #	Title	Credits
ECE 3000	Engr Systems Models & Control	3
ECE 3001	Systems Model&Control Lab	1
ECE 3030	Engineering Electromagnetics	3
ECE 3031	Engineering Electromagnetics Lab	1
ECE 3040	Electrical Communications	3
ECE 3970	Design Seminar - EE	2
	Elective - Free	3
EGR 3006	Career Compass Third Yr B	0.5

Senior Year

First Semester

Item #	Title	Credits
ECE 4970	Design Project - EE	3
	Elective - EE Track	3
	Elective - Science, Technical or Math	3
	Elective - Professional Electives	3
	Elective - Ethics	3

Second Semester

Item #	Title	Credits
ECE 4972	Design Project Report - EE	1
	Elective - EE Track	3
	Elective - Professional Electives	3
	Elective - THL (2000 or above)	3
	Elective - ECE 5000 or above	3

Category Descriptions

Elective - Humanities from THL, PHI, ETH, PJ, EGR 2001

Credits: 3

One 3-credit course from:

- Theology (THL) course or course with CTHL attribute, at the 2000 level or above
- Philosophy (PHI)
- Peace and Justice (PJ)
- ETH 2050 - The Good Life: Ethics & Cont Prob
- EGR 2930 - Catholic Social Teaching for EGRs
- Any Humanities or Social Science course with a PJ attribute.

Elective - Professional Electives

Credits: 3

Professional Electives, pre-approved by the student's Academic Advisor, for the pursuit of minors, concentrations, and other academic plans.

Elective - Free

Credits: 3

Any Villanova 3 credit course or Villanova courses that when combined add up to 3 credits (for example, three 1-credit Honors courses)

Elective - EE Track

Credits: 3

Track Electives chosen from one of following tracks: Biomedical Engineering, Electric Energy Systems, Embedded Systems and Control, High Frequency Electronics, Signal Processing. See Approved Lists of Courses of EE Tracks.

Biomedical Engineering

Foundation Course: ECE 3240

Faculty Advisor: Dr. Meltem Izzetoglu

Item #	Title	Credits
ECE 5250	Biomedical Instrumentation	3
ECE 5251	Biomedical Signal Processing	3
ECE 5252	Medical Imaging	3
ECE 5770	Organs-on-a-Chip	3

Electric Energy Systems

Foundation Course: ECE 3020

Faculty Advisor: Dr. Pritpal Singh

Item #	Title	Credits
ECE 5815	Power System Analysis	3
ECE 5850	Renewable Energy Systems	3
ECE 7000	Renewable Energy Policy	3

Embedded Systems and Control

Foundation Courses: ECE 3000 & ECE 3001

Faculty Advisor: Dr. Peyton Jones

Item #	Title	Credits
ECE 5390	Control System Design	4
ECE 5450	Microcontrollers & Applic	3

High Frequency Electronics

Foundation Courses: ECE 3030 & ECE 3530

Faculty Advisor: Dr. Robert Caverly

Item #	Title	Credits
ECE 5690	Microwave Networks	4
ECE 5730	RF Circuit Design	3

Signal Processing

Foundation Course: ECE 3240

Faculty Advisor: Dr. Mojtaba Vaezi

Item #	Title	Credits
ECE 5040	Deep Lrning Methd Wireless Com	3
ECE 5251	Biomedical Signal Processing	3

Elective - Science, Technical or Math

Credits: 3

Elective - Ethics

Credits: 3

Choose one of the following:

Item #	Title	Credits
CRM 1001	Introduction to Criminology	3
ETH 2050	The Good Life:Eth & Cont Prob	3
PHI 2115	Ethics for Health Care Prof	3
PHI 2121	Environmental Ethics	3
PHI 2130	Business Ethics	3
PHI 2155	Engineering Ethics	3
PHI 2180	Computer Ethics	3
PHI 2550	Technology & Society	3
PHI 4125	Bioethics	3
PJ 5400	Ethics, Justice and the Family	3
NS 4200	Leadership and Ethics	3
SBI 2006	Corporate Responsibility	3
VSB 2007	Corp Respon & Regulation	3

Elective - THL (2000 or above)

Credits: 3

Theology (THL) course or course with CTHL attribute, at the 2000 level or above.

Elective - ECE 5000 or above

Credits: 3

Any ECE course at the 5000 level or above.

Mechanical Engineering, B.S.

Mechanical Engineering Chair: Dr. Sridhar Santhanam

Office: 131 Tolentine Hall

Telephone: 610-519-4980

About

- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Mechanical Engineering, Honors

Mechanical Engineers apply the principles of solid mechanics, thermal fluid sciences, dynamics and control, material science and manufacturing science to the analysis and design of systems of all types. In applying this technical knowledge to fields such as energy systems, nanomanufacturing and robotics, the mechanical engineer must consider economic constraints and the social and ecological implications of solutions imposed. The mechanical engineering curriculum offers the student an opportunity to pursue educational objectives within the framework of this broad theme.

Mission Statement

We are committed to providing a rigorous educational experience in the discipline of mechanical engineering, graduating well-rounded leaders and life-long learners, who aspire to achieving professional excellence. We are *equally* committed to the discovery, dissemination, advancement and application of cutting-edge research. Inspired by the Augustinian tradition, we value an inclusive and diverse community in

which we prepare our students to demonstrate the highest ethical conduct and contribute to the well-being of humankind.

Program Educational Objectives

Our graduates will:

- Be valued members of their organizations because of their skills and abilities as mechanical engineers;
- Solve complex technical problems and/or design systems that are useful to society by applying the fundamental scientific principles that underpin the mechanical engineering profession; Advance in their chosen career paths by utilizing technical, leadership, communication, and interpersonal skills, with the highest ethical standards;
- Apply their knowledge and skills to successfully practice professions of their choice; Demonstrate professional and personal growth by pursuing or successfully completing an advanced degree, professional development courses, and/or engineering certification;
- Be actively engaged in service to their professions and communities, consistent with the tradition of St. Augustine.

The first year of the mechanical engineering program is devoted to laying a foundation of mathematics, physical science, and the general engineering sciences. The final three years are devoted primarily to mechanical engineering topics. The required courses span the field of mechanical engineering, and electives provide the opportunity to pursue specific areas of mechanical engineering in greater depth through technical concentrations which include Mechanics and Materials, Thermal/Fluid Systems, and Dynamic Systems. A student opting for a technical concentration will first take an elective in the junior year which corresponds to their selected technical concentration. Each student will then customize the program of study by choosing four courses (12 credit hours) of technical electives in the senior year. To complete the technical concentration, two of these mechanical engineering technical electives must be selected from the designated set of concentration classes. In addition, the student must take the senior laboratory course from their technical concentration. A student who completes a technical concentration will have the

concentration indicated on the final transcript. Students who do not opt for a concentration will still take a junior year restricted elective and a senior lab; the four senior year mechanical engineering electives can be chosen freely from all offerings.

The engineering design process is emphasized throughout the program and culminates with a senior year project that requires a synthesis of basic principles learned in previous courses.

Throughout the curriculum the technical courses are balanced by a careful selection of humanities courses to ensure that the effects of technology on society are given due consideration in design.

A faculty advisor is assigned to each student at the beginning of their first-year to provide academic and career guidance for the remainder of the student's years in the program until graduation. The advisor should be consulted regarding such topics as electives, minors or concentrations, graduate studies, undergraduate research, and completion of degree requirements for graduation.

Type: Bachelor of Science

Freshman Year

First Semester

Item #	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
MAT 1500	Calculus I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Second Semester

Item #	Title	Credits
ACS 1001	Moderns	3
MAT 1505	Calculus II	4
PHY 2400	Physics I Mechanics	3
ME 1201	Intro to Comp Aid Design&Draft	1
ME 1205	Computer Program for Mech Engr	3
	Elective	3
EGR 1002	Career Compass First Yr B	0.5

Sophomore Year

First Semester

Item #	Title	Credits
MAT 2500	Calculus III	4
ME 2100	Statics	3
ME 2505	M.E. Analysis & Design	4
PHY 2402	Physics II Elec & Magnet	3
PHY 2403	Phy Lab for Engineering	1
EGR 2003	Career Compass Second Yr A	0.5

Second Semester

Item #	Title	Credits
MAT 2705	Diff Equation with Linear Alg	4
ME 2900	ME Laboratory I	1
ME 3100	Thermodynamics	3
ME 2103	Mechanics of Materials	3
ME 2101	Dynamic Systems I	3
COM 1102	COM Foundations for Engrs	3
EGR 2004	Career Compass Second Yr B	0.5

Junior Year

First Semester

Item #	Title	Credits
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
ME 3102	Dynamic Systems II	3
ME 3402	Solid Mechanics & Design I	3
ME 3600	Fluid Mechanics	3
ME 3950	Heat Transfer I	3
EGR 3005	Career Compass Third Yr A	0.5

Second Semester

Item #	Title	Credits
ME 3300	Materials Science I	3
ME 3333	Manufacturing Engineering	3
ME 3900	ME Laboratory II	1
	Elective - Restricted ME	3
	Elective	3
	Elective	3
EGR 3006	Career Compass Third Yr B	0.5

Senior Year

First Semester

Item #	Title	Credits
ME 5005	Capstone Design I	2
	Elective - ME/Concentration	3
	Elective - Career/ME	3
	Elective - Restricted ME Lab	1
	Elective	3
	Elective	3

Second Semester

Item #	Title	Credits
ME 5006	Capstone Design II	2
	Elective - ME/Concentration	3
	Elective - Career/ME	3
	Elective	3
	Elective	3

Category Descriptions

Elective

Credits: 3

Select one course from each of the elective groups below.

One 3-credit course from:

- Theology (THL) course or course with CTHL attribute, at the 2000 level or above
- Philosophy (PHI)
- Peace and Justice (PJ)
- ETH 2050 - The Good Life: Ethics & Cont Prob
- EGR 2930 - Catholic Social Teaching for EGRs
- Any Humanities or Social Science course with a PJ attribute

One 3-credit course

One Theology (THL) course or course with CTHL attribute, at the 2000 level or above

1 Humanities and Social Science Elective

Select one humanities or social science elective from the list below:

Humanities:

- Arab & Islamic Studies
- Art History
- Classical Studies
- Communications
- Ethics
- English - ENG 1050, 1975, 2100-9999
- Global Interdisciplinary Studies
- History
- Honors Program (eligible students only)
- Humanities
- Modern Languages (except speaking courses in native language)
- Philosophy
- Theatre
- Theology (2000 and above or course section with core theology attribute)

Social Sciences:

- Criminology
- Economics
- Geography and the Environment - GEV 1002, 1500-3900, 4050-5300
- Humanities: HUM designated PSC
- Peace and Justice
- Political Science
- Public Administration
- Psychology
- Sociology
- Gender and Women's Studies

1 Science Elective

- BIO >1200
- CHM >1151
- AST >2000
- PHY >2415

1 Ethics Elective

Any (3-credit) ETH > 2000 course from ethics department, or any course with ethics attribute, or an ethics course from the students minor (including NS 4200 & VSB 2007), or a course from other departments with a focus on ethical issues such as EGR 2001 and those with the word ethics in the title.

1 Statistics Elective

Item #	Title	Credits
STAT 4310	Stat Methods	3
STAT 5700	Math Statistics I	3

1 Free Elective

Any 3- or more credit course or any combination of 1- and 2-credit courses (adding up to 3 credits) from Villanova University.

Elective - Restricted ME

Credits: 3

If a concentration is chosen, students must take the appropriate courses in their concentration, including the below:

- Restricted ME Elective
- Restricted ME Lab
- 6 credits from the approved list of courses for the concentration

Item #	Title	Credits
ME 3103	Dynamic Systems III	3
ME 3403	Solid Mechanics & Design II	3
ME 4850	Thermal-Fluid System Design	3

Elective - ME/Concentration

Credits: 3

- If obtaining a concentration, both courses must come from that concentration. [View all concentration electives below.](#)
- Any ME 5000 through 8999 course for others.

Note: Graduate courses are subject to additional requirements.

Solid Mechanics Concentration Electives

Item #	Title	Credits
ME 5000	Selected Topics in ME	3
ME 5001	ME Undergraduate Research I	3
ME 5201	Intro to Finite Elements	3
ME 5206	Aircraft Design	3
ME 5500	Biomechanics	3
ME 7000	Advanced Engineering Analysis	3
ME 7002	Continuum Mechanics	3
ME 7030	Num Methods for Eng Simulation	3
ME 7040	Intro to Fin Element Analysis	3
ME 7250	Nano/Microscale Mater Behavior	3
ME 7260	Mechanic Behavior of Materials	3
ME 7270	Polymer Engineering	3
ME 7501	Reinforced Comp Materials	3
ME 7502	Fiber Composite Structures	3
ME 7550	Biomechanics of Hard Tissues	3
ME 7560	Biomechanics of Soft Tissues	3
ME 8040	Adv Fin Element Analysis	3
ME 8200	Elasticity & Stress Analysis	3
ME 8350	Applied Fracture Mechanics	3

Dynamic Systems Concentration Electives

Item #	Title	Credits
ME 5000	Selected Topics in ME	3
ME 5001	ME Undergraduate Research I	3
ME 5201	Intro to Finite Elements	3
ME 5205	Flight Dynamics	3
ME 5206	Aircraft Design	3
ME 5207	Orbital Mechanics	3
ME 5411	Mechatronics	3
ME 5421	Introduction to Robotics	3
ME 5441	Advanced System Modeling	3
ME 7000	Advanced Engineering Analysis	3
ME 7030	Num Methods for Eng Simulation	3
ME 7040	Intro to Fin Element Analysis	3
ME 7060	Multiphysics Sys Modelng & Sim	3
ME 7205	Advanced Dynamics	3
ME 7206	Dynamics of Rotating Machinery	3
ME 8000	Adv. Engineering Analysis II	3
ME 8204	Robotics:Analysis & Control	3
ME 8207	Vibration Analysis	3
EGR 8308	Feedforward Control	3
EGR 8310	Optimization for Engineers	3
EGR 8311	Machine Learning for Engineers	3
EGR 8301	Control Systems Engineering	3
EGR 8304	Nonlinear Control	3
EGR 8305	System Identification	3
EGR 8306	Nonlinear Dynamics	3

Thermal /Fluids Concentration Electives

Item #	Title	Credits
ME 5000	Selected Topics in ME	3
ME 5001	ME Undergraduate Research I	3
ME 5101	Elements of Aerodynamics	3
ME 5102	Compressible Fluid Flow	3
ME 5130	Intro to Sustainable Energy	3
ME 5140	Design of Gravity Water Ntwrks	3
ME 5201	Intro to Finite Elements	3
ME 5206	Aircraft Design	3
ME 5441	Advanced System Modeling	3
ME 7000	Advanced Engineering Analysis	3
ME 7002	Continuum Mechanics	3
ME 7030	Num Methods for Eng Simulation	3
ME 7038	Intro-Computational Fluid Mech	3
ME 7040	Intro to Fin Element Analysis	3
ME 7103	Advanced Engrg Thermodynamics	3
ME 7600	Thermal Mgmnt of Electronics	3
ME 7700	Tran Phen in Bio Systems	3
ME 8100	Fund of Cond & Rad Heat Trans	3
ME 8103	Advanced Fluid Mechanics	3
ME 8120	Convection Heat Transfer	3
ME 8150	Multiphase Flow & Heat Trans.	3
ME 8250	Microscale Heat Transfer	3
EGR 7800	Solar Therm. Energy Conversion	3

- **Requires approval from the chairman and the advisor:** ME 5000, ME 5001
- **All graduate courses are subject to additional requirements:** ME 7000, ME 7002, ME 7030, ME 7038, ME 7040, ME 7060, ME 7103, ME 7205, ME 7206, ME 7250, ME 7260, ME 7501, ME 7502, ME 7550, ME 7560, ME 7600, ME 7700, ME 8000, ME 8040, ME 8103, ME 8120, ME 8150, ME 8200, ME 8250, ME 8204, ME 8207, EGR 7800, EGR 8308, EGR 8310, EGR 8311, EGR 8301, EGR 8304, EGR 8305, EGR 8306
- **Not offered regularly:** ME 8040

Elective - Career/ME

Credits: 3

One course from:

- ME 5000 through 8999
- Approved elective from other Engineering Department: CHE 5000-8999, CEE 4000-8999, ECE 5000-8999, EGR 7000-8999
- Approved elective from hard sciences: AST 4000-8999, BIO 4000-8999, CHM 4000-8999, CSC 4000-8999, ENV 4000-8999, GEV 4000-8999, MAT 4000-8999, PHY 4000-8999
- Courses from student's completed minor or second major.

Note: Graduate courses are subject to additional requirements.

Elective - Restricted ME Lab

Credits: 1

If a concentration is chosen, students must take the appropriate courses in their concentration, including the below:

- Restricted ME Elective
- Restricted ME Lab
- 6 credits from the approved list of courses for the concentration

Item #	Title	Credits
ME 4001	Dynamic Systems Lab	1
ME 4002	Solid Mechanics Lab	1
ME 4003	Thermal Fluids Lab	1

Aerospace Engineering Minor

Minor Director: Ani Ural, Ph.D.

Office Location: Tolentine Hall Rm 113E

Telephone: (610) 519-7735

Email: ani.ural@villanova.edu

About:

Offered through the Department of Mechanical Engineering, the Aerospace Engineering minor is open to all engineering students who satisfy the prerequisites for the list of required courses.

Requirements:

The minor requires the successful completion of 10 classes (30 credits), seven (7) of which are required, two (2) of which are elective courses and one (1) technical elective course from the major.

Type: Minor

Required Courses:

Item #	Title	Credits
ME 2100	Statics	3
ME 2101	Dynamic Systems I	3
ME 2103	Mechanics of Materials	3
ME 3100	Thermodynamics	3
ME 3600	Fluid Mechanics	3
ME 5101	Elements of Aerodynamics	3
ME 5206	Aircraft Design	3

Elective Courses:

Item #	Title	Credits
ME 5000	Selected Topics in ME	3
ME 5102	Compressible Fluid Flow	3
	ME 5201 or ME 7040	3
ME 5205	Flight Dynamics	3
ME 5207	Orbital Mechanics	3
ME 7038	Intro-Computational Fluid Mech	3
ME 7501	Reinforced Comp Materials	3
ME 7502	Fiber Composite Structures	3

One Technical Elective from the Major:

ME students pursuing the minor in Aerospace Engineering are required to take an additional ME/Concentration elective for their BSME degree for a total of 5 technical electives.

Non-ME students pursuing the minor in Aerospace Engineering can satisfy this requirement by a technical elective from their respective major.

Category Descriptions

ME 5201 or ME 7040

Credits: 3

Choose either ME 5201 **OR** ME 7040.

Item #	Title	Credits
ME 5201	Intro to Finite Elements	3
ME 7040	Intro to Fin Element Analysis	3

Biochemical Engineering Minor

Minor Director: William J. Kelly, Ph.D.

Office Location: White Hall Rm 318

Telephone: (610) 519-4947

Email: william.j.kelly@villanova.edu

About:

A branch of chemical engineering, Biochemical Engineering serves primarily the biopharmaceutical industry, which is responsible for the manufacture of antibiotics, vaccines, antibodies and most recently, cell therapy products. Villanova's minor in Biochemical Engineering will prepare graduates to make an immediate impact designing and optimizing biopharmaceutical processes and products.

With an average annual salary of \$99,040, strong job growth rate, and Villanova's proximity to more than 1,200 pharmaceutical companies in the Philadelphia region, a minor in this rapidly evolving field is an excellent choice!

This minor is open to Engineering students

only. Students may pursue either the Biochemical minor or the Biomedical minor, but not both.

Type: Minor

Requirements:

7 courses total

The 6 engineering and science courses selected from the list below must include at least 2 courses with an associated laboratory. The seventh course is an Ethics requirement.

No AP credit may fulfill any requirements for the minor. A minimum of 5 courses must be taken at Villanova for completion of the minor.

Elective Courses: Biochemical Engineering (3)

CHE 5332 - Special Topics: Certain topics can be counted with consultation of the Minor Director.

CHE 4831 - Senior Project Studio I: Certain topics can be counted with consultation of the Minor Director.

Item #	Title	Credits
CHE 5133	Brewing Science & Tech	3
CHE 5530	Gene Therapy Methods & Research	3
CHE 5532	Intro to Biotechnology	3
CHE 5533	Bioseparations	3
CHE 5534	Biomaterials	3
CHE 5535	Bioengineering Lab Techniques	3
CHE 5536	Biochemical Data Analysis	3
CHE 5540	Cellular Engineering	3

Elective Courses: Sciences (3)

The Science Electives with associated lab include:

BIO 2105
 BIO 3595
 BIO 4105
 BIO 4205
 BIO 4355
 BIO 4505
 CHM 2212/CHM 2202
 CHM 3514/CHM 3503
 CHM 4611/CHM 4601
 CHM 4621

Note: CHE 5535 can fulfill 1 science with associated lab requirement instead of a Biochemical Engineering Elective. The course cannot be counted in both categories.

Item #	Title	Credits
BIO 2105	General Biology I	4
BIO 3351	Genetics	4
BIO 3591	General Microbiology Lecture	3
BIO 3595	General Microbiology	4
BIO 4105	Medical Microbiology	4
BIO 4205	Cell Biology	4
BIO 4355	Experimental Genetics	4
BIO 4505	Molecular Biology	4
	CHM 2212 & CHM 2202	4
	CHM 3514/CHM 3503	4
CHM 3417	Biophysical Chemistry	3
CHM 4222	Organic Struct Analysis	3
	CHM 4611 & CHM 4601	4
CHM 4621	Biochemistry I: Structure	3
CHM 4622	Biochemistry II:Metabolism	3
CHM 4623	Biochemistry III	3
CHM 4652	Biochemical Basis of Disease	3
CHM 4664	Signal Transduction	3
CHM 4665	Enzymes	3
EGR 2020	Physiology for Engineers	3

Ethics Requirement (1)

Item #	Title	Credits
PHI 4125	Bioethics	3
PHI 2115	Ethics for Health Care Prof	3

The ethics requirement for the minor can also be met using any (3-credit minimum) that satisfies an ethics elective requirement in the curriculum of the student's major.

Category DescriptionsCHM 2212 & CHM 2202

Credits: 4

Item #	Title	Credits
CHM 2212	Organic Chemistry II	3
CHM 2202	Organic Chemistry Lab II	1

CHM 3514/CHM 3503

Credits: 4

Item #	Title	Credits
CHM 3514	Bioanalytical Chemistry	3
CHM 3503	Bioanalytical Chem Lab	1

CHM 4611 & CHM 4601

Credits: 4

Item #	Title	Credits
CHM 4611	Survey of Biochemistry	3
CHM 4601	Survey Biochemistry Lab	1

Biomedical Engineering Minor

Minor Director: Jens O.M. Karlsson, Ph.D.

Office Location: Tolentine Hall Rm 111A

Telephone: (610) 519-6250

Email: jens.karlsson@villanova.edu

About:

Biomedical engineers solve problems in medicine and biology by applying engineering principles to gain new insights into the function of the human body, and design devices, materials and interventions that can improve human health, performance and quality of life. The Biomedical Engineering minor is open to all current Villanova Engineering undergraduates who fulfill the prerequisites.

Students may pursue either the Biochemical minor or the Biomedical minor, but not both.

Type: Minor

Requirements:

7 courses total

Required Courses (2)

Item #	Title	Credits
EGR 2020	Physiology for Engineers	3
EGR 2021	Elements of Biomed Engr	3

Elective Course List A (Choose 1)

Item #	Title	Credits
ECE 5250	Biomedical Instrumentation	3
ECE 5251	Biomedical Signal Processing	3
ECE 5252	Medical Imaging	3
ECE 5770	Organs-on-a-Chip	3
ME 5500	Biomechanics	3
ME 7550	Biomechanics of Hard Tissues	3
ME 7560	Biomechanics of Soft Tissues	3
ME 7700	Tran Phen in Bio Systems	3

Elective Course List B (Choose 3)

SDURIS (Senior Design, Undergraduate Research, or Independent Study) on a topic relevant to biomedical engineering may be substituted for one elective course from List B, with prior written approval from the [Director of the Biomedical Engineering minor program](#).

Graduate courses require additional permissions.

Item #	Title	Credits
BIO 3225	Imaging Technology	4
CHE 5534	Biomaterials	3
CHE 5535	Bioengineering Lab Techniques	3
CHE 8586	Biomaterials & Drug Delivery	3
ECE 5250	Biomedical Instrumentation	3
ECE 5251	Biomedical Signal Processing	3
ECE 5252	Medical Imaging	3
ECE 5770	Organs-on-a-Chip	3
EGEN 5100	Medical Tech Commercialization	3
ME 5500	Biomechanics	3
ME 7550	Biomechanics of Hard Tissues	3
ME 7560	Biomechanics of Soft Tissues	3
ME 7700	Tran Phen in Bio Systems	3
PSY 2800	Human Factors	3

Ethics Requirement (1)

Item #	Title	Credits
PHI 2115	Ethics for Health Care Prof	3
PHI 4125	Bioethics	3

The ethics requirement for the minor can also be met using any course (3-credit minimum) that satisfies an ethics elective requirement in the curriculum of the student's major.

Graduate courses require additional permissions.

Computer Engineering Minor

Minor Director: Ed Char

Office Location: Tolentine Hall Rm 408

Telephone: (610) 519-5659

Email: edward.char@villanova.edu

About:

The Computer Engineering minor is open to all engineering students who satisfy the prerequisites for the list of required courses.

Type: Minor

Required Courses:

Item #	Title	Credits
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
ECE 2170	Fundamentals of CPE	3
ECE 2171	Fundamentals of CPE Lab	1
ECE 2172	Digital Systems	3
ECE 2173	Digital Systems Lab	1
ECE 2160	C++ Algorithms & Data Struct	3
ECE 2161	C++ Algorithms&Data Struct Lab	1
ECE 3170	Computer Architecture	3
ECE 3171	Computer Architecture Lab	1

Elective Courses:

Select two of the below courses.

Item #	Title	Credits
ECE 2530	Analog Electronics I	3
ECE 3476	Computer and Network Security	3
ECE 3180	Computer Networks	3
ECE 5170	Intro to Post-Quantum Computin	3
ECE 5172	Fund of Digitl Hardware Design	3
ECE 5400	Applied Machine Learning	3
ECE 5450	Microcontrollers & Applic	3
ECE 5478	Eng Secure Cyber-Physical Sys	3

Cybersecurity Engineering Minor

Minor Director: Danai Chasaki, Ph.D.

Office Location: Tolentine Hall Rm 435A

Telephone: (610) 519-4979

Email: danai.chasaki@villanova.edu

About:

Offered jointly through the Departments of Electrical and Computer Engineering and Computing Sciences in the College of Liberal Arts and Sciences, the Cybersecurity minor is open to all engineering students who satisfy the prerequisites for the list of required courses.

The minor will:

- Provide students with a solid foundation in the principles of cybersecurity
- Equip students with the technical skills and knowledge to address constantly evolving cybersecurity threats
- Promote independent study and self-reliance so students can keep pace with rapid technological advancement
- Prepare graduates to enter the workforce as cybersecurity professionals

Type: Minor

Required Courses:

Required Foundation courses (4 required)

Item #	Title	Credits
	CSC 3010 or VIA 2111/VIA 2112	2-3
	CSC 1051/CSC 1052 or ECE 1260/ECE 1261 and ECE 2160/ECE 2161	7-8
CSC 1300	Discrete Structures	3

Component I: Core courses (choose 3)

Item #	Title	Credits
CSC 3080	Info Security & Protection	3
CSC 4450	Digital Forensics	3
ECE 3476	Computer and Network Security	3
ECE 5478	Eng Secure Cyber-Physical Sys	3
ECE 5900	Special Topics	3
CSC 5930	Topics Computer Science	3
	CSC 5993 or ECE 5991	3

Component II: Networks Course (choose 1)

Item #	Title	Credits
ECE 3180	Computer Networks	3
CSC 4900	Networks and Security	3

Component III: Capstone Project (choose 1)

Item #	Title	Credits
CSC 4790	Senior Projects	3
ECE 4971	Design Project - CPE	3

[ECE 5900](#), [CSC 5930](#), [CSC 5993](#), [ECE 5991](#), [CSC 4790](#), [ECE 4971](#): must be in the cybersecurity area and approved by the cybersecurity minor curriculum committee

At least two of the courses must be outside of the student's major and not listed as specific requirements for their major.

Category Descriptions

[CSC 3010 or VIA 2111/VIA 2112](#)

Credits: 2-3

Item #	Title	Credits
CSC 3010	Overview of Cybersecurity	3

VIA 2111 and VIA 2112

Item #	Title	Credits
VIA 2111	Digital Life Technology I	1
VIA 2112	Digital Life Technology II	1

CSC 1051/CSC 1052 or ECE 1260/ECE 1261 and ECE 2160/ECE 2161

Credits: 7-8

CSC 1051/CSC 1052

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4

ECE 1260/ECE 1261 and ECE 2160/ECE 2161

Item #	Title	Credits
ECE 1260	EGR Prog and Applic	3
ECE 1261	EGR Prog and Applic Lab	1
ECE 2160	C++ Algorithms & Data Struct	3
ECE 2161	C++ Algorithms&Data Struct Lab	1

CSC 5993 or ECE 5991

Credits: 3

Item #	Title	Credits
CSC 5993	Independent Study	3
ECE 5991	Elec Eng Research I	3

Electrical Engineering Minor

Minor Director: Mark A. Jupina, Ph.D.

Office Location: Tolentine Hall Rm 430

Telephone: (610) 519-7561

Email: mark.jupina@villanova.edu

About:

The Electrical Engineering minor is open to all engineering students who satisfy the prerequisites for the list of required courses.

Type: Minor

Required Courses:

Item #	Title	Credits
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
<u>ECE 2409 or ME 1205</u>		
ECE 2530	Analog Electronics I	3
ECE 2531	Analog Electronics I Lab	1
ECE 3530	Analog Electronics II	3
ECE 3531	Analog Electronics II Lab	1
ECE 3030	Engineering Electromagnetics	3
ECE 3031	Engineering Electromagnetics Lab	1
ECE 3242	Fundamentals of Signal Process	3

Category Descriptions

ECE 2409 or ME 1205

Item #	Title	Credits
ECE 2409	Fundamentals of MATLAB	2
ME 1205	Computer Program for Mech Engr	3

Engineering Entrepreneurship Minor

Minor Director: Lauri Olivier, Ph.D., MBA

Office Location: Aldwyn One - Second Floor

Telephone: (610) 519-7373

Email: lauri.olivier@villanova.edu

About:

Villanova University's unique Engineering Entrepreneurship minor was started with funds from the Kern Family Foundation, whose objective it is to equip engineers with an entrepreneurial mindset that will enable them to contribute to business success.

Open to students in all majors, the minor consists of 16 credits and begins with an exciting course in Creativity and Innovation. Other topics in the minor include:

- Opportunity analysis
- New product ideation and development
- Intellectual property
- Project management
- Prototyping
- Basic accounting and finance concepts
- Project funding
- Product launching
- New product marketing
- Risk management
- Team development

Students work in teams under the guidance of faculty members and experienced entrepreneurs to develop marketable products and services. They also benefit from the Engineering Entrepreneurship Mentor Network, a student-run organization comprised of engineering entrepreneurship program alumni with a focus on providing mentor support for current student teams, conducting networking events, and serving as a touchpoint for graduates.

Type: Minor

Required Courses:

Item #	Title	Credits
EGEN 2100	Creativity and Innovation	1
EGEN 2200	Opport Identif & Bus Principl	3
EGEN 3100	Feas Analysis for Entrepreneur	3
EGEN 3200	Product & Service Prototyping	3
EGEN 4100	Market, Finance, and Vent Plan	3

Elective Courses:

Choose one elective course from the list below. Or permission from Minor Director.

Item #	Title	Credits
CHE 2900	Global Pharmaceutical Industry	3
CHE 5715	Alternative Energy	3
CEE 3705	Engineering Economics	3
CEE 4606	CEE Capstone Design 2	3
ECE 5480	Android Mobile Dev Programming	3
ECE 5850	Renewable Energy Systems	3
ECE 4970	Design Project - EE	3
ECE 4971	Design Project - CPE	3
ME 5130	Intro to Sustainable Energy	3
ME 5600	Engineering Economics	3
ME 5005	Capstone Design I	2
VSU 3500	Special Topics in Business	3
MIS 3070	Emerging Business Technologies	3
MKT 2240	Marketing Analytics	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3

Engineering Entrepreneurship Summer Institute

Minor Director: Lauri Olivier, Ph.D., MBA

Office Location: Aldwyn One - Second Floor

Telephone: (610) 519-7373

Email: lauri.olivier@villanova.edu

About:

7 Weeks, 16 Credits, One Minor

Open to all university students, not just engineers, Villanova University's Engineering Entrepreneurship Summer Institute (E2SI) challenges students to develop their problem-solving and creative thinking skills in the development of a technology venture. Learn the fundamentals of innovation and venture development while building your startup.

Why Engineering Entrepreneurship?

The need for entrepreneurial skills is much broader than the focus on starting on a new enterprise. Employers value self-starters who

take initiative, show persistence and demonstrate leadership. These entrepreneurial competencies are invaluable in any career and differentiate students from the competition.

Program Benefits:

- Work with diverse student teams from the College of Engineering, College of Liberal Arts & Sciences, and Villanova School of Business
- Gain experience in the Top 10 Skills for 2025 as determined by the World Economic Forum.
- Develop and implement solutions necessary to transform ideas into action.
- Identify and manage risks through analysis, problem solving, creativity and flexibility.
- Develop leadership, business and management skills to run and strengthen any enterprise.
- Understand the principles of existing and emerging technologies and how they apply globally.
- Prepare an entry for the Wildcat Technology Innovation Seed Fund.
- Submit a patent application on your idea.
- Supercharge your resume. You have an advantage on the competition.

Program Details:

Tuition and Fees:

2022 Tuition: \$10,715—including all textbooks and field trips.

Acceptance Deposit: \$500—due within two weeks of receiving an offer of admission. The deposit is refundable, and will be applied toward tuition.

General Fee: \$15—this is a University fee for the summer semester

Housing: University housing available through Residence Life

Financial Aid: Regular financial aid is not available for E2SI, however all students will be considered for funding support (based on financial need) through the E2SI program.

Questions concerning additional grants and loans should be addressed to the [Office of Financial Assistance](#). E2SI is not eligible for tuition remission.

Calendar:

Application deadline: Generally April of the calendar year. Please contact Minor Director for specifics.

Scholarship/funding support decisions: Please contact Minor Director for specifics.

Program dates: Classes held Monday through Friday, from 9AM - 5PM with an hour break at noon for lunch. Please contact Minor Director for specifics.

Holidays Observed: Memorial Day, Juneteenth, July 4 observed. Three additional days added to complete seven full weeks.

Type: Minor

Required Courses:

The curriculum in E2SI has been designed to create a unified, immersive experience for cohorts of students, so the program must be completed in a single summer (courses cannot be taken individually). Classes take place on Villanova's campus.

Item #	Title	Credits
EGEN 2100	Creativity and Innovation	1
EGEN 2150	Intro to Entrepreneurial Techn	3
EGEN 2200	Opport Identif & Bus Principl	3
EGEN 3100	Feas Analysis for Entrepreneur	3
EGEN 3200	Product & Service Prototyping	3
EGEN 4100	Market, Finance, and Vent Plan	3

A Complete Application to E2SI:

E2SI is open to any current Villanova student in good standing. External candidates are also welcome to apply.

A complete application to E2SI will include:

- A short, informal essay (500 words max) telling us a little about yourself, and why you think E2SI would be an important addition to your academic program. You should save your essay as a PDF and upload it along with your completed application.
- Your unofficial transcript.

Submit the online application and upload your essay and unofficial transcript.

Humanitarian Engineering Minor

Minor Director: Jordan Ermilio, Ph.D., P.E., MSWRE, RPCV

Office Location: Aldwyn One Rm 221

Telephone: (610) 519-6859

Email: jordan.ermilio@villanova.edu

About:

Built on the success of the [Villanova Engineering Service Learning \(VESL\)](#) program and offered through the Center for Humanitarian Engineering and International Development, the minor in Humanitarian Engineering will support the intellectual development of current Villanova University undergraduates who have an interest in humanitarian initiatives with a global perspective, and will foster collaboration with program partners through the provision of technical services that include engineering design and research related to sustainable development. Open to **engineering students only**, the learning objectives associated with this minor include:

- Understanding the technical and social aspects of poverty alleviation
- Applying engineering fundamentals to meet the needs of humanitarian organizations

- Developing skills in community development using participatory methodologies
- Understanding the relationship between ethical engagement and sustainable development in a global setting

The ultimate goal of this program is to ensure ethical engagement and impact through collaboration with global partners.

Type: Minor

Required Courses:

18 credits total, including:

Item #	Title	Credits
EGR 2002	Intro to Humanitarian Engr	3

VESL Seminar Series (each 1 credit) - Provides experiential-learning opportunities for students to collaborate with program partners in real-time on projects related to sustainable development, humanitarian technology, and poverty alleviation.

Item #	Title	Credits
EGR 5001	Engineering Service Learning	1
EGR 5002	EGR Service Learning Leader	1
EGR 5003	Engineering Svc Learning Capst	1

Two Technical Electives (3-credits each):

Item #	Title	Credits
CEE 4606	CEE Capstone Design 2	3
CEE 4607	Selected Topics in CEE	3
CHE 5332	Special Topics in CHE	3
CHE 5715	Alternative Energy	3
ECE 4810	Intro. to Electric Energy Sys.	3
ECE 4970	Design Project - EE	3
ECE 4971	Design Project - CPE	3
ECE 5850	Renewable Energy Systems	3
EGR 2001	Egr: Humanistic Context	3
EGR 4000	Undergraduate Research I	1
GEV 1750	Geo-Techniques	4
GEV 3521	GIS for Urban Sustainability	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4332	Water Resources Planning	3
GEV 4517	Sustainable Development	3
ME 5005	Capstone Design I	2
ME 5006	Capstone Design II	2
ME 5130	Intro to Sustainable Energy	3
ME 5140	Design of Gravity Water Ntwrks	3
ME 5000	Selected Topics in ME	3
NUR 3122	Imper for Global & Pub Health	3

Two Professional Electives (3-credits each):

Item #	Title	Credits
ACC 2420	International Accounting	3
COM 3403	Intercultural Communication	3
CST 2100	Intro. to Cultural Studies	3
ECO 3108	Global Political Econ	3
ECO 3127	Development Economics	3
ECO 4203	Pol Eco of Development Aid	3
EGR 2930	Catholic Soc Teaching for EGRS	3
FFS 1122	Intermediate French II	3
FFS 1134	Business French	3
FFS 1139	Intercultural Comm in French	3
GEV 1002	Geo. of a Globalizing World	3
GEV 1005	Geospatial Analysis & Society	3
GEV 3515	Geography of Africa	3
MGT 2250	Global Corp Responsibility	3
MGT 2350	Global Business Management	3
MGT 2352	Business in Emerging Markets	3
MGT 2360	Global Leadership	3
MGT 2370	Global Business Ethics	3
PSC 1200	International Relations	3
PSC 2210	Globalization	3
PSC 2220	International Law	3
PSC 2240	Internat'l Political Economy	3
PSC 2350	African Politics	3
PSC 2360	Latin American Politics	3
PSC 2370	Third World Politics	3
PSC 2390	Indian & South Asian Politics	3
PSC 2390	Indian & South Asian Politics	3
PSC 3230	Development and Aid	3
SPA 1122	Intermediate Spanish II	3
SPA 2993	Community Interpre. Internship	3
SPA 3200	Intro to Spanish Translation	3

CEE 4606, CEE 4607, ECE 4970, ECE 4971, ME 5006, ME 5000: SDURIS (Senior Design, Undergraduate Research, or Independent Study) on a topic relevant to humanitarian engineering may be substituted, with prior approval from the [Director of the Humanitarian Engineering minor program](#).

Academic Framework and Program Timeline

After a student declares the Humanitarian Engineering minor during their first-year, a typical course of study may look like this:

Sophomore Year	Junior Year	Senior Year
Fall: Professional Elective	Fall: Technical elective	Professional elective
Spring: Technical Elective	Spring: Professional elective	Fall or Spring: VESL Capstone - may also be completed the summer after Junior year
Fall or Spring: Introductory Course EGR 2002	Fall or Spring: VESL Leadership Seminar	
Fall or Spring: VESL Seminar EGR 5001		

In some cases students might need to take more than 5-credits during the final year of the program, and in some cases summer programs would supplement the above framework. For example, during any summer, students could complete a VESL field assignment along with a course to accumulate between 1-7 credits.

Mechatronics Minor

Minor Director: Garrett M. Clayton, Ph.D.

Office Location: Aldwyn One - Rm 203

Telephone: (610) 519-4798

Email: garrett.clayton@villanova.edu

About:

Mechatronics is a multidisciplinary branch of engineering that focuses on the engineering of both electrical and mechanical systems, and also includes a combination of robotics, electronics, computer, telecommunications, systems, control, and product engineering.

The minor requires the successful completion of 10 classes, 8 of which are required and 2 of which are elective courses.

Type: Minor

Required Courses:

Eight (8) - (20-21 credits)

Item #	Title	Credits
ME 2100	Statics	3
ME 2101	Dynamic Systems I	3
	ME 3103 or ECE 2290	3-4
ECE 2030	Electrical Circuit Fundamental	3
ECE 2031	Elect Circuit Fundamentals Lab	1
ECE 1620	Egr Prog & Applic	3
	Either ECE 2430/ECE 2430 or ECE 2042/ECE 2043	4

ME Elective:

Choose one course from the following:

Item #	Title	Credits
ME 5411	Mechatronics	3
ME 5421	Introduction to Robotics	3
ME 5441	Advanced System Modeling	3
ME 7205	Advanced Dynamics	3
ME 8204	Robotics:Analysis & Control	3
EGR 8301	Control Systems Engineering	3
EGR 8302	Digital Control	3

ECE Elective:

Choose one course from the following:

Item #	Title	Credits
ECE 5390	Control System Design	4
ECE 5450	Microcontrollers & Applic	3
ECE 5451	Adv Microcontroller App Design	3
ECE 5800	Electric Machines	3
ECE 7580	Intro to Power Electronics	3
ECE 7830	Intro. to Electric Drives	3
EGR 8301	Control Systems Engineering	3
EGR 8302	Digital Control	3
ECE 8425	Microproc & Microcomp	3

Category Descriptions

ME 3103 or ECE 2290

Credits: 3-4

Item #	Title	Credits
ME 3103	Dynamic Systems III	3
ECE 2290	Engr System Models & Control	4

Either ECE 2430/ECE 2430 or ECE 2042/ECE 2043

Credits: 4

Item #	Title	Credits
ECE 2430	Embedded Systems	3
ECE 2431	Embedded Systems Lab	1

or

Item #	Title	Credits
ECE 2042	Fundamentals of CPE I	3
ECE 2043	Fund of Comp Engineering I Lab	1

Real Estate Development Minor

Minor Director: Eric Musselman, Ph.D.

Office Location: Tolentine Hall Rm 150

Telephone: (610) 519-7631

Email: eric.musselman@villanova.edu

About:

Offered jointly with the Villanova School of Business through the Daniel M. DiLella Center for Real Estate, the Real Estate Development minor is specially designed for Civil Engineering students to learn more about commercial real estate development from a business perspective. Civil Engineering students take classes and interact with VSB students who are themselves pursuing a Real Estate minor (or co-major) within VSB.

Type: Minor

Requirements:

The Real Estate Development minor requires the successful completion of 6 classes (19 credits):

1. Four courses from VSB

Item #	Title	Credits
RES 2150	Real Estate Fundamentals	3
RES 2250	Real Estate Law	3
RES 3150	Real Estate Investments	3
RES 4150	Real Estate Development	3

2. Two courses from Civil Engineering

(both are required courses in the Civil Engineering major)

Item #	Title	Credits
CEE 1601	Civil Engineering Fundamentals	4
CEE 2701 or CEE 3705		

Two minor courses (RES 2150, RES 3150, RES 4150, RES 2250) may be counted as Free Electives within the CE major curriculum.

Category Descriptions

CEE 2701 or CEE 3705

Item #	Title	Credits
CEE 2701	CE Project Development	3
CEE 3705	Engineering Economics	3

Sustainability Studies Minor

Minor Director: Virginia Smith, Ph.D.

Office Location: Tolentine Hall Rm 143

Telephone: (610) 519-4961

Email: virginia.smith@villanova.edu

About:

Sustainability: Development that meets the needs of the present without compromising the needs of future generations.

Offered through the College of Liberal Arts & Sciences, this interdisciplinary minor examines ways to limit actions that adversely affect the environment and have social and economic implications.

Engineering students may pursue either the Sustainability Studies minor or the Sustainable Engineering minor, but not both.

Program Learning Objectives:

1. Describe the technical and social aspects of a commitment to sustainability.

2. Describe the ethical and philosophical underpinnings of a commitment to sustainability.
3. Evaluate environmental processes and their nexus with human activity to examine sustainable (or unsustainable) practices.
4. Examine and describe the human dimension of global environmental change.
5. Describe the links between the global economic environment, resource availability and distribution, and their effects on sustainable practices.
6. Define the links between non-sustainable practices, resource shortages and regional conflict.

Type: Minor

Requirements:

The Sustainability Studies minor requires six (6) courses, two from each of the three categories below.

GEV 3001 (3 cr.) - Intro to Sustainability Studies is required for all students and replaces one course from either the Humanities or Policy electives.

Students may count one course from their major or a relevant master's in Sustainable Engineering course toward the minor.

These course lists may be supplemented by the faculty advisor as new courses become available.

Item #	Title	Credits
GEV 3001	Intro to Sustainability Study	3

Humanities Electives:

Item #	Title	Credits
	Humanities Electives	3

Policy Electives:

Item #	Title	Credits
	Policy Electives	3

Technology Electives:

Item #	Title	Credits
	Technology Electives	3

Category Descriptions

Humanities Electives

Credits: 3

Humanities

Item #	Title	Credits
ENG 4690/ 4691/ 4692	Amer. Lit. & Cult. after 1945	3
ETH 3010	Topics in Ethics	3
HIS 1065	Topics Nature, Environ & Tech	3
HIS 2276	American Environmental Hist	3
HIS 4499	Topics in World History	3
PHI 2121	Environmental Ethics	3
PHI 2430	Eco-Feminism	3
PJ 3000	Selected Topics	1
PJ 5000	Selected Topics	3
THL 2460	Bible and Environment	3
THL 4330	Christian Environmental Ethics	3
GEV 3001	Intro to Sustainability Study	3

Permission required: PJ 3000, PJ 5000

Policy Electives

Credits: 3

Policy

Item #	Title	Credits
ECO 3108	Global Political Econ	3
ECO 4200	Advanced Topics in Economics	3
GEV 1004	Climate Change	3
GEV 2500	Global Change in Local Places	3
GEV 2525	Population Geography	3
GEV 3000	Special Topics	3
GEV 3002	Ecosystem Services	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4340	Spec Topics in Environm Issues	3
GEV 4510	Special Topics in Geography	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
MGT 2352	Business in Emerging Markets	3
PA 2000	Public Policy	3
PJ 5000	Selected Topics	3
PSC 4275	Topics in Internat'l Relations	3
GEV 3001	Intro to Sustainability Study	3

Permission required: ECO 4200, GEV 3000, GEV 4330, GEV 4340, GEV 4510, PSC 4275

Technology Electives

Credits: 3

Item #	Title	Credits
BIO 3255	Evolutionary Ecology	4
BIO 3485	Marine Biology	4
BIO 3661	Environment and Human Health	3
BIO 3955	Lec+Lab in Topics in Biology	4
	BIO 4451/52	4
BIO 4801	Conservation Biology	3
CEE 2211	Transportation Engineering	3
CEE 4607	Selected Topics in CEE	3
CEE 4612	CEE Undergraduate Research	3
CHE 4831	Senior Project Studio I	3
CHE 5001	Industrial Liq & Sld Waste	3
CHE 5332	Special Topics in CHE	3
CHE 5715	Alternative Energy	3
CHM 1311	Inorganic Chemistry I	3
EGR 7110	Fundamentals-Sustainable Engr	3
GEV 1050	Environmental Science I	4
GEV 1052	Environmental Studies	3
GEV 1053	Environmental Studies II	3
GEV 2500	Global Change in Local Places	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3003	Environmental Geology	3
GEV 3303	Soil Science	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3521	GIS for Urban Sustainability	3
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4700	Geographic Information Systems	4
	MSE 20XX	
ME 5130	Intro to Sustainable Energy	3
ME 5140	Design of Gravity Water Ntwrks	3
ME 7140	Thermal Energy Storage	3

MET 1222	Climate Change:Past & Present	3
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- **Pre-requisites, see advisor:** BIO 3255, BIO 4451/52, BIO 4801, CEE 2211, CEE 4607, GEV 1050, GEV 1051
- **AP course credit may be applied:** CHM 1311, GEV 1052
- **Associated lab section required, see advisor:** BIO 4451/52, CHE 4831, GEV 1050, GEV 1051, MSE 20XX
- **Permission required:** CEE 4608, CEE 4612, CHE 4831, MSE 20XX

Sustainable Engineering Minor

Minor Director: Virginia Smith, Ph.D.

Office Location: Tolentine Hall Rm 143

Telephone: (610) 519-4961

Email: virginia.smith@villanova.edu

About:

This new minor, open **only to engineering undergraduates**, prepares students as engineers to confront complex sustainability challenges in the 21st century.

Sustainability: Development that meets the needs of the present without compromising the needs of future generations.

This cross-disciplinary Sustainable Engineering minor prepares students as engineers to confront complex sustainability challenges in the 21st century.

Engineering students may pursue either the Sustainable Engineering minor or the Sustainability Studies minor, but not both.

Program Learning Objectives:

1. Understand humanity's impact on Earth and the nexus of human and environmental processes in the Anthropocene (current geological age).
2. Define holistically the scope of sustainability through the lens of conceptual frameworks including the triple bottom line and the UN Sustainable Development Goals (SDGs).

3. Approach complex problems in the intersection of engineering and sustainable development through the application of whole-systems thinking through a life-cycle lens and with consideration of the interconnected STEEP (social, technological, economic, environmental, and political) dimensions of sustainability challenges.
4. Apply, on a conceptual level, life-cycle analysis as a tool to evaluate the environmental impacts of engineered products, services, and the built environment.
5. Apply circular design principles to identify opportunities to rethink engineered products, services and infrastructure and the systems surrounding them in advancing a transition from a linear to a circular economy.
6. Articulate the role of the engineering profession and one's chosen engineering discipline in contributing to sustainable solutions as part of interdisciplinary teams.

Type: Minor

Requirements:

The Sustainable Engineering minor requires a total of 18 credits (6 3-credit courses), including:

Two required core courses in Sustainable Engineering:

Item #	Title	Credits
EGR 2110	Sus Eng: Risks & Opportunities	3
EGR 2111	Sus Eng: LCA & Circular Econ	3

Two elective courses from Humanities and/or Policy:

Item #	Title	Credits
	Humanities Electives	3
	Policy Electives	3

Two Technology elective courses (with up to two of these from within a student's major being counted toward the minor):

Item #	Title	Credits
	Technology Electives	3

Category Descriptions

Humanities Electives

Credits: 3

Humanities

Item #	Title	Credits
ENG 4690/ 4691/ 4692	Amer. Lit. & Cult. after 1945	3
ETH 3010	Topics in Ethics	3
HIS 1065	Topics Nature, Environ & Tech	3
HIS 2276	American Environmental Hist	3
HIS 4499	Topics in World History	3
PHI 2121	Environmental Ethics	3
PHI 2430	Eco-Feminism	3
PJ 3000	Selected Topics	1
PJ 5000	Selected Topics	3
THL 2460	Bible and Environment	3
THL 4330	Christian Environmental Ethics	3
GEV 3001	Intro to Sustainability Study	3

Permission required: PJ 3000, PJ 5000

Policy Electives

Credits: 3

Policy

Item #	Title	Credits
ECO 3108	Global Political Econ	3
ECO 4200	Advanced Topics in Economics	3
GEV 1004	Climate Change	3
GEV 2500	Global Change in Local Places	3
GEV 2525	Population Geography	3
GEV 3000	Special Topics	3
GEV 3002	Ecosystem Services	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4340	Spec Topics in Environm Issues	3
GEV 4510	Special Topics in Geography	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
MGT 2352	Business in Emerging Markets	3
PA 2000	Public Policy	3
PJ 5000	Selected Topics	3
PSC 4275	Topics in Internat'l Relations	3
GEV 3001	Intro to Sustainability Study	3

Permission required: ECO 4200, GEV 3000, GEV 4330, GEV 4340, GEV 4510, PSC 4275

Technology Electives

Credits: 3

Item #	Title	Credits
BIO 3255	Evolutionary Ecology	4
BIO 3485	Marine Biology	4
BIO 3661	Environment and Human Health	3
BIO 3955	Lec+Lab in Topics in Biology	4
	BIO 4451/52	4
BIO 4801	Conservation Biology	3
CEE 2211	Transportation Engineering	3
CEE 4607	Selected Topics in CEE	3
CEE 4612	CEE Undergraduate Research	3
CHE 4831	Senior Project Studio I	3
CHE 5001	Industrial Liq & Sld Waste	3
CHE 5332	Special Topics in CHE	3
CHE 5715	Alternative Energy	3
CHM 1311	Inorganic Chemistry I	3
EGR 7110	Fundamentals-Sustainable Engr	3
GEV 1050	Environmental Science I	4
GEV 1052	Environmental Studies	3
GEV 1053	Environmental Studies II	3
GEV 2500	Global Change in Local Places	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3003	Environmental Geology	3
GEV 3303	Soil Science	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3521	GIS for Urban Sustainability	3
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4700	Geographic Information Systems	4
	MSE 20XX	
ME 5130	Intro to Sustainable Energy	3
ME 5140	Design of Gravity Water Ntwrks	3
ME 7140	Thermal Energy Storage	3

MET 1222 Climate Change:Past & Present 3

- **Pre-requisites, see advisor:** BIO 3255, BIO 4451/52, BIO 4801, CEE 2211, CEE 4607, GEV 1050, GEV 1051
- **AP course credit may be applied:** CHM 1311, GEV 1052
- **Associated lab section required, see advisor:** BIO 4451/52, CHE 4831, GEV 1050, GEV 1051, MSE 20XX
- **Permission required:** CEE 4608, CEE 4612, CHE 4831, MSE 20XX

Fitzpatrick College of Nursing

College of Nursing Directory

Donna S. Havens, Ph.D., FAAN, RN, Connelly

Endowed Dean and Professor

Bette Mariani, Ph.D., RN, ANEF, FAAN, Vice Dean
for Academic Affairs

Lesley A. Perry, Ph.D., RN, Interim Associate
Dean of the Graduate Nursing Program

Catherine P. Lovecchio, Ph.D., RN, Associate
Dean for the Undergraduate Program

Peter Kaufmann, Ph.D., FABMR, FSBM, Associate
Dean for Research and Innovation

Patricia Bradley, Ph.D., RN, FAAN, Associate
Dean for Inclusive Excellence

Anne M. Fink, Ph.D., RN, CNE, Assistant Dean for
College and Student Services

Evelyn Lengetti, Ph.D., RN-BC, Assistant Dean of
Continuing Education

Maria Pavelsky, MBA, Assistant Dean, Finance &
Administration

Office: Driscoll Hall, tel. 610-519-4900

Website: <https://www1.villanova.edu/university/nursing.html>

Course descriptions: www.catalog.villanova.edu/courses/nur.html

The health care of a complex and technologically advanced society requires professional nurses who are liberally educated, clinically competent, compassionate and ethically motivated. In responding to these objectives, the College of Nursing is a tangible expression of Villanova's mission, values and commitment to human service.

History

Villanova University first responded to society's need for baccalaureate-prepared nurses in 1932 when it offered a program of study leading to a Bachelor of Science in Nursing Education. This commitment was expanded in 1953 to create a College of Nursing that now offers a 4 year BSN program, a BSN program for second degree students, an MSN program, a PhD program, a Doctor of Nursing Practice program and a Continuing Education Program.

Baccalaureate nursing education prepares individuals for professional nursing practice in a variety of health-care settings and for continuous personal and educational growth, including entrance into graduate education in nursing. A liberal education is integrated with the ideals, knowledge, and skills of professional nursing practice under the direction of well-qualified faculty.

The M. Louise Fitzpatrick College of Nursing is approved by the State Board of Nursing of the Commonwealth of Pennsylvania. Upon completion of the undergraduate program, graduates are eligible to take the licensing examination (NCLEX-RN) for professional registered nurses. This license is transferable within the United States nationally by state. The BSN, MSN, and Doctor of Nursing Practice programs are fully accredited by the Commission on Collegiate Nursing Education. The Nurse Anesthesia Doctor of Nursing Practice is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs. The Continuing Education Program is accredited as a provider of Continuing Education in Nursing by the American Nurses Credentialing Center, Commission on Accreditation.

Contact Information:

American Nurses
Credentialing Center
8515 Georgia Avenue,
#400 Silver Spring, MD
20910
1-800-284-CERT (2378)
www.nursingworld.org/ancc/

Commission on Collegiate
Nursing Education
655 K Street NW, Suite 750
Washington, DC 20001
Phone: (202) 887-6791
Fax: (202) 887-8476
www.aacnnursing.org/CCNE

Commonwealth of
Pennsylvania
Department of State Bureau
of
Professional and Occupational
Affairs
State Board of Nursing
P.O. Box 2649 Harrisburg, PA
17105-2649
Phone: (717) 783-7142
Fax: (717) 783-0822
<http://www.dos.state.pa.us/bpoa/>
nursing@pados.dos.state.pa.us

Council on Accreditation of
Nurse Anesthesia Educational
Programs
222 South Prospect Avenue
Park Ridge, Illinois
60068-4001
Phone: (847) 692-7050
Fax: (847) 692-6968
www.aana.com/

Academic Mission

The Fitzpatrick College of Nursing (FCN) is a tangible expression of Villanova University's mission, tradition, and commitment to human service. As a major school of nursing under Catholic auspices, it carries responsibility for the education of nurses within the framework of Christian beliefs and values and the heritage of the Order of St. Augustine. The Fitzpatrick College of Nursing interprets nursing as a healing ministry emanated by love and demonstrated through service and the care of others. As a healing art as well as an applied science and practice discipline, nursing as taught at Villanova University emphasizes the concern for spiritual health as well as that of mind and body. Curricula reflect the integration of these elements and their application in clinical practice, and concern for others regardless of race, ethnicity, or religion. The Fitzpatrick College of Nursing educates individuals for service to a diverse society including all sectors and strata of the population; as such, graduates are prepared to assume roles in all settings where health care is delivered.

Within this context, nursing draws its worth and spirit from motives based on love of one's fellow men and women who are made in the image and likeness of God. As a social service to the community, nursing responds to the needs of the sick, poor and disabled, and promotes wellness as the pre-eminent goal of nursing care. The practice of nursing within a Christian environment requires that those who nurse recognize and respect the needs of each person and that they teach while they nurse in order to assist their patients and the community to achieve the highest possible level of wellness of body, mind, and spirit.

The Fitzpatrick College of Nursing, consistent with the mission of Villanova University, assumes responsibility for the education of individuals who will be prepared to provide a vital service to society and who are liberally educated, clinically competent, compassionate, and ethically motivated. The college is committed to providing high quality education in the liberal arts and sciences and expert preparation in the knowledge and clinical skills of professional nursing to qualified individuals who must be prepared and empowered to confront the health care demands of a complex and technologically advanced society.

The FCN views itself as an important locus of education, scholarship, and organizational leadership within Nursing's professional and educational communities. It views with great seriousness its prominent role within the constellation of collegiate nursing programs under Catholic auspices.

The FCN awards the baccalaureate in nursing (BSN) and provides basic preparation in nursing to those who are studying for the first professional degree in the field. Such students include high school graduates with no prior college experience, college graduates with degrees in other disciplines who have made a decision to study nursing, and adults who are studying for their first college degree.

The Graduate Program awards the master's degree in nursing (MSN), and post-MSN Certificates and provides preparation and leadership development in selected areas of advanced nursing practice, development of research skills, and knowledge of health policy. In addition, course options prepare individuals for positions as educators, nurse practitioners, and nurse anesthetists.

The Graduate Program administers the Doctor of Philosophy degree in nursing (Ph.D.), which is designed to prepare nurses as educators and researchers for academic careers in higher education. The Ph.D. Program at Villanova is unique in that it focuses on the application of advanced nursing knowledge and scholarly inquiry that address professional and practice concerns related to the learning process.

The Graduate Program administers the post-baccalaureate Doctor of Practice – Nurse Anesthesia (DNP-NA) track which is designed to prepare nurses with a sound base of theoretical knowledge and clinical experience in the practice of nurse anesthesia and professional leadership. The Graduate Program also administers the post-masters Doctor of Nursing Practice (DNP) Program which is designed to prepare advanced practice registered nurses, including Nurse Practitioners, Certified Registered Nurse Anesthetists, Clinical Nurse Specialists, Certified Nurse Midwives and Nursing Leaders with advanced knowledge in evidence-based practice, organizational leadership and financial acumen to lead innovation in nursing practice and healthcare.

The Program in Continuing Education is committed to providing quality programs that enhance the professional growth and update the knowledge base of nurses, other health care professionals, and the public on topics related to health care.

The College of Nursing's emphasis on education in values and ethical principles is a pervasive and central theme and emanates from the Catholic and Augustinian tradition of the University. The faculty are expected to serve as role models and mentors for the professional development of students in the exercise of their academic responsibilities.

Academic Policies and Information

Unless otherwise noted, the College of Nursing follows the general university academic policies and regulations listed in the University section of this *Catalog*.

It is the responsibility of the student to know and comply with all academic policies and regulations of the University and of the College of Nursing and to abide by the professional standards established by the College. Such policies may change without prior notice.

Note: if a student withdraws from the College of Nursing and is readmitted at a later date, the requirements in effect at time of readmission will be applied. Policies and regulations specific to Nursing students include the following:

Academic Advising

Every student entering the College of Nursing is assigned a faculty adviser. It is the responsibility of the student to contact their adviser prior to each registration period and if they are experiencing any academic difficulty. Each student must take responsibility to meet with their adviser on an ongoing basis. Advisers are available during posted office hours or by appointment. If the student experiences difficulty in contacting their advisor, there is a Student Success and Retention Advisor available to see a student during regular office hours.

Academic Grievance Procedure

If a student has a grievance within a nursing course, they are advised to speak with the individual teaching the course. If the problem is not resolved at this level, it may be taken to the Course Leader, Program Director, Associate Dean of the Undergraduate Program in that order.

Academic Policies

Students are expected to abide by the policies and professional standards established by the College of Nursing. The College of Nursing reserves the right to change program requirements without prior notice to reflect advances in the professional field. If a student withdraws from the College of Nursing and is readmitted at a later date, the requirements in effect at the time of readmission will be applied.

A grade of "C" or better must be attained in all nursing courses for progress in the nursing major.

Students must achieve an examination average of 73% or better in all nursing theory courses that are paired with a lab or clinical course or have clinical as a component of the course. The course numbers are: NUR 2204, NUR 2206, NUR 3114, NUR 3118, NUR 3120, NUR4104, NUR 4108, and NUR 4112.

The student must also achieve a 73% or better in the overall course grade. Only one nursing course may be repeated in the curriculum prior to dismissal from the program.

A required course may be repeated once prior to dismissal from the program.

Students must complete, in sequence, the required lower division courses, with a Q.P.A. of 2.0 in order to advance to junior level courses with a clinical component. Students who receive less than a "C" in BIO 1205, BIO 1206 or NTR 2120 will be required to repeat the course(s) before advancing to the Junior level nursing courses. Students must successfully complete, in sequence, courses in the nursing major as indicated in the curriculum plan. Students who study on a part-time basis are required to successfully complete the theory class prior to enrolling in the associated practicum course.

The College of Nursing reserves the right to place on probation or withdraw any student whose performance is deemed unsatisfactory.

Students for whom English is not the primary language or not the language spoken in the home will be encouraged to bring translation dictionaries to their examinations and be given extended time on tests.

Extended time is equivalent to time and one half of the usual testing time. Students are expected to self-identify to the course faculty.

International students, who are in the BSN program or RN completion program but who are not expatriates residing permanently or working in the United States and will not sit for NCLEX but return to their countries, may have the progression policies suspended, on a case by case basis, by action of the Dean of the College of Nursing and upon formal recommendation of the Program Director.

Preparation for Registered Licensing Examination

For the purpose of continuously preparing nursing students in the baccalaureate program leading to initial licensure as registered nurses for the comprehensive licensing examination (NCLEX-RN), standardized tests developed for this purpose will be administered and evaluated as part of the final course grades beginning in the sophomore year (or its equivalent) at the student's expense.

All senior nursing students (or the equivalent) are required to demonstrate successful achievement on a designated predictive NCLEX-RN readiness assessment examination prior to graduation. This examination, in combination with any required remediation, must be successfully completed as a prerequisite to certification by the College as part of the application process for state licensure.

Academic Probation and Dismissal

Probation

A student is placed on academic probation in the College of Nursing when:

- A required course is failed.

- A grade less than C is earned in science or nursing courses.
- The QPA is below 2.0 in any given semester.

"Students who are on probation for earning less than a C in a science or nursing course must complete a mandatory plan of study as determined by the Academic Standing and Records Committee. Students who do not complete this plan will remain on academic probation."

Dismissal

Students are usually permitted two semesters of probationary status prior to dismissal from the program. A dismissal from the College may be appealed in writing. Detailed instructions for appeal are outlined in the dismissal letter.

Admission

Regular Students

All applicants for full-time or part-time study must meet the entrance requirements for admission to the University as listed in this *Catalog*.

Transfer Students

Transfer students with a 3.0 Q.P.A. are considered for admission to the College of Nursing on a limited basis. Please see the section on *Transfer Students* in the general University section of this *Catalog*. Further inquiries should be directed to the College of Nursing.

Second Degree Applicants

The College of Nursing welcomes applications from prospective students who wish to begin preparing for a career in nursing. These include individuals who possess undergraduate and/or graduate degrees in other fields. Part-time study is possible during the introductory level of the program when pre-requisites are being completed. Full-time study is required during the clinical portion of the program. All applicants must meet the entrance requirements for admission to the University. This track offers a 14-month and 23-month option for individuals with a bachelor's degree in another discipline. Applicants must demonstrate superior academic achievement in prior course work to be eligible for this program. Further inquiries should be directed to the College of Nursing.

Admission to Closed Sections of Courses

Students will not be permitted to enroll in closed sections. Exceptions to this rule will be made only by the Associate Dean of the Undergraduate Program and only when a student must enroll in the specific section in order to complete requirements which are necessary for progression in the program.

Graduate Course Registration for Undergraduate Students

A junior or senior with a 3.00 cumulative quality point average wishing to enroll in a graduate course must have the written approval of the Associate Dean of the Undergraduate Program before submitting a request to the Associate Dean of the Graduate Program. A student who wishes to take NUR 8904 Research in Nursing requires a GPA of 3.5.

International Studies

The College of Nursing, in conjunction with the Office of Education Abroad, is pleased to offer a variety of opportunities for Nursing students to study in an overseas university during their course of studies.

The College of Nursing has established a year-long study abroad program with the University of Manchester, Manchester, England. Students in this program spend their entire sophomore year in England. The courses transfer to Villanova as the sophomore year of the nursing curriculum and students graduate on time with their classmates.

The program requires some changes in the first-year course of study; any first-year who is interested should contact the Associate Dean of the Undergraduate Nursing Program or their academic adviser as early as possible. Nursing students may participate in international opportunities offered by the College of Nursing as elective experiences. A nursing major may also participate in any of the summer or semester study abroad programs approved by the University and administered by the Office of Education Abroad. However, since these are not nursing programs, students who participate need to change their course of study and may graduate later than their graduation class.

Interested students should see the detailed discussion of International Studies in the Villanova University section of this *Catalog* or contact the Office of Education Abroad, Middleton Hall, second floor, (phone 610-519-6412).

Facilities for Instruction and Practice

The University assumes full responsibility for providing the instruction throughout the entire program. (Students are responsible for their own transportation to and from the various facilities utilized for the practice of nursing.) Community based practice of nursing will most likely require individual means of transportation for agency and home visiting. During the professional portion of the curriculum, theory and laboratory are directed by faculty members. Among the agencies used for student experience are the following:

- Abington Hospital – Jefferson Health, Abington, PA
- Einstein Medical Center, Philadelphia, PA
- Alfred I. DuPont for Children, Wilmington, DE
- Bryn Mawr Hospital – Mainline Health System, Bryn Mawr, PA
- Children's Hospital of Philadelphia, Philadelphia, PA
- Holy Redeemer Home Care and Hospice Services, Philadelphia, PA
- Hospital of the University of Pennsylvania, Philadelphia, PA
- Home Care and Hospice – Mainline Health System, Radnor, PA
- Lankenau Hospital – Mainline Health System, Wynnewood, PA
- Clinical Simulation and Learning Resource Center, Fitzpatrick College of Nursing Mercy Hospital, Philadelphia, PA
- Paoli Hospital – Mainline Health System, Paoli, PA
- Penn Care at Home, Philadelphia, PA
- Pennsylvania Hospital, Philadelphia, PA
- Penn Presbyterian Medical Center, Philadelphia, PA
- St. Mary's Hospital, Langhorne, PA
- Thomas Jefferson University Hospital, Philadelphia, PA

Selected school systems, day-care centers, community health centers, senior citizen centers, and industries are also used.

Curriculum

Degrees and Programs

The College awards the baccalaureate degree in nursing (BSN) and provides basic preparation in nursing to those who are studying for the first professional degree in the field. Such students include high school graduates with no prior college experience, college graduates with degrees in other disciplines who made a later decision to study nursing, and adults who are studying for their first college degree.

The Graduate Program awards the master's degree (MSN) and provides preparation and leadership development in selected areas of advanced nursing practice, development of research skills and knowledge of health policy. In addition, course options prepare individuals for positions such as clinical teachers, faculty, nurse practitioners and nurse anesthetists. The Graduate Program also awards the doctoral degree in nursing (PhD) to individuals who are prepared as teacher-scholars for academic careers in higher education and the Doctor of Nursing practice (DNP) for nurse administrators and advanced practice nurses such as nurse practitioners, registered nurse anesthetists, clinical nurse specialists and certified nurse midwives.

The Program in Continuing Education is committed to providing short courses, conferences, workshops and symposia for nurses, other health professionals and the public-at-large on topics related to health care. Some of these programs are developed to update the knowledge of practicing nurses while others provide an academic arena for the sharing and critiquing of papers and ideas relevant to current issues or trends in health care.

Program Requirements

Entrance physical examination, selected diagnostic tests, as well as designated immunizations, are required of all nursing students. Additional or repeated health screening tests are required prior to entry into clinical experiences. Students are required to be certified in Basic Cardio-pulmonary Resuscitation prior to enrolling in NUR 2207. Continuing re-certification is the responsibility of the student throughout the remainder of the program. As a prerequisite

to entry into the nursing program, all students are required to have criminal background checks that comply with the Older Adults Protective Services Act and Child Protective Services Law, as well as urine drug screening, child abuse clearance and FBI fingerprinting.

All nursing students are required to participate in a battery of standardized tests to assess nursing knowledge prior to graduation. The cost is assumed by the students. Permission to take the NCLEX Licensure exam may be delayed based upon a student's academic record and performance on the standardized tests.

Degrees

Fitzpatrick College of Nursing

Global Health Minor

Chairperson: Catherine R. Curley, Ph.D., R.N.
Office Location: 388 Driscoll Hall
Telephone: (610) 519-5969
[Website](#)

About

The health of peoples of the world is influenced and determined by factors as diverse as gender, race, ethnicity, political priorities, socioeconomic status, climate, geography, accessibility and acceptability of care, and cultural and religious traditions. The M. Louise Fitzpatrick College of Nursing recognizes this and as such created the Global Health Minor aimed at educating students about these factors and the inter-disciplinary response to addressing global health challenges.

The Global Health Minor is congruent with the Mission and strategic plan of the University and the Fitzpatrick College of Nursing's goals to emphasize a curriculum with a "global perspective and respect for differences among peoples and cultures" and to educate individuals "for service to a diverse society including all sectors and strata of the population."

MINOR (15 credits)

The Minor is open to all undergraduate students and is meant to expose students to a basic understanding of global health issues drawing upon the expertise that Villanova University has to offer. All students who want to participate in the Global Health Minor must meet with their Academic Advisors to discuss their course of study to assure the student is able to meet all requirements. Once you and your Academic Advisor have agreed you are able to meet all requirements of the Minor, please fill out the [Global Health Minor Application](#) and submit it to the Director of the Center for Global and Public Health. No more than one elective transferred from another University can be applied toward the Global Health Minor. Transfer credits from a study abroad semester while a student was enrolled at Villanova University will be evaluated on a case-by-case basis.

Type: Minor

Course Requirements for Global Health Minor (5 Courses)

Required Course for the Global Health Minor

NUR 7090 Planetary Health for Global Populations (Offered every Fall semester) 3 credits

Item #	Title	Credits
Plus two (2) of the following Nursing electives:		

NUR 7070 Nutrition and Global Health (Offered Fall semesters) 3 credits

NUR 7084 Principles of Epidemiology (Offered Spring semesters) 3 credits

NUR 7088 Human Trafficking (Offered Spring semesters) 3 credits

NUR 7091 Global Perspectives for Climate Change and Health (Offered Spring semesters, asynchronous on-line) 3 credits

Item #	Title	Credits
Plus two (2) electives from a range of disciplines, which must be approved by the Global Health Minor Advisor.		

Nursing, B.S.N, Honors Bachelor of Science in Nursing Curriculum (136 credits)

In addition to the course requirements listed below students must complete 10 honors courses with the junior experience and the senior capstone required. Students must also have a minimum GPA of 3.33. Details for honors can be found here:

<https://www1.villanova.edu/university/academic-enterprise/honors/curriculum/nursing.html>

First Year

Fall Semester

Item #	Title	Credits
CHM 1131	General Chemistry I	3
CHM 1107	General Chemistry Lab: Nursing	1
ACS 1000	Ancients	3
NUR 1102	Intro to Prof Nursing	2
	PSY 1000 or SOC 1000	3
	THL 1000 or PHI 1000	3

Spring Semester

Item #	Title	Credits
CHM 1134	General Chemistry II	3
CHM 1108	General Chemistry Lab II	1
ACS 1001	Moderns	3
NUR 1104	Intro to Prof Nursing Practice	2
	PSY 1000 or SOC 1000	3
	THL 1000 or PHI 1000	3
ENG 1050	The Literary Experience	3

Sophomore

Fall Semester

Item #	Title	Credits
BIO 1205	Human Anatomy & Physiology I	4
BIO 1181	Microbiology and Genetics	3
NUR 2204	Health Assessment	2
NUR 2205	Practicum in Health Assessment	1
PSY 3200	Human Development	3
	NTR 2120 OR STAT 1250 OR Social Studies Elective*	3

Spring Semester

Item #	Title	Credits
BIO 1206	Human Anatomy & Physiology II	4
NUR 2810	Resrch & Sci Evid in Nsg Prac	3
NUR 2206	Essentials of Nursing Practice	2
NUR 2207	Practicum in Essen of Nsg Prac	2
	Social Studies Elective*	3
	NTR 2120 OR STAT 1250	3

Junior

Fall Semester

Item #	Title	Credits
NUR 3114	Nsg Care Adults & Older Adults	6
NUR 3115	Prac Nsg Adults & Older Adults	6
NUR 3108	Pathophysiology	3
NUR 3030	Basic Conc Pharmacology	3

Spring Semester

Item #	Title	Credits
NUR 3118	Nsg Care Women & Childbear Fam	3
NUR 3119	Prac Nsg Women & Childbear Fam	3
NUR 3120	Psychiatric & Mental Hlth Nsg	3
NUR 3121	Prac Psych & Mental Hlth Nsg	3
NUR 3122	Imper for Global & Pub Health	3
PHI 2115	Ethics for Health Care Prof	3

Senior

Fall Semester

Item #	Title	Credits
NUR 4104	Nsg Adults w Comp Hlth Prob	3
NUR 4105	Prac Adults w Comp Hlth Prob	3
NUR 4108	Nsg Care Child & Adol	3
NUR 4109	Prac Nsg Care Child & Adol	3
NUR 4114	Nursing and Health Policy	2
	THL Elective	3

Spring Semester

Item #	Title	Credits
NUR 4112	Health Prom & Home Health	3
NUR 4113	Prac Health Prom & Home Health	5
NUR 4116	Leadership & Management	2
NUR 4117	Fld Work Leadership & Mgmt	3
NUR 4200	Seminars in Selected Topics	1
	Free Elective	3

Students are required to select three electives: One upper level Theology (in addition to Theology 1000), one Social Studies (selected from the areas of History, Political Science, or Economics) and one free elective in an area of the student's interest.

Category Descriptions

PSY 1000 or SOC 1000

Credits: 3

Item #	Title	Credits
PSY 1000	General Psychology	3
SOC 1000	Intro to Sociology	3

THL 1000 or PHI 1000

Credits: 3

Item #	Title	Credits
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3

NTR 2120 OR STAT 1250 OR Social Studies Elective*

Credits: 3

Item #	Title	Credits
NTR 2120	Principles of Nutrition	3
STAT 1250	Stats in Health Care Research	3
	Social Studies Elective*	3

Social Studies Elective*

Credits: 3

Must be selected from the areas of History (HIS), Political Science (PSC), or Economics (ECO) in consultation with the student's major adviser.

NTR 2120 OR STAT 1250

Credits: 3

Item #	Title	Credits
NTR 2120	Principles of Nutrition	3
STAT 1250	Stats in Health Care Research	3

THL Elective

Credits: 3

2000 level or above is recommended

Free Elective

Credits: 3

One free elective in an area of the student's interest

Nursing, B.S.N. Bachelor of Science in Nursing Curriculum (136 credits)

Type: Bachelor of Science in Nursing

First Year

Fall Semester

Item #	Title	Credits
CHM 1131	General Chemistry I	3
CHM 1107	General Chemistry Lab: Nursing	1
ACS 1000	Ancients	3
NUR 1102	Intro to Prof Nursing	2
	PSY 1000 or SOC 1000	3
	THL 1000 or PHI 1000	3

Spring Semester

Item #	Title	Credits
CHM 1134	General Chemistry II	3
CHM 1108	General Chemistry Lab II	1
ACS 1001	Moderns	3
NUR 1104	Intro to Prof Nursing Practice	2
	PSY 1000 or SOC 1000	3
	THL 1000 or PHI 1000	3
ENG 1050	The Literary Experience	3

Sophomore

Fall Semester

Item #	Title	Credits
BIO 1205	Human Anatomy & Physiology I	4
BIO 1181	Microbiology and Genetics	3
NUR 2204	Health Assessment	2
NUR 2205	Practicum in Health Assessment	1
PSY 3200	Human Development	3
	NTR 2120 OR STAT 1250 OR Social Studies Elective*	3

Spring Semester

Item #	Title	Credits
BIO 1206	Human Anatomy & Physiology II	4
NUR 2810	Resrch & Sci Evid in Nsg Prac	3
NUR 2206	Essentials of Nursing Practice	2
NUR 2207	Practicum in Essen of Nsg Prac	2
	Social Studies Elective*	3
	NTR 2120 OR STAT 1250	3

Junior

Fall Semester

Item #	Title	Credits
NUR 3114	Nsg Care Adults & Older Adults	6
NUR 3115	Prac Nsg Adults & Older Adults	6
NUR 3108	Pathophysiology	3
NUR 3030	Basic Conc Pharmacology	3

Spring Semester

Item #	Title	Credits
NUR 3118	Nsg Care Women & Childbear Fam	3
NUR 3119	Prac Nsg Women & Childbear Fam	3
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NUR 3122	Imper for Global & Pub Health	3
PHI 2115	Ethics for Health Care Prof	3

Senior

Fall Semester

Item #	Title	Credits
NUR 4104	Nsg Adults w Comp Hlth Prob	3
NUR 4105	Prac Adults w Comp Hlth Prob	3
NUR 4108	Nsg Care Child & Adol	3
NUR 4109	Prac Nsg Care Child & Adol	3
NUR 4114	Nursing and Health Policy	2
	THL Elective	3

Spring Semester

Item #	Title	Credits
NUR 4112	Health Prom & Home Health	3
NUR 4113	Prac Health Prom & Home Health	5
NUR 4116	Leadership & Management	2
NUR 4117	Fld Work Leadership & Mgmt	3
NUR 4200	Seminars in Selected Topics	1
	Free Elective	3

Students are required to select three electives: One upper level Theology (in addition to Theology 1000), one Social Studies (selected from the areas of History, Political Science, or Economics) and one free elective in an area of the student's interest.

Category Descriptions

PSY 1000 or SOC 1000

Credits: 3

Item #	Title	Credits
PSY 1000	General Psychology	3
SOC 1000	Intro to Sociology	3

THL 1000 or PHI 1000

Credits: 3

Item #	Title	Credits
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3

NTR 2120 OR STAT 1250 OR Social Studies Elective*

Credits: 3

Item #	Title	Credits
NTR 2120	Principles of Nutrition	3
STAT 1250	Stats in Health Care Research	3
	Social Studies Elective*	3

Social Studies Elective*

Credits: 3

Must be selected from the areas of History (HIS), Political Science (PSC), or Economics (ECO) in consultation with the student's major adviser.

NTR 2120 OR STAT 1250

Credits: 3

Item #	Title	Credits
NTR 2120	Principles of Nutrition	3
STAT 1250	Stats in Health Care Research	3

THL Elective

Credits: 3

2000 level or above is recommended

Free Elective

Credits: 3

One free elective in an area of the student's interest

College of Professional Studies

College of Professional Studies Directory

Christine Kelleher Palus, Ph.D., Dean
David Cregan, O.S.A, Ph.D., Associate Dean,
Academic Affairs & Strategic Initiatives
Susan Leighton, M.B.A., Assistant Dean,
Academic Programs
Pete Watkins, Ph.D., Director, Teaching, Learning
and Assessment

Offices: Vasey Hall, First Floor, Telephone:
610.519.4300

Email: cpsinfo@villanova.edu

Website: <https://www1.villanova.edu/university/professional-studies.html>

History

In May 2014, Villanova University created the College of Professional Studies (CPS)— the first new College at the University in 50 years. CPS provides academically rigorous undergraduate degree and certificate programming, as well as professional education —on campus and online—for the adult learner and working professional.

CPS continues Villanova's century-old tradition of service to adult learners and complements Villanova's breadth of academic offerings by providing innovative programs with flexible delivery options.

Academic Mission

The College of Professional Studies (CPS) provides an academically rigorous education to high-achieving adults who are balancing educational and professional aspirations with life's commitments.

Grounded in the Augustinian mission and core values of *Veritas*, *Unitas*, and *Caritas*, CPS celebrates the diversity and creativity of all

members of our academic community, and seeks to inspire global citizenship, professional excellence, and lifelong learning.

CPS embodies Villanova's enduring commitment to provide access to academic excellence, and offers premier, relevant, and innovative programs, taught by an engaging faculty of scholars and practitioners.

Vision

We strive to provide a purposeful, transformative, and results-driven education for students at all stages of their lives.

We are committed to a supportive and collaborative educational experience. We want our students to feel empowered and emboldened.

We will be a preeminent hub for innovative professional programming.

Our curriculum is designed to be focused, responsive, and nimble, drawing inspiration from evolving workforce and career trends.

Students served at CPS include working professionals who seek to complete an undergraduate degree or credit-bearing certificate with flexible course options; postgraduates who seek requirements for admission to graduate or professional schools or advanced certifications; students interested in undergraduate courses as a non-matriculated student for personal development; senior level high school scholars seeking individual university level courses; and senior citizens (age 65 and over) who wish to enroll in undergraduate courses for personal enrichment.

Degree-seeking students have typically earned a minimum of 15 college credits or completed a minimum of four years post-secondary work experience, military experience, professional education, or a combination of the three.

Academic and Student Information

Academic Advising

Kirstin DeFusco Houtz, M.S., Associate Director, Advising

Robyn Dooley, Academic Advisor

Olivia D'Aiutolo Mendenall, M.Ed., Academic Advisor

102 Vasey Hall

Telephone: 610-519-4300

Website: https://www1.villanova.edu/content/university/professional-studies/villanova-cps-experience/advising/advising_support_for_credit.html

Academic Advisors serve a supporting yet vital role to the student's success at Villanova and thereafter. We seek to cultivate students who are advancing their educational pursuits to be changemakers in the communities. We understand the demands on our student population and first seek to meet them where they are in their journey. By doing so, our goal is to develop and nurture the total person to help students achieve their academic, personal, and professional aspirations.

In line with the mission of the University and College, we adhere to the following enduring commitments:

- To foster academic excellence
- To honor our values and traditions
- To serve our students, alumni, and global community.

Leadership, Internship, and Professional Development Opportunities

The College of Professional Studies offers various opportunities for students to earn academic credit while enhancing professional growth through practical experiences and workshops. Through consultation with their advisor, students can choose from the courses below to complement their undergraduate major curriculum.

CPS 1001 College and Professional Success Strategies

This course is designed to lay the groundwork for first-year students' success at Villanova and thereafter. Students will gain knowledge about Villanova, acclimate to the academic world, and develop a sense of self-awareness. Class meetings will introduce students to pertinent topics and valuable campus resources that will support and contribute to a successful academic career.

CPS 1002 Tech Competency

This course is designed for first-year students within the College of Professional Studies and to provide a framework for readiness and success to adopt, adapt, and apply technology for success at Villanova and thereafter. Aligned with CPS 1001, in this course, students gain knowledge about various technology platforms that are essential to your success as a college student.

CPS Internship Practicum

Internships provide concrete opportunities for students to make tangible connections between classroom theory and practical application. Students may earn up to six (6) credit hours for outside-of-the-classroom work while completing corresponding assignments. To be eligible, students must be matriculated, in good academic standing and have earned at least fifteen (15) credits at Villanova. All internships must be approved by the Assistant Dean of Academic Programs and faculty chair of the intern's sponsoring academic area.

CPS Leadership Symposium

The annual Leadership Symposium is a professional education course designed to bring together managers, team leaders, and change agents for an intensive, engaging, and interactive learning experience. The symposium is offered as either a 3-credit course or a non-credit certificate course.

CPS Professional Development Courses

CPS offers a series of one (1)-credit workshops to fulfill our commitment to providing innovative, academically rigorous, and relevant educational experiences for our students. These timely

courses vary each semester as they are responsive to career trends, the evolving workforce, and global events.

Awards

Dean's List

At the end of the fall and spring semesters, the College of Professional Studies officially recognizes its high-achieving students by including their names on the Dean's List. Inclusion on this list recognizes a student's commitment to an intellectually rigorous education in the liberal arts and sciences, one that fosters critical insight, mature judgment, and independent thinking. Approximately two months after the end of the semester, an appropriate letter of acknowledgement is sent to the student at the permanent address on file with the University. In addition, students' names are displayed on various media outlets and throughout the college. To be eligible for this honor, students must meet the conditions below:

- Must be a matriculated degree-seeking student within the College of Professional Studies
- Completed at least six (6) credits in a given semester • Achieved a minimum semester average GPA of 3.50
- At least six (6) credits must be graded using the standard letter grade method
- At time of calculation, had no Incomplete (N) nor unreported grades (NG)
- Grades such as S, WX, or N grades are not permitted in credits counting towards Dean's List

Approved by Dean Palus 01.20.2021

College Medallion

The CPS Medallion of Academic Excellence is given each year by the College of Professional Studies in recognition of outstanding achievement in a specific major. It is the highest distinction the College can award to a graduating student and serves as a visible symbol of the significant contributions made by the recipient to the life of our College Community. Medallion recipients are selected based on criteria including cumulative grade point average, academic creativity, and perseverance.

Current Villanova Students

Current Students register using the MyNOVA system, after obtaining their PIN from their academic advisor. Students dismissed from Villanova University may not attend Summer Sessions.

For more information on summer sessions and assistance with registration, call (610) 519-4300 or visit <https://www1.villanova.edu/content/university/summer-sessions.html>.

Student Class Levels

Students at CPS are classified into the following levels based on their corresponding earned credit hours as follows:

Class Level Credit Hours Earned

Freshmen	0 - 29
Sophomores	30 - 59
Juniors	60 - 89
Seniors	90 +

Flexible Enrollment Options

The College of Professional Studies offers flexible pathways designed to help adult students achieve their academic goals while balancing life's responsibilities. Courses are delivered via in-person, online or hybrid modalities. In addition, various course lengths are offered including full semester, seven weeks (fast forward), and weekend.

Full Semester Courses

Courses that run the full semester follow the Undergraduate Academic Calendar dates and deadlines found on the Provost's website:

<https://www1.villanova.edu/villanova/provost.html>.

Fast Forward Courses

Fast Forward courses are designed to help adult students accelerate their path toward graduation. These courses are restricted to CPS students only and are scheduled as two-seven-week sessions throughout the fall and spring semesters. The session's start and end dates coincide with the Villanova University Academic Calendar and are listed on the CPS website: https://www1.villanova.edu/villanova/professionalstudies/Course_Schedules/calendar.html.

Schedule and Time Sequence

Fast Forward courses* are held in person on weekday evenings, or offered online as distance learning. On campus courses are designed with 1,470 minutes of in person class time and an additional 780 minutes of required instructional equivalent online activities and assignments for a total of 2,250 minutes or 37.5 hours per course.

Fully online courses also meet for the equivalent of 2,250 minutes using a combination of live instruction time (1-2 hours per week) and instructional equivalent activities.

Weekend Courses*:

Courses offered over a weekend meet on Friday evening for 3 hours, a full day on Saturday (8 hours) and Sunday morning (3 hours). These courses require additional pre and post meeting reading and assignments.

**Specific attendance and drop/add policies apply, please refer to the Attendance Policy and Drop, Add, Withdrawal and Refund Policies for more information.*

Course Modality

Courses are offered in person (on campus or another location), online (DL) or hybrid. Modality is identifiable by attribute in the Master Course Schedule. Online courses may be either synchronous which require virtual live class sessions, or asynchronous which have no requirement for live class sessions.

Variable Course Load

Students may vary their course load semester by semester, depending on their professional and personal demands. Full time status is defined as attempting 12 or more credits per semester; students attempting less than 12 credits per semester are considered part-time.

Students requesting to enroll in more than 17 credit hours in a single semester (but less than or equal to 21 credits) must have a GPA of at least 3.0 and must meet with their advisor prior to submission of the [Credit Increase Request Form](#).

Change of course load may affect financial aid status; students should contact the Office of Financial Assistance for more information. Please see the Bursar's website for more information about credit limits and costs.

Summer Sessions

The summer program at Villanova is designed to assist students from across the University as well as visitors in fulfilling their academic needs through a variety of courses offered each summer.

Summer sessions run two four-week sessions, and one eight-week session, and follow the dates specific on the [University Academic Calendar](#).

Visiting Students

Visiting students from other colleges/universities are required to apply to the College of Professional Studies. Academic advisement and the transferability of a Villanova summer course to the visiting student's college/degree program is the responsibility of the student.

Admissions

Admissions Requirements

Students in the College of Professional Studies are typically working professionals who are seeking to complete their degree or credit-bearing certificate in a flexible manner. Our students have usually earned prior college credit and/or an associate's degree. For students without earned college credit, we require a minimum of four years post-secondary work experience, military experience, professional education, or a combination of the three before applying to our degree or credit-bearing certificate programs.

Students in the College of Professional Studies, on average, are 37 years old with 5-11 years' work experience and have generally earned at least 15 college credits.

Prospective adult students interested in applying to a degree or credit-bearing program in the College of Professional Studies will need to submit the following to be considered for admissions:

Degree Programs

- Application fee: \$50.
- Official college transcript(s) for each school attended. *Note: Unofficial transcripts can be*

submitted as part of the application, but official transcripts must be received by CPS upon admission and before registration

- An official high school transcript, or proof of passing the GED, is only required for students who have not earned 15 or more college credits.
- A 350-word essay, discussing your interest in the program to which you are applying, and the goals you wish to achieve as a result of attainment of a degree.
- Current resume showing 4 years of post-secondary work experience.

Credit-Bearing Certificate Programs Certificate in Accountancy

- Application fee: \$50.
- Official transcript documenting a Baccalaureate degree from an accredited institution. *Note: Unofficial transcripts can be submitted as part of the application, but official transcripts must be received by CPS upon admission and before registration.*

Certificate in Information Systems and Technology & Certificate in Leadership

- Application fee: \$50.
- Official college transcript(s) for each school attended. *Note: Unofficial transcripts can be submitted as part of the application, but official transcripts must be received by CPS upon admission and before registration.*
- An official high school transcript, or proof of passing the GED, is required for students who have not earned 15 college credits.
- Bachelor's degree is not required to enroll and all credits earned can be applied towards a degree at CPS.

Pre-Health Professions Certificate

- Application fee: \$50.
- Official transcript documenting a Baccalaureate degree from an accredited institution. *Note: Unofficial transcripts can be submitted as part of the application, but official transcripts must be received by CPS upon admission and before registration.*
- Statement of Purpose describing the applicants' career and educational goals, reasons for pursuing the Pre-Health Certificate, and please explain if the applicant believes their transcripts and previous academic history do not present an

accurate picture of their academic ability. The statement of purpose should be around 1-2 pages.

College of Professional Studies International Student Admissions

- Application fee: \$50.
- Transcripts: High school transcripts and official transcripts from all institutions of higher education where applicant completed coursework are required. Official English translation required by [WES](#) or [NACES](#) approved agency.
- Non-native English speakers must also submit official scores from either [TOEFL](#) or [IELTS](#).
- Completed Certification of Finances form along with bank statement (dated no later than three months prior to the submission of your application) showing the ability to meet tuition and living expenses. If the bank statement is not in the applicant's name, then a letter of support must accompany the bank statement of the account holder stating he/she will financially support the application while he/she is attending Villanova.

The College of Professional Studies does not offer student housing. All international CPS students must secure their own housing.

International students are only admitted to the following CPS credit-bearing programs:

- Bachelor of Interdisciplinary Studies (BIS)
- Bachelor of Arts in Leadership Studies (BA)

Official Transcripts should be sent to:

- **Mail** - Villanova University, College of Professional Studies, 800 Lancaster Avenue, Villanova, PA 19085;
- **Electronic** - cps.info@villanova.edu

Individual Courses at Villanova

The College of Professional Studies welcomes students interested in taking individual courses, but not enrolling in a degree program. These students typically enroll for professional enrichment or to complete prerequisite courses for another program. The application process to enroll in individual courses is competitive and

dependent upon course availability. Students must have completed at least 15 college credits and demonstrated strong academic performance.

Students who are currently enrolled in another college or university can apply and be considered based on individual circumstances and with an official letter from their home institution. The letter must state that they are in good academic and disciplinary standing and the credits earned at Villanova can be transferred to the home institution.

Students accepted to enroll in individual courses are only eligible to enroll in a maximum of 9 credits.

During the University's Summer Sessions, anyone who has earned a high school diploma (including individuals who are enrolled in another university) may apply to enroll in a course as a visiting student. Students must submit a copy of their high school or college transcript. High school applicants must have at least a 3.0 GPA.

Admissions Policies

Admission Deferment Policy

Students who confirmed admission to CPS who now wish to defer their start date to a later semester may apply for an admission deferment.

Requests to defer an offer of admission will be reviewed on a case-by-case basis and may be granted for reasons including illness, military service, or other extenuating circumstances. Supporting documentation must be provided with the application for deferment.

An admission deferment may be granted for a maximum of one year. Deadline for application of deferment is the same date as the drop/add deadline for the current semester.

Failure to meet any of these terms may result in the revocation of admission. In such a case, an applicant will be required to reapply for admission to the University by the appropriate application deadlines.

Readmission Policy

Students are expected to make adequate, timely progress toward completion of their degree or credit-bearing certificate in the College of Professional Studies. Students who have

voluntarily withdrawn from the College or have been away from the program without notifying the University for one academic calendar year may submit a petition for re-admission. In addition to submitting a petition, students will need to submit a new application to CPS. Petitions should be addressed to the Dean of the College of Professional Studies. The decision to re-admit students is made by the Dean, in consultation with the Director, Admissions and Enrollment and the Assistant Dean, Academic Programs.

Students may only re-admit one time to the College of Professional Studies.

To have re-admission considered, a former student should submit the following in their petition:

1. Full name at time of previous enrollment.
2. Name of previous degree / credit-bearing certificate program and major (if applicable).
3. Dates of attendance.
4. Reasons for withdrawal or absence.
5. Timetable for completion of degree / certificate requirements including expected date of graduation, if re-admitted.
6. Official transcripts of any universities attended since you left Villanova.
7. Complete the Declaration of Major Form (only required if applicant has completed 72 or more Villanova credits)

Students who are successfully re-admitted are subject to the rules and degree requirements as specified in the Undergraduate Catalog in effect for the academic year in which they are re-enrolled. This means that students will be required to complete any new courses or other graduation requirements that are currently required. A return to study is not always granted. Prior acceptance to any Villanova program does not guarantee future acceptance to that same or another program regardless of coursework completed or GPA.

The Dean will review the petition, the Assistant Dean's and Director's recommendations and will contact the student with a final decision. All decisions made by the Dean on matters of readmission are final and without right of further appeal.

Exceptions to the conditions of the above policy will be made for service members who have not been able to attend school due to military service.

Per the Academic Standing Policy, found on the Office of the Provost's Website: "Any student who has not completed a degree within twelve years must complete a degree through CPS. If the degree or major pursued by the full-time student is not offered by CPS, then the former full-time student must choose a degree and/or major offered to part-time students."

Curriculum

Academic Programs Offered

The College of Professional Studies offers four undergraduate degrees - Bachelor of Interdisciplinary Studies (BIS), Bachelor of Arts (BA), Associate of Arts (AA) and Associate of Science (AS) degree. In partnership with the College of Liberal Arts and Sciences, CPS also offers other degrees including a Bachelor of Science (BS). These degrees, varied majors, and delivery options provide applicable, relevant, flexible, and engaging courses of study for adult learners.

Degrees	Major	Delivery Option	Credits
Associate of Arts (AA)	n/a	On Campus, Hybrid, Online	60
Associate of Science (AS)	n/a	On Campus, Hybrid	60
Bachelor of Interdisciplinary Studies (BIS)	General Studies	On Campus, Hybrid, Online	120
	Entrepreneurship	Hybrid, Online	120
	Human Resource Management	Hybrid, Online	120
	Information Systems and Technology	Hybrid, Online	120
	Leadership	Hybrid, Online	120
	Organizational Development and Management	Hybrid, Online	120
	Public Service and Administration	On Campus, Hybrid, Online	120
	English*	On Campus, Hybrid	122
	History*	On Campus, Hybrid	122
Bachelor of Arts (BA)	Leadership	Hybrid, Online	122
	Public Service and Administration	On Campus, Hybrid, Online	122

Degrees	Major	Delivery Option	Credits
Bachelor of Science	Computer Science*	On Campus, Hybrid	122

*Majors offered in partnership with the College of Liberal Arts & Sciences may require daytime classes to complete.

Minor Options

A minor in a specific academic discipline typically consists of 15% or more of the total hours required in an undergraduate curriculum. Courses that satisfy minor curricula may only count in one other area in a student's degree (i.e., LDR 2070 may count for both Leadership minor and ODM major). A maximum of 1 (one) transferred course may be applied to the minors listed below. In addition to the four minors below, CPS students have the option of pursuing minors housed in other colleges across Villanova. Students must adhere to all guidelines outlined by the issuing college and/or department. To declare a CPS minor, students must complete the [Change to Major/Minor Form](#).

Minors	Delivery Options	Credits
Entrepreneurship	Hybrid, Online	15
Human Resource Management	Hybrid, Online	15
Information Systems and Technology	Online	15
Leadership*	Hybrid, Online	18
Organizational Development and Management	Online	18

*Leadership minor is also available to Army ROTC students enrolled in CLAS. Those students must follow CLAS guidelines of overload and are restricted to one (1) Fast Forward course each semester.

Combined Bachelor/Master Programs

The combined bachelors to masters programs offer exceptional CPS students the opportunity to start taking master's level courses that will count towards both a bachelor's and a master's degree. To be eligible for a combined degree program, students must have:

- completed all core requirements,
- earned a minimum of 90 credit hours, and
- submit the Combined Bachelor/Masters Program Interest [Form](#).

Students are expected to consult with their academic advisors on the applicability of graduate level coursework towards their undergraduate degree. Applications are officially reviewed by the respective graduate program.

Students must adhere to all policies outlined the graduate program if admitted into a combined program.

Degrees	Eligible Majors	Credits
BIS/MS in Human Resource Development	General Studies	147
	Human Resource Management	147
	Leadership	147
	Organizational Development and Management	147
BIS/MS in Software Engineering	Information Systems and Technology	141
BIS/MPA or BA/MPA in Public Administration	General Studies	150
	Leadership	150/ 152
	Organizational Development and Management	150
	Public Service and Administration	150/ 152

Credit-Bearing Certificates

CPS offers four certificate programs designed for post-graduate work or students who have not earned a bachelor's degree and want to specialize in a particular area.

Certificates	Delivery Options	Credits
Accountancy	On Campus	36
Information Systems and Technology* (two tracks)	On Campus, Hybrid, Online	18
Leadership*	Hybrid, Online	15
Pre-Health Professions	On Campus	30

*Credit-bearing certificate programs that do not require a bachelor's degree prior to admission transfers seamlessly into an AA or baccalaureate degree program.

Degree Requirements

Each baccalaureate degree is made up of three distinct categories: Core Curriculum, Major Requirements, and Free Electives.

The Associate degrees are comprised of the Core Curriculum and Free Electives only. The core area follows specific course curricula; however, students have freedom to choose courses for

their free electives (see Free Electives policy). Students must meet the following requirements to earn an associate or baccalaureate degree from Villanova University:

- Earned the minimum number of credit hours of the designated program
- Successful completion of the Core Curriculum, Major Requirements (if applicable), and Free Electives
- Achieve a 2.0 cumulative grade point average (GPA) for all course work taken at Villanova
- A minimum of half of the Core Curriculum requirements must be fulfilled at Villanova (AA, AS, BA, and BS only)
- A minimum of half of the requirements for the major must be fulfilled at Villanova
- At least 90 credits of a BIS degree and 30 credits of an associate degree must be earned at Villanova (See [CPS Transfer Credit Policy](#))
- Residence requirement is met (see University [policy](#))
- Discharge of all financial obligations to Villanova University.

A student's eligibility for graduation is determined by the Assistant Dean, Academic Programs. It is the student's responsibility to ensure all requirements for graduation are met.

Bachelor of Interdisciplinary Studies Core Curriculum

The Bachelor of Interdisciplinary Studies (BIS) follows a specific core curriculum which provides flexibility permitting students to select classes in line with their personal interests and experiences as well as their professional goals from a variety of different disciplines. The BIS core curriculum is designed to supplement a student's major coursework where students will refine their critical thinking and writing skills through different modes of inquiry. These courses, rooted in the liberal arts, encourage students to discover interrelated patterns throughout the various disciplines to promote active participation within the global community.

Bachelor of Interdisciplinary Studies Core Curriculum (45 Credits)

Humanities in Augustinian Tradition (3 Courses, 9 Credits)

Item #	Title	Credits
ACS 1000	Ancients	3
PHI 1000	Knowledge, Reality, Self	3
THL 1000	Faith, Reason, and Culture	3

Civic and Ethical Leadership (3 Courses, 9 Credits)

Item #	Title	Credits
ETH 2050	The Good Life:Eth & Cont Prob	3
	American Perspectives	3
	Global Perspectives	3

Communication and Writing Skills (2 Courses, 6 Credits)

Item #	Title	Credits
	COM 1100 or COM 1101	3
ENG 1050	The Literary Experience	3

Quantitative and Scientific Literacy (6 Credits)

Item #	Title	Credits
	Natural Science	3
STAT 1260	Elementary Statistics	3

Cultural Appreciation (6 Credits)

Item #	Title	Credits
	Varies	6

Core Electives (9 Credits)

Item #	Title	Credits
	Varies	9

Category Descriptions

American Perspectives

Credits: 3

Courses at 1000+ level with an American perspective

Global Perspectives

Credits: 3

Courses at 1000+ level with a global perspective

COM 1100 or COM 1101

Credits: 3

Choose one.

Item #	Title	Credits
COM 1100	Public Speaking	3
COM 1101	Business & Prof Communication	3

Natural Science

Credits: 3

Mendel Science Experience

Varies

Credits: 6

Cultural studies, diversity requirements, film, fine arts, language, literature, theatre, etc.

Varies

Credits: 9

Courses at 2000+ level in the humanities, sciences, and social sciences

Free Electives

The final component of a student's degree is the Free Electives which are courses that neither satisfy the requirements of the Core Curriculum nor the student's individual Major. The number of Free Electives is dictated by the student's program as they make up the remaining credits needed to fulfill graduation requirements. These courses typically include any undergraduate course offered at Villanova. Free Electives allow students the flexibility to pursue interests outside their chosen major by taking individual courses or declaring a minor. Students are encouraged to discuss how their Free Electives should be utilized with their advisor. CPS has the following guidelines regarding Free Electives:

- Students may request S/U grading policy for a maximum of three (3) courses of their Free Electives

- Students may transfer in a maximum of eight (8) LFRE 1000 courses (up to 24 credits) that count as Free Electives

Academic and Student Policies

Unless otherwise noted, The College of Professional Studies follows the general University academic policies and regulations listed on the Office of the Provost's [website](#). It is the responsibility of the student to know and observe all academic policies and regulations of the University and the College of Professional Studies. Note: such policies may change without prior notice. Check the [CPS Policies & Forms](#) website for the most up to date information.

Academic Bankruptcy

A CPS student who formerly attended Villanova University and has returned after a period of 12 years or more with a cumulative GPA below a 2.00 may be permitted to request academic bankruptcy for work completed prior to their return. Students must have completed two consecutive semesters at CPS and have met all required conditions of their CPS admission. Normally grades which earned a D or below will be considered for bankruptcy. A maximum of 30 credits can be bankrupted. All bankrupted grades will be excluded from the cumulative grade point average (though a record of the student's work will remain on the transcript). Application must be made in consultation with academic advisor and must be accompanied by written explanation of request. All repeated courses must be taken at Villanova. Once academic bankruptcy has been approved, the student may not revoke the decision and the original grades cannot be reinstated. Academic bankruptcy may be granted only one time during a student's entire academic career at the University.

Advisors will educate students on this policy during their first meeting. Advisors will work up the Academic Bankruptcy Spreadsheet with the student's information. After the conclusion of their second consecutive semester, the form is submitted to the Assistant Dean, Academic Programs who sends it to the Assistant Director of Student Support Services for processing.

Advanced Academic Credit

In addition to the advanced academic credit accepted by the University, CPS students may gain credit by examination by means of the College Level Examination Program (CLEP) administered by the College Board. Credit is awarded for the CLEP Subject Examinations and NOT for the General Examinations. CLEP credits are considered transfer credits. A list of transferable CLEP courses is available on the CPS website. A score of 60 or higher on an approved Subject Examination will be considered for credit.

Incoming students who have taken Advanced Placement (AP) or International Baccalaureate Higher Level (IB) exams should contact their Academic Advisor to verify Villanova's receipt of the official scores and ensure that proper adjustments have been made to their academic record. Students should request that the College Board send AP scores directly to Villanova University (school code 2959).

A maximum of 90 transfer credits, which includes, CLEP, AP and IB credits, and credits from other colleges or universities, may be accepted toward a baccalaureate degree.

Students seeking to transfer credits should discuss transferability with their Academic Advisor.

Class Attendance

Attendance and engagement during classes are vital to student success. As such, CPS retains the following policies surrounding class attendance*:

- Full Semester Courses: CPS follows the University [Class Attendance Policy](#) for all full semester courses.
- Fast Forward Courses: Absences by students in Fast Forward classes are problematic due to the limited number of class sessions. If a student expects to miss more than one session, they should reconsider enrolling in the class. If a student misses more than one session, they may be required to provide documentation for the extenuating circumstance resulting in their absence(s) for it to be considered "excused." Excused absences include the list offered in the [Class Attendance Policy](#).

- Weekend Courses: Students are required to attend all sessions of a course offered over a weekend.

*Instructors determine the class attendance policies for their individual classes and must list such policies in their syllabus. Students should refer to the course syllabus for class attendance policy.

- Drop, Add, Withdrawal, and Refund Policies
 - Full Semester Courses: CPS follows the University Policies and Deadlines found on the [academic calendar](#) for dropping/adding, withdrawal and refunds from full semester courses.
 - Fast Forward Courses: Students may add or drop a Fast Forward course within the first week of the class meeting. Dropping a Fast Forward course before this deadline creates no financial penalty, per the [Tuition Refund Schedule](#) via the Bursar's Office.

Students may receive an authorized withdrawal from a Fast Forward course without academic penalty and receive a grade of "WX" up to Week 4 (four) of the course. After that date, a student seeking authorized withdrawal without penalty must petition the Dean, who has sole authority to grant withdrawals without penalty. Students dropping or withdrawing from any course should review the Bursar's [Website](#) for information on tuition refunds.

Declaration of Major

Students enter the College of Professional Studies as undeclared regardless of their academic standing. The intention is for students to explore different major options by taking diverse classes during their early tenure.

To ensure students are progressing towards an undergraduate degree in a timely manner, all undeclared students must officially declare a primary major no later than the registration period during the term in which they will reach 72 completed academic credits. This includes all credits i.e., Villanova, transferred from other institutions, and test credits. Once a student declares a major, they remain eligible to change their major and/or add a second.

Students are encouraged to consult with their advisor regularly to develop an individualized academic plan.

A registration hold will be placed on a student's account who does not declare a major by the required term. This hold will prevent students from all future registration activities (i.e., adding, dropping, or withdrawing) until it is cleared. To clear this registration hold, undeclared students must declare a major.

Students officially declare a major by submitting the online Change to Major/Minor Form on the [CPS Policies and Forms webpage](#). To access this form, students will need to log in with their Villanova single sign on

Declaration of Major for Returning Students

Those students who are coming back to Villanova with less than 48 credits remaining must declare their major prior to being admitted. Admissions will send them the [Declaration of Major Form for Former Villanova Students](#). Once the student fills it out, it is approved by CPS advisor, then sent to Assistant Director, Student Support Services for submission to the Registrar. Once the new major is applied, notification is sent to CPS advisor, the student, and CPS Admissions.

Double Major

Students may choose to double major by declaring a secondary major in another discipline within the College of Professional Studies. A student may not declare a secondary major without first declaring their primary major.

Typically, the first major that a student declares will be treated as their primary major unless they choose to double major in a BIS and BA or BS program. In this situation, the BA or BS major will become the student's primary major, and BIS will be secondary. If a student wishes to keep the BIS major as their primary major, their secondary major must be a BIS as well. Students adhere to the core curriculum for their primary major.

To complete a second major, a student must complete all credits required for that major. With the permission of the Assistant Dean, Academic Programs, students may share a limited number of credits between the primary and secondary

major. Declaring a second major may mean that the student will need to complete more credits than the original degree or major requires.

Students who major in General Studies, BIS are not permitted to select a secondary major due to the interdisciplinary nature of this program. Students are welcome to select one or multiple minors.

Multiple majors, regardless of college, will appear on a student's transcript; however, a student will receive one diploma. Students who have completed all the requirements for two or more degrees – i.e., BA and BIS, BA and BS, or BIS and BS – must choose which degree to take – unless they have completed 43 or more additional credits beyond the greater of the two program credit requirements, in which case they may receive two degrees and two diplomas.

There are some circumstances where students may pursue a secondary major in another college at Villanova. They must adhere to all guidelines of the issuing college to complete the program requirements.

Secondary majors open to all Villanova students:

- [Theology](#)

Graduate Courses (Undergraduates Taking Graduate Courses)

Matriculated undergraduate students are permitted to take graduate courses according to the Provost's [Policy on Undergraduates Enrolling in Graduate Courses](#). The following additional criteria determines a students' eligibility:

- Senior standing (see student class levels)
- Cumulative GPA of 3.2
- Submit the [Permission to Enter Graduate Courses](#) form

Students who are considering a master's degree are encouraged to take graduate level courses. Up to nine credits may be shared between a student's undergraduate and graduate degrees. Students do not have to be admitted to a combined bachelor/master's program to take graduate level courses. If a non-matriculated

post-graduate student wants to take graduate level courses, they will be referred to the College offering the course they wish to take.

Request to Take Course(s) at Another Institution

Once a student has matriculated in a degree program at Villanova University, credit for courses from other universities may only be transferred to Villanova under certain circumstances. Students may request to enroll in courses at another institution by submitting this [linked form](#). Students permitted to take courses at another institution are required to adhere to Villanova's policy on [transfer credits from another institution](#) and College of Professional Studies' [transfer credit policy](#).

Please note the following additional policies concerning transfer courses:

- Approval must be granted prior to enrolling in the course(s); Villanova credit will not be awarded for students who take a course(s) and retroactively seek approval.
- The deadline for submitting this [form](#) is 15 days prior to the start of the course.
- To be eligible for transfer credit from another institution a student must have a cumulative grade point average (GPA) of 2.0 or better and be in good academic standing. If GPA falls below 2.0 once grades are posted, the pre-approval will be voided.
- Grades earned in courses taken at other institutions are not factored into a student's Villanova GPA. A "T" grade will appear on the Villanova transcript and not the actual grade received.
- Courses offered at regionally accredited four-year and two-year institutions can be considered for transfer credit.
- All courses must be taken in the standard letter grade scale; Satisfactory/Unsatisfactory option is not applicable for transfer for Villanova credit.
- There may be additional restrictions on course applicability to core and major requirements depending on a student's degree and major.
- In all cases, the final 30 credits of a student's academic program must be completed at Villanova.
- Final official transcripts must be sent to Villanova College of Professional Studies at

the completion of the course to officially award credits towards a student's Villanova degree.

After speaking with an Academic Advisor, students can fill out this [form](#) to request permission to take courses at an external institution on the [Policies & Forms](#) page. When the student fills out the form, it is sent to the associate director of advising who vets the courses, then sent to the director of academic programs for final approval. All parties are notified once it is approved.

Repeating Courses

Unless otherwise stated in the catalog, students are not permitted to repeat courses previously taken at Villanova if they have received a passing grade without approval from the Assistant Dean, Academic Programs. If approved, the following conditions apply:

- All course attempts will be recorded on the Villanova transcript. Repeating a course does not replace the first attempt.
- All grades will appear on the Villanova transcript and factor into the GPA.
- The repeated course will only count for credit towards program requirements and graduation once.
- No course can be taken a third time; a student may only repeat a course once.

Request to Repeat a Course form on our [Policies & Forms](#) page.

Satisfactory/Unsatisfactory Grading Policy

In courses with standard grading, students may request the Satisfactory (S)/Unsatisfactory (U) grading option, subject to the guidelines indicated by the University which can be found in this Catalog. The University defers to individual colleges for further guidelines on the use of a Satisfactory (S)/Unsatisfactory (U) option. CPS students are subject to the following guidelines:

- The S/U option is available only to those students whose cumulative GPA is 3.0 or better
- Students who have reached sophomore status are eligible to request S/U grading

- A total of five (5) Villanova courses can be graded on an S/U basis during a student's academic career.
- A limit of one (1) course per semester (Fall, Spring or Summer) may be taken on a S/U basis.
- Courses that fulfill major or minor requirements are not approved for S/U grading
- A maximum of two (2) courses in the Core Curriculum (BIS students only) may be graded on S/U basis
- A maximum of three (3) courses in the Free Electives area may be graded on S/U basis
- The Withdrawal (WX) policy and procedures are the same as a standard graded course
- The "S" grade is equivalent to a grade of "C" or better.
- Satisfactory/unsatisfactory grades will be shown on the transcript but will not be reflected in the quality point average.
- Requests for S/U grading are made by completing and submitting the required [form](#) (located on the Registrar's website: <https://www1.villanova.edu/villanova/enroll/registrar/forms.html>) prior to the drop/add deadline.

Transfer Credit Policy

The College of Professional Studies accepts a maximum of 90 total transfer credits toward a bachelor's degree. Eligible transfer credits are considered from one or a combination of the following sources: other regionally accredited institutions, CLEP, Credit by Examination, AP or ACE. Transfer credits are accepted on the basis of course equivalency and must have a course grade of C or higher. Normally, once a student is matriculated at CPS, all credits must be earned at Villanova. Transfer credits have no impact on cumulative grade point average. Transferability is evaluated and determined by the College of Professional Studies in conjunction with the Office of the Registrar as needed.

Procedure:

At application, prospective students must submit all official transcripts. Once student is accepted to CPS, all transcripts are evaluated by the academic advisor and approved by the Associate Director, Advising.

Guidelines:

Credits transferred from another institution of higher learning must be from a regionally accredited institution of higher learning and must have a grade of C or higher.

A maximum of 15 ACE credits are transferrable and must be from either Joint Military Transcript or Professional Education Courses offered by Villanova University.

Transferred ACE credits are accepted only for courses that are non-major requirements .

All transfer credits older than 5 years must be approved by Associate Director, Advising and/or Department Chair.

A maximum of 24 credits can be transferred as LFRE courses

CLEP examinations with a score of 60 or higher are accepted for the following subjects only:

- American Government
- History of US I
- History of US II
- American Literature
- English Literature
- General Biology
- General Chemistry
- Introductory Psychology
- Human Growth & Development
- Calculus with Elementary Functions
- Introductory Sociology
- Western Civilization II

Under specific conditions, students may consider Credit by Examination. AP credits are accepted with an examination score of 4 or higher.

College Transfer Policy

Students enrolled in the College of Professional Studies (CPS) are not permitted to transfer into other colleges at Villanova.

Academic Programs

College of Professional Studies Accounting

Accountancy Certificate

The Certificate in Accountancy is designed to allow individuals who possess a non-business-related bachelor's degrees to acquire expertise in accounting. The program provides an educational opportunity for persons interested in securing careers in accounting in a diversity of environments in industry, business, and government, and the program also meets the needs of individuals who work in smaller businesses or who are self-employed and need knowledge of accounting practices to make critical business decisions.

The certificate requires 36 accounting and business-related credits which the state of Pennsylvania currently mandates as the minimum requirement to sit for the Certified Public Accountant (CPA) examination.

To be eligible for this certificate, a student must possess a bachelor's degree from an institution accredited by the appropriate regional accrediting association. To complete the certificate in Accountancy, 36 credits are required, 24 of which must be in the accountancy area. Students take six (6) required accounting courses and may choose six (6) electives from the list below. Students are required to have completed all prerequisite courses necessary (indicated in the course description within this catalog) for each course in the certificate program. A maximum of 4 courses, specifically Principles of Financial Accounting, Principles of Managerial Accounting, Corporate Responsibility, and Principles of Finance are permitted for transfer. No other transfer courses are permitted. All remaining upper-level courses in the certificate program must be completed at Villanova.

Certificate: 12 Courses, 36 Credits

Type: Certificate

Certificate Requirements (12 Courses, 36 Credits)

Required Course (6 Courses, 18 Credits)

Item #	Title	Credits
VSF 2004	Financial Accounting	3
VSF 3006	Prin of Managerial Accounting	3
ACC 2310	Intermediate Accounting I	3
ACC 2320	Intermediate Accounting II	3
ACC 2360	Federal Income Tax	3
ACC 2430	Auditing	3

Elective Courses (6 Courses, 18 Credits)

Item #	Title	Credits
ACC 2340	Accounting Information Systems	3
ACC 2410	Accounting for Real Estate	3
ACC 2420	International Accounting	3
ACC 2450	Advanced Accounting	3
ACC 2470	Cost Accounting	3
ACC 2480	Advanced Taxes	3
ACC 3350	Fraud Examination	3
BL 2185	Law of Contracts & Sales	3
VSF 2007	Corp Respon & Regulation	3
VSF 2009	Principles of Finance	3

College of Professional Studies

Associate of Arts

The Associate of Arts (AA) is an undergraduate degree program designed for students who want a rigorous and diverse general curriculum. Students will take courses in a broad range of disciplines, studying the Humanities, Social Sciences, Math, Natural Sciences, Language, Culture, and Fine Arts. Students can customize their academic plan with electives catered to their professional and personal interests. This post-secondary academic credential positions students for career advancement, and may be a first step towards earning a Bachelor's degree. An Associate's degree is also an appropriate pursuit for students who may be undecided on a major and still exploring their interests and career options.

The AA degree requires students to complete a minimum of 60 credits, 30 of which must be taken at Villanova University. Up to 30 credits can be transferred from an accredited institution.

The degree can be completed in-person on Villanova's campus, online, or as a hybrid program.

Type: Associate in Arts

Required Courses

Humanities in Augustinian Tradition - 12 credits

Item #	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
PHI 1000	Knowledge, Reality, Self	3
THL 1000	Faith, Reason, and Culture	3

Civic and Ethical Leadership - 3 credits

Item #	Title	Credits
ETH 2050	The Good Life:Eth & Cont Prob	3

Core Literature and Writing Seminar - 3 credits

Item #	Title	Credits
ENG 1975	Core Lit and Writing Seminar	3

History - 3 credits

Course designated as Core History

Item #	Title	Credits
	Core History Course	3

Fine Arts - 3 credits

Art History, Studio Art (Drawing, Painting, Calligraphy, Printmaking, Photography), Theater

Social Science - 3 credits

Economics, Gender & Women's Studies, Geography & the Environment, Global Interdisciplinary Studies, Political Science, Psychology, Public Administration or Sociology

Item #	Title	Credits
	Social Science	3

Math - 3 credits

Elementary Statistics or similar course

Item #	Title	Credits
STAT 1260	Elementary Statistics	3

Foreign Language - 6 credits

[Language Requirement \(Proficiency\)](#) or
Approved Culture Courses

Natural Science - 6 credits

Mendel Science Experience (MSE) thematically based courses designed for non-science majors or courses designed for science majors.

Free Electives - 18 credits

see [Free Electives Policy](#)

Category Descriptions

Core History Course

Credits: 3

Choose one of the specially designated core history courses (HIS 1060 through HIS 1250).

Social Science

Credits: 3

Choose from Criminology, Geography and the Environment, History, Political Science, Psychology, Public Administration, Sociology, and Social Science.

Associate of Science

The Associate of Science (AS) is an undergraduate degree program designed for students who want a rigorous and diverse general curriculum. In addition to focused coursework in Science and Math, the degree requires courses in the Humanities and Social Sciences and the academic plan can be customized with electives catered to the student's professional and personal interests.

This post-secondary academic credential positions students for career advancement, and may be a first step towards earning a Bachelor's

degree. In addition, earning this credential can set students apart from others in roles such as health care assistants, medical assistants, nurse assistants, dental assistants, etc. While these positions have specific training for their fields, an Associate of Science degree can differentiate one from other applicants. An Associate's degree is also an appropriate pursuit for students who may be undecided on a major and still exploring their interests and career options.

The AS degree requires students to complete a minimum of 60 credits, 30 of which must be taken at Villanova University. Up to 30 credits can be transferred from an accredited institution.

Type: Associate in Science

Humanities in Augustinian Tradition - 9 credits

Item #	Title	Credits
ACS 1000	Ancients	3
PHI 1000	Knowledge, Reality, Self	3
THL 1000	Faith, Reason, and Culture	3

Civic and Ethical Leadership - 3 credits

Item #	Title	Credits
ETH 2050	The Good Life: Eth & Cont Prob	3

Core Literature and Writing Seminar - 3 credits

Item #	Title	Credits
ENG 1975	Core Lit and Writing Seminar	3

History - 3 credits

Any History (HIS) Course

Social Science - 3 credits

Course designated as Core Social Science

Math and Science - 27 credits

Students must take 27 credits in Math and Science to include:

- At least one course in MAT/STAT
- Any science course appropriate for a major in a science department

Free Electives - 12 credits

Any courses listed in the course catalog.

Entrepreneurship

Entrepreneurship Major

This major is in partnership with Villanova's [Innovation, Creativity, and Entrepreneurship \(ICE\) Institute](#). This major prepares students to expand their knowledge, develop their skills, and convert their ideas into tangible products and organizations that can positively impact society and promote the common good. Guided by the values of curiosity, resiliency, collaboration, and creativity, this major is focused on helping students develop a habit of mind oriented towards innovation and entrepreneurship that is applicable to both work and life.

Students will cultivate their ability to accept criticism and experience failure as part of the creative, entrepreneurial process. Additionally, in line with the University's Catholic and Augustinian mission, a focus on ethics, social responsibility, and community as related to entrepreneurial pursuits is woven throughout the curriculum.

BIS - 120 Credits

Type: Bachelor of Interdisciplinary Studies

Major Requirements (30 Credits)

Required Core Courses (3 Courses, 9 Credits)

Item #	Title	Credits
ENTR 1000	The Basics of Entrepreneurship	3
ENTR 5000	Entrepreneurship Capstone	3
ODM 2050	Innovation & Creative Thinking	3

Major Electives (7 Courses, 21 Credits)

Item #	Title	Credits
LDR 2010	Strategic Planning for Leaders	3
LDR 2070	Strategy Driven Talent Mgmt	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2010	Foundations of Marketing	3
ODM 2020	Ethics, Regulations & Soc Resp	3
PA 3000	Overview of Non-Profit Sector	3
ENTR 3400	Entrepreneurship Practicum	3
	Any courses on Innovation, Creativity, and Entrepreneurship (ICE) list	
EGEN 2200	Opport Identif & Bus Principl	3
EGEN 3100	Feas Analysis for Entrepreneur	3
EGEN 3200	Product & Service Prototyping	3
EGEN 4100	Market, Finance, and Vent Plan	3

EGEN 3100, EGEN 3200, EGEN 4100: Venture Development Series | Students must commit to take all three courses in this series on campus, in immediate sequence with their teams (Fall, Spring, Fall).

Category Descriptions

Any courses on Innovation, Creativity, and Entrepreneurship (ICE) list

Credits: Varies

[VU Courses on Innovation, Creativity, or Entrepreneurship](#)

Entrepreneurship Minor

This minor consists of five (5) courses including three (3) required and two (2) electives chosen from the list below.

Minor: 5 courses, 15 credits

Type: Minor

Minor Requirements (5 Courses, 15 Credits)

Required Core Courses (3 Courses, 9 Credits)

Item #	Title	Credits
ENTR 1000	The Basics of Entrepreneurship	3
ENTR 5000	Entrepreneurship Capstone	3
ODM 2050	Innovation & Creative Thinking	3

Major Electives (2 Courses, 6 Credits)

Item #	Title	Credits
LDR 2010	Strategic Planning for Leaders	3
LDR 2070	Strategy Driven Talent Mgmt	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2010	Foundations of Marketing	3
ODM 2020	Ethics, Regulations & Soc Resp	3
PA 3000	Overview of Non-Profit Sector	3
ENTR 3400	Entrepreneurship Practicum	3
	Any courses on Innovation, Creativity, and Entrepreneurship (ICE) list	
EGEN 3100	Feas Analysis for Entrepreneur	3
EGEN 3200	Product & Service Prototyping	3
EGEN 4100	Market, Finance, and Vent Plan	3

EGEN 3100, EGEN 3200, EGEN 4100: Venture Development Series | Students must commit to take all three courses in this series on campus, in immediate sequence with their teams (Fall, Spring, Fall).

Category Descriptions

Any courses on Innovation, Creativity, and Entrepreneurship (ICE) list

Credits: Varies

[VU Courses on Innovation, Creativity, or Entrepreneurship](#)

General Studies

General Studies Major

A Bachelor of Interdisciplinary Studies with a major in General Studies is the College's most flexible degree path. It does not focus on one specific course of study; however, students can design their own major in collaboration with their advisor.

BIS - 120 Credits

Type: Bachelor of Interdisciplinary Studies

Major Requirements (33 Credits)

Item #	Title	Credits
	Advanced courses, at the 2000 and above level	

Category Descriptions

Advanced courses, at the 2000 and above level

In humanities, sciences, and social sciences.

Human Resource Management

Human Resource Management Major About

Available as a major within the Bachelor of Interdisciplinary Studies is a Human Resource Management program of study. Created in partnership between the College of Professional Studies and the [College of Liberal Arts and Sciences Master's in Human Resource Development program](#), this major provides a framework for the application of human resource principles that can be applied in a broad range of organizational settings.

The curriculum is focused on foundational human resource content areas and competencies and are aligned with the SHRM Curriculum Guidebook. Each course within the major contains at least one of the major HR competencies and/or knowledge areas in the SHRM Body of Competency & Knowledge (SHRM BoCK™). By providing a foundational framework in HR, aligned with SHRM, students will demonstrate their immediately applicable knowledge and skills to employers and increase their marketability upon graduation or even while completing the program. In addition, the coursework in the HRM major will help prepare students to continue on into the [combined BIS/MS Human Resource Development graduate program](#).

BIS - 120 credits

Type: Bachelor of Interdisciplinary Studies

Major Requirements (30 Credits)

Item #	Title	Credits
HRMG 2000	Introduction to Human Resource	3
HRMG 2010	Employment Law	3
HRMG 2020	Talent Acquisition&Employee Dev	3
HRMG 2030	Managing Compensation&Benefit	3
ODM 1000	Foundation of Organiz Behavior	3
ODM 1100	Foundations of Strategic Mgmt	3
LDR 2060	Global Strategic Leadership	3
LDR 2070	Strategy Driven Talent Mgmt	3
LDR 2080	Leadership Communication	3

Students choose one of the following courses:

Item #	Title	Credits
CPS 3400	Internship Practicum	3
HRMG 5000	HR Management Research Practicum	3

Human Resource Management Minor

This minor consists of 5 (five) courses including 4 required and one selected from the two options listed below.

Type: Minor

Required Courses

Minor Requirements (5 courses, 15 credits)

Item #	Title	Credits
HRMG 2000	Introduction to Human Resource	3
HRMG 2010	Employment Law	3
HRMG 2020	Talent Acquisition&Employee Dev	3
HRMG 2030	Managing Compensation&Benefit	3

Students can choose one of the following two courses:

Item #	Title	Credits
CPS 3400	Internship Practicum	3
HRMG 5000	HR Management Research Practicum	3

Information Systems and Technology

Information Systems and Technology Major

A major in Information Systems and Technology emphasizes the application of computing technology in today's workplace and focuses on developing a combination of technical and business skills. Students are challenged through coursework in programming, system design, and data and information management. At the same time, students focus on information systems as it pertains to business management and leadership.

BIS - 120 Credits

Type: Bachelor of Interdisciplinary Studies

Major Requirements (30 Credits)

Required Core Courses (5 Courses, 15 Credits)

Item #	Title	Credits
ISYT 1000	Intro to Info Sys & Tech	3
ISYT 1100	Data and Information Mgmt	3
CSC 1010	Programming for All	3
CSC 1020	Computing and the Web	3
ISYT 5000	Information Systems Capstone	3

Major Electives (5 Courses, 15 Credits)

Item #	Title	Credits
CSC 1035	Databases for Many Majors	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2040	Strategic Oper & Process Impro	3
LDR 2030	Leading with a Digital Mindset	3
CPS 3000	Introduction to Project Mgmt	3

Information Systems and Technology Minor

This minor consists of five (5) courses including four (4) required and one (1) elective chosen from the list below.

Minor: 5 Courses, 15 credits

Type: Minor

Minor Requirements (5 Courses, 15 Credits)

Required Core Courses (4 Courses, 12 Credits)

Item #	Title	Credits
ISYT 1000	Intro to Info Sys & Tech	3
ISYT 1100	Data and Information Mgmt	3
CSC 1010	Programming for All	3
CSC 1020	Computing and the Web	3

Minor Elective (1 Course, 3 Credits)

Item #	Title	Credits
CSC 1035	Databases for Many Majors	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2040	Strategic Oper & Process Impro	3
LDR 2030	Leading with a Digital Mindset	3
CPS 3000	Introduction to Project Mgmt	3

Information Systems and Technology Certificate

The Certificate in Information Systems and Technology is designed to help students acquire related information systems knowledge and skills through a broad selection of coursework. Students are **not** required to have a bachelor's degree to enroll in the certificate program; however, must have completed all prerequisite courses necessary (indicated in the course description within this catalog) for any course in the certificate program. Courses may be transferred in from other accredited universities to fulfill prerequisite requirements but will not be applied to the overall certificate credit hours. To complete the certificate in Information Systems and Technology, students must take the required and elective courses listed in the tables below.

This certificate has two unique tracks. Track A prepares students for the Software Engineering Graduate Program in the College of Liberal Arts and Sciences. This track allows students who do not have a background in computer science an opportunity to complete the necessary prerequisites to be eligible for admission into the Software Engineering Graduate Program. Track B is more generally focused and intended for students who are seeking to attain leadership and management in business as related to information systems and technology.

Type: Certificate

Certificate Requirements - Track A (6 Courses, 20 Credits)

Required Courses (4 Courses, 13 Credits)

Item #	Title	Credits
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3
CSC 2400	Computer Systems I	3
	MIS 2030 or CSC 4480	3
	MIS 2040 or CSC 4700	3

Certificate Requirements – Track B (6 Courses, 18 Credits)

Required Core Course (4 Courses, 12 Credits)

Item #	Title	Credits
CSC 1010	Programming for All	3
CSC 1035	Databases for Many Majors	3

Elective (2 Courses, 6 Credits)

Item #	Title	Credits
CPS 3000	Introduction to Project Mgmt	3
CSC 1020	Computing and the Web	3
LDR 2030	Leading with a Digital Mindset	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2040	Strategic Oper & Process Impro	3

Category Descriptions

MIS 2030 or CSC 4480

Credits: 3

Choose one.

Item #	Title	Credits
MIS 2030	Database Management	3
CSC 4480	Principles of Database Systems	3

MIS 2040 or CSC 4700

Credits: 3

Choose one.

Item #	Title	Credits
MIS 2040	Systems Analysis & Design	3
CSC 4700	Software Engineering	3

Leadership

Leadership Major

A major in Leadership will help students develop and cultivate a comprehensive set of practical skills to apply to their professional endeavors. The curriculum is designed to investigate and

analyze moral and ethical challenges to leadership. Students will learn about theories of leadership and identify the factors that contribute to one's ability to develop, articulate, and sustain a vision as a leader. Students will develop personal, professional, and intellectual skills to act with integrity when faced with ethical dilemmas. Issues most relevant to today's corporate leaders such as globalization, technological and social change, and workforce diversity, inclusion, and equity will be studied.

- **BA - 122 Credits**
- **BIS - 120 Credits**

Type: B.A. or B.I.S.

Major Requirements (30 Credits)

Required Core Courses (2 Courses, 6 Credits)

Item #	Title	Credits
LDR 2000	Foundations of Leadership	3
LDR 5000	Leadership Capstone Course	3

Major Electives (8 Courses, 24 Credits)

Item #	Title	Credits
LDR 2010	Strategic Planning for Leaders	3
LDR 2020	Leadership & Community	3
LDR 2030	Leading with a Digital Mindset	3
LDR 2040	Ethics & Leadership	3
LDR 2050	History of Leadership	3
LDR 2060	Global Strategic Leadership	3
LDR 2070	Strategy Driven Talent Mgmt	3
LDR 2080	Leadership Communication	3
LDR 3400	Leadership Internship Practicum	3
LDR 5940	Leadership Topics	3
LDR 5950	Special Topics in Leadership	1

LDR 3400, LDR 5940, and LDR 5950 may substitute for up to twelve (12) credits of Leadership major elective courses each (LDR 2010 - 2080). **LDR 3400 and LDR 5940** can be taken up to six (6) credits each. These substitutions are dependent on the course topic and will be made at the discretion of the College advising staff.

LDR 5950 courses can be combined to make fulfill (1) three credit leadership elective course requirement.

Leadership Minor

The leadership minor has one required course that serves as a pre-requisite for all advanced courses in leadership. Students may choose five (5) courses from the list of electives below.

Type: Concentration

Minor Requirements (6 Courses, 18 Credits)

Required Core Course (1 Course, 3 Credits)

Item #	Title	Credits
LDR 2000	Foundations of Leadership	3

Minor Electives (5 Courses, 15 Credits)

Item #	Title	Credits
LDR 2010	Strategic Planning for Leaders	3
LDR 2020	Leadership & Community	3
LDR 2030	Leading with a Digital Mindset	3
LDR 2040	Ethics & Leadership	3
LDR 2050	History of Leadership	3
LDR 2060	Global Strategic Leadership	3
LDR 2070	Strategy Driven Talent Mgmt	3
LDR 2080	Leadership Communication	3
LDR 3400	Leadership Internship Practicum	3
LDR 5940	Leadership Topics	3

LDR 3400, LDR 5940, and LDR 5950 may substitute for up to six (6) credits of Leadership major elective courses. Substitutions are dependent on the course topic and will be made at the discretion of the College advising staff.

Leadership Certificate

The Certificate in Leadership is designed to help individuals acquire related knowledge and skills through a broad selection of coursework. It is especially useful for those students who have already completed a bachelor's degree in business or liberal arts but now wish to acquire a more formal grounding in leadership practices; however, one does not have to hold a bachelor's degree to complete the certificate. To complete this certificate, students must take two (2) required courses and choose three (3) electives.

Type: Certificate

Certificate Requirements (5 Courses, 15 Credits)

Required Courses (2 Courses, 6 Credits)

Item #	Title	Credits
LDR 2000	Foundations of Leadership	3
LDR 2010	Strategic Planning for Leaders	3

Elective Courses (3 Courses, 9 Credits)

Item #	Title	Credits
LDR 2020	Leadership & Community	3
LDR 2030	Leading with a Digital Mindset	3
LDR 2040	Ethics & Leadership	3
LDR 2050	History of Leadership	3
LDR 2060	Global Strategic Leadership	3
LDR 2070	Strategy Driven Talent Mgmt	3
LDR 2080	Leadership Communication	3

Military Science (Army ROTC)

ROTC Leadership Minor

The Leadership minor is available to Army Reserve Officer Training Corps (ROTC) students who are pursuing undergraduate majors in the College of Liberal Arts and Sciences. To declare the minor, students must have a cumulative GPA of 3.0. Eligible students must apply for the Leadership minor through the CPS Policies & Forms website. Once approved, students must meet with their designated advisor in CLAS before registering for courses each semester. Courses are generally taught online and in an accelerated format and CLAS Students are only permitted to take one (1) Fast Forward course in each semester. To graduate with a minor in leadership, ROTC students must take three (9 credits) advanced leadership courses from the list below. ROTC students declaring the Leadership minor do not have to take the LDR 2000 pre-requisite course to take advanced leadership courses. The student is responsible for ensuring that all minor requirements are met prior to graduation.

Type: Minor

Minor Requirements (6 Courses, 18 Credits)

Required Core Courses (3 Courses, 9 Credits)

Item #	Title	Credits
MS 301	Training Mgmt & Warfighting Func	3
MS 302	Applied Ldrshp Small Unit Op	3
MS 401	Mission Command & Army Prof.	3
MS 402	Mission Comm. & Co. Grade Offi	3

Minor Electives (3 Courses, 9 Credits)

Item #	Title	Credits
LDR 2010	Strategic Planning for Leaders	3
LDR 2020	Leadership & Community	3
LDR 2030	Leading with a Digital Mindset	3
LDR 2040	Ethics & Leadership	3
LDR 2050	History of Leadership	3
LDR 2060	Global Strategic Leadership	3
LDR 2080	Leadership Communication	3

Organizational Development Management

Organizational Development & Management Major

The Organizational Development and Management (ODM) major prepares students to be strategic, ethical, effective, socially responsible, and innovative leaders in corporations and communities. This professionally oriented curriculum is designed to lay the foundation, equip students with the tools and knowledge to propel them to the next level of their career. Students will identify and analyze the impacts of individual and group behavior on organizational processes and outcomes, understand and appreciate the structure of organizations, and the local and global contexts in which they operate. Students will develop analytical skills and collaborative practices related to strategic organizational management

of diverse individuals and teams as well as practice and analyze decision-making processes required in complex business organizations.

BIS - 120 Credits

Type: Bachelor of Interdisciplinary Studies

Major Requirements (30 Credits)

Item #	Title	Credits
ODM 1000	Foundation of Organiz Behavior	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2010	Foundations of Marketing	3
ODM 2020	Ethics, Regulations & Soc Resp	3
ODM 2030	Organizational Decision Making	3
ODM 2040	Strategic Oper & Process Impro	3
ODM 2050	Innovation & Creative Thinking	3
LDR 2070	Strategy Driven Talent Mgmt	3
ODM 5000	Organiz Devlp & Mgmt Capstone	3

Organizational Development & Management Minor

To graduate with a minor in Organizational Development & Management, students must take four (4) required courses and may choose two (2) courses from the list of electives below.

Type: Minor

Minor Requirements (6 Courses, 18 Credits)

Required Core Courses (4 Courses, 12 Credits)

Item #	Title	Credits
ODM 1000	Foundation of Organiz Behavior	3
ODM 1100	Foundations of Strategic Mgmt	3
ODM 2000	Essentials of Finance & Acct	3
ODM 2010	Foundations of Marketing	3

Minor Electives (2 Courses, 6 Credits)

Item #	Title	Credits
ODM 2020	Ethics, Regulations & Soc Resp	3
ODM 2030	Organizational Decision Making	3
ODM 2040	Strategic Oper & Process Impro	3
ODM 2050	Innovation & Creative Thinking	3
LDR 2070	Strategy Driven Talent Mgmt	3

Pre-Health Professions

Pre-Health Professions Sciences Certificate

This certificate program provides a fundamental education in the sciences that can lead to entrance into schools of the health professions and to a wide array of careers and is intended for those who possess a bachelor's degree in a non-science field. To be eligible for this certificate, a student must possess a bachelor's degree from an institution accredited by the appropriate regional accrediting association. Students are strongly encouraged to check the admissions requirements for individual schools and programs relating to the health professions. Students will work in collaboration with their assigned CPS advisor and an advisor in the Health Professions Advising Program to scheduled required and elective courses.

Students can align course selections with their professional interests and the requirements of their respective graduate program. Students will plan their course of study in concert with their CPS Advisor as well as the Health Professions Advising Office in CLAS. A total of 15 credits may be transferred in at the time of admission.

Type: Certificate

Certificate Requirements (30 Credits)

Item #	Title	Credits
BIO 1205	Human Anatomy & Physiology I	4
BIO 1206	Human Anatomy & Physiology II	4
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
BIO 3055	Human Physiology	4
BIO 3105	Biostatistics & Exp Design	4
BIO 3351	Genetics	4
BIO 3455	Histology	4
BIO 3595	General Microbiology	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
CHM 2211	Organic Chemistry I	3
CHM 2201	Organic Chemistry Lab I	1
CHM 2212	Organic Chemistry II	3
CHM 2202	Organic Chemistry Lab II	1
	CHM 4611 or CHM 4621	3
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1
CLA 2021	Language of Science & Medicine	3
PSY 1000	General Psychology	3
PSY 3200	Human Development	3
PSY 3700	Psychopathology	3
STAT 1313	Statistics for Life Sciences	3
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
STAT 1230	Intro Statistics I	3
THL 4200	Ethics of Life and Death	3

Category Descriptions

CHM 4611 or CHM 4621

Credits: 3

Choose one.

Item #	Title	Credits
CHM 4611	Survey of Biochemistry	3
CHM 4621	Biochemistry I: Structure	3

Public Administration

Public Service & Administration Major

Chair: Catherine E. Wilson, Ph.D.

Office Location: 205 Saint Augustine Center

Telephone: 610-519-3934

[Website](#)

Public Administration is the organization and management of people and materials to achieve public purposes.

The Public Service and Administration (PSA) major prepares you for career advancement in government and in nonprofit organizations. In the Public Service and Administration (PSA) major, students are introduced to ethical, philosophic, theological, historical, social, and political perspectives that influence the leadership and management of government and nonprofit organizations.

This major is offered in partnership with the Department of Public Administration and is available fully online and as a hybrid program. Students gain first-hand knowledge of effective practices in the government and nonprofit sectors as well as experience in networking and professional development.

Courses in the major cover topics such as public budgeting, strategic planning, leadership, public policy, ethics, and organizational development. They are taught by an accomplished faculty of scholars and practitioners - including, for example, managers at the federal, state, and local levels, and executives of non-profit organizations.

The Public Service and Administration major is available for students pursuing a Bachelor of Interdisciplinary Studies (BIS) or a Bachelor of Arts (BA).

Villanova also offers a [combined Bachelor/Masters program](#) option for CPS students pursuing majors in Public Service Administration, Leadership, Organizational Development & Management, or General Studies. This program allows students to earn their Master of Public Administration in an abbreviated timeframe.

Students must complete 15 courses (for a total of 45 credits) in the Bachelor of Interdisciplinary Studies (BIS) Core Curriculum or complete 18 courses (for a total of 50 credits) in the Bachelor of Arts (BA) Core Curriculum in addition to the 10 courses (30 credits) for the major).

In addition BIS students must complete 15 elective courses (for a total of 45 credits) or BA students complete 14 elective courses (for a total of 42 credits).

Type: Bachelor of Interdisciplinary Studies

Major Requirements (30 Credits)

There are 7 required courses and 3 electives.

Required Courses (7)

Item #	Title	Credits
PA 1050	Public Administration	3
PA 2000	Public Policy	3
PA 4100	Public Budgeting	3
PA 4200	Organizational Development	3
PA 5000	Special Topics	3
PA 6000	Vocation of Public Service	3
PA 6100	PSA Internship	3

Electives (3)

Item #	Title	Credits
PA 2100	City and Suburb	3
PA 3000	Overview of Non-Profit Sector	3
LDR 2010	Strategic Planning for Leaders	3
LDR 2020	Leadership & Community	3
LDR 2040	Ethics & Leadership	3

Note: PA 6100 (internship) can be waived by the Department Chair if CPS student has work experience warranting the waiver.

Courses

Accounting

ACC 1101: Prin of Financial Accounting

Understanding business by being able to understand the financial statements. Accounting concepts, transaction analysis, analytical procedures, valuation and allocation, revenue recognition and expense matching, and cash flow analysis - operating, investing, and financing. Includes appropriate use of technology.

Credits: 3

ACC 2020: Special Topics

Special accounting topics offered in lecture/seminar format. Permission of Department Chair.

Credits: 1

Prerequisites:

VSU 2004

ACC 2310: Intermediate Accounting I

Intensive study and application of GAAP for asset valuation, income measurement, and financial statement presentation for business organizations, and the processes through which these principles evolve. Each topic under GAAP compared to IFRS counterpart. Coverage of topics essential to preparing, reading, understanding, interpreting and using financial statements. Extensive reliance on case method.

Credits: 3

Prerequisites:

VSU 2020 (or concurrently) and VSU 2004 and (VSU 2009 (or concurrently) or VSU 2010 or VSU 2030 and VSU 2040)

ACC 2320: Intermediate Accounting II

Continues the intensive study and application of GAAP for asset valuation, income measurement, and financial statement presentation begun in ACC 2310. Selected accounting and consulting issues. Correction of financial statements, income taxes, pensions, segment reporting, cash-flow disclosures, debt issuance and amortization, leases, and investments. As with ACC 2310, each topic under GAAP compared to IFRS counterpart.

Credits: 3

Prerequisites:

ACC 2310

ACC 2340: Accounting Information Systems

This course offers both a conceptual overview and hands-on experience with a variety of AIS related material. Topics covered include: Semantic modeling and event driven accounting information systems (AIS); development, documentation, control and audit of AIS, with particular reference to the COBIT framework; an overview of XBRL and its role in financial reporting; the use of database management software and accounting software in developing modern AIS.

Credits: 3

Prerequisites:

ACC 2310

ACC 2360: Federal Income Tax

An introduction to federal income taxation with primary emphasis on the tax implications of business transactions. Objectives of the course are to explore tax-policy issues and to develop a basic understanding of federal income tax laws, income tax planning, and the impact of taxes on business decisions. Restricted to Accounting majors and minors with Junior and Senior standing.

Credits: 3

Prerequisites:

ACC 2310 (or concurrently) and VSU 2004 and (VSU 2009 or VSU 2010 or VSU 2030 and VSU 2040)

ACC 2410: Accounting for Real Estate

Accounting for both private and public real estate entities, acquisitions, development, operations, dispositions, impairments and fair value implications of real estate transactions and ownership.

Credits: 3

Prerequisites:

ACC 2310

ACC 2420: International Accounting

Examines a variety of international accounting issues, including international financial accounting standards; consolidation of international operations; auditing standards and procedures; managerial accounting systems for planning, control, and performance measurement; political, legal, and cultural influences on accounting and transfer pricing. This course can be applied toward the international course requirement and in VSB's Master of Accountancy Program.

Credits: 3

Prerequisites:

ACC 2310

ACC 2430: Auditing

Auditing standards employed in verification of and reporting on financial statements, evaluation of controls, statistical sampling, substantive testing, legal liability and professional responsibilities, and professional standards of ethics. Includes written and oral group case assignments and application of computer technology. Restricted to Accounting majors and minors.

Credits: 3

Prerequisites:

ACC 2310 and ACC 2320 (or concurrently)

ACC 2435: Advanced Auditing

Increased regulatory requirements, globalization, and advances in data analytics are driving substantial changes in the complexity and challenges facing today's auditors. Auditors must understand and respond to such changes in order to fulfill their responsibilities as stewards of public trust. This course is designed to immerse students in emerging practice issues, with a focus on the exploration of data analytics tools, current regulatory themes, relevant audit research, and practitioner insights in the public company audit context.

Credits: 3

Prerequisites:

ACC 2430

ACC 2450: Advanced Accounting

Theories and techniques used for specialized accounting problems, with emphasis on business combinations, consolidations, multinational corporations, not-for-profit entities partnerships, and issues related to solvency and liquidation and financial fraud. Restricted to Accounting majors and minors.

Credits: 3

Prerequisites:

ACC 2310 and ACC 2320 (or concurrently)

ACC 2470: Cost Accounting

Introduction to modern cost accounting systems and the accounting information needs of managers, including: costing approaches (job-order process, standard, and absorption); cost behavior analysis; differential costs for decision-making; activity-based costing (ABC) and activity-based management (ABM); performance evaluation; and, issues related to quality. Group work and case analysis (both oral and written) required. Restricted to Accounting majors and minors with Senior standing.

Credits: 3

Prerequisites:

ACC 2310 and VSB 3006

ACC 2480: Advanced Taxes

Advanced federal income tax topics and issues pertaining to individuals, partnerships, corporations, and estates and trusts. Emphasis on tax planning and tax research.

Credits: 3

Prerequisites:

ACC 2310 and ACC 2360

ACC 3350: Fraud Examination

The focus of the course is on the pervasiveness and causes of fraud, methods for investigating fraud within organizations, and what organizations can do to prevent and detect fraud. The successful completion of the course provides a basic understanding of various types of fraud, the fraud triangle, fraud prevention and internal control, fraud detection and investigation techniques, financial statement fraud, fraud against organizations, bankruptcy and divorce fraud, fraud in e-commerce, and the legal elements and resolution of fraud.

Credits: 3**Prerequisites:**

ACC 2430 (or concurrently)

ACC 3430: Accounting Internship

Employment with approved accounting firms and business organizations; varied work experience with appropriate training, instruction, and supervision. Paper required. Restricted to Accounting majors and minors with junior or senior standing, a minimum GPA of 2.5, and approval of the Accounting Internship Director. Satisfactory/Unsatisfactory only.

Credits: 3**ACC 3460: Accounting Internship-Spring**

Full-time employment with approved accounting firm or other business organizations; varied work experience with appropriate training, instruction, and supervision. Does not fulfill major requirement; satisfies one free elective only. Permission of Accounting Department.

Credits: 6**ACC 3470: Accounting Co-Op**

Full-time employment with an approved firm in the area of Accounting where experience is gained through appropriate training, instruction, and supervision. Course does not fulfill the requirements of the major. Prerequisite: Accounting major with junior status; minimum GPA requirements will vary. Approval of Accounting Department Chair required.

Credits: 6**ACC 3500: Ind Study:Accounting****Credits:** 3

Advising

ADV 1000: Advising: Explore & Experience

Take control of your education by learning how to harness opportunities that will maximize personal and professional success as you begin your journey. Understand how to make educational choices, maintain health and wellness, exhibit professionalism, and explore possible professional directions.

Credits: 1

Aerospace Studies (Air Force ROTC)

AER 1011: Foundation of US Air Force I

The military as a profession, including: civilian control of U.S. Armed Forces, functions and organization of the U.S. Air Force, organization and operations of U.S. strategic offensive forces.

Credits: 1**AER 1012: Leadership Lab****Credits:** 0**AER 1021: Foundation of US Air Force II**

The U.S. general purpose and defensive forces including: Mission and organization of the major U.S. Air Force Commands and separate operating agencies, major functions and conduct of joint service military operations. Air defense, detection systems, close air support, and air superiority.

Credits: 1**AER 1022: Leadership Lab****Credits:** 0**AER 1031: Evol of USAF Air Space Power I**

Aerospace power from balloons and dirigibles through the employment of U.S. air power in World War II. The military theory of aerospace power employment.

Credits: 1

AER 1041: Evol of USAF Air Space Powr II

Employment of U.S. air power in the Korean Conflict, relief missions and civic action programs in the later 1960s, and the war in Southeast Asia. The military theory of aerospace force employment.

Credits: 1

AER 2011: Air Force Leadership Studies I

Managerial theory, concepts and techniques of decision-making, and the basic functions of management with particular emphasis on applications for Air Force officers.

Credits: 3

AER 2021: Air Force Leadership Studies II

An interdisciplinary approach to leadership which includes study of human behavior and relationships, and motivation.

Credits: 3

AER 2031: National Security Affairs I

The Armed forces as an integral and inseparable element of society. Emphasis on the overall national security process and the factors which comprise it. The impact of a nation's military, economic psychological, and technical components on national security policy. Major geopolitical hotspots and the origin of arms races.

Credits: 3

AER 2041: National Security Affairs II

Civilian control of the military, conflict control, military professionalism, and military justice. Emphasis on the reciprocal responsibilities of civilians and the military in a democratic society.

Credits: 3

Africana Studies

AFR 3000: Constructs of Blackness

Interdisciplinary examination of ideas of black identity, culture, and politics. Course covers African and African Diaspora experience in society, history, literature, health, and others in global and national contexts.

Team taught

Credits: 3

AFR 3100/3101/3102: Special Topics

Specific topics vary each semester.

Credits: 3

AFR 3101: Special Topics

Specific topics vary each semester.

Credits: 3

AFR 3102: Special Topics

Specific topics vary each semester.

Credits: 3

AFR 5000: Ind. Study Africana Studies

Permission of Program Director. Individual students with specific interest work on a tutorial basis with an appropriate professor.

Credits: 3

American Sign Language

ASL 1111: Intro to Amer Sign Language I

Functional use of American Sign Language for students with no prior knowledge of ASL and Deaf Culture.

Credits: 3

Co-Requisites:

ASL 1151

ASL 1112: Intro to American Sign Lang II

Continuation of ASL I with increase understanding and knowledge of the ASL through description, classified and facial. Each unit has student/instructor interaction and information on grammar, comprehension and Deaf Culture.

Credits: 3

Prerequisites:

ASL 1111

Co-Requisites:

ASL 1152

ASL 1151: Intro to ASL 1 Lab

Practice lab to accompany ASL 1111.

Credits: 1

Co-Requisites:

ASL 1111

ASL 1152: Intro to ASL 2 Lab

Practice lab to accompany ASL 1112.

Credits: 1

Co-Requisites:

ASL 1112

Arab and Islamic Studies

AIS 3000: Special Topics

Credits: 3

AIS 4100: Spec Top in Irish Studies

Perspectives on the culture and history of Ireland. Presentations by the Resident Program Director, lectures by a range of NUI faculty, readings by noted Irish writers, performances by a local musicians, and field trips. Required of all students participating in the semester abroad program at NUI Galway, Ireland.

Credits: 3

Arabic Language

ARB 1111: Basic Arabic I

Functional use of Modern Standard Arabic for students with no prior knowledge of Arabic. Recitations, readings and oral drills.

Credits: 6

ARB 1112: Basic Arabic II

Functional use of Modern Standard Arabic for students with no prior knowledge of Arabic. Recitations, readings and oral drills, supplementary language laboratory work. Prerequisites: ARB 1111 or equivalent or permission of instructor.

Credits: 6

ARB 1121: Intermediate Arabic I

Review of grammar and vocabulary. Recitations, readings and oral drills. Supplementary language laboratory work. Prerequisites: ARB 1111 and 1112 or equivalent or permission of instructor.

Credits: 5

ARB 1122: Intermediate Arabic II

Review of grammar and vocabulary. Recitations, readings and oral drills. Supplementary language laboratory work. Prerequisites: ARB 1111 and 1112 and 1121 or equivalent or permission of instructor.

Credits: 5

ARB 1131: Intensive Adv Arabic I

Advanced communication skills including reading and discussing topics on current events. Supplementary language laboratory work. ARB 1125 or equivalent or permission of instructor.

Credits: 3

ARB 1132: Intensive Adv Arabic II

Advanced communication skills including reading and discussing topics on current events. Supplementary language laboratory work. ARB 1131 or equivalent or permission of instructor.

Credits: 3

ARB 1141: Intro to Colloquial Arabic

Training in the use of colloquial Egyptian Arabic, focusing on listening and speaking skills. Supplementary laboratory work and drills.

Credits: 3

ARB 2142: Arab Culture Thru Film & Text

Arab culture and civilization with emphasis on the Arab people's contribution to the arts and sciences.

Credits: 3

ARB 2143: Arab Culinary Culture

Examines the development and fundamental characteristics of Arab culinary culture. Presenting Arab cuisine elements absorbed from the cultures with which the early Arabs mixed when they migrated from the Arabian Peninsula and settled into the surrounding countries.

Credits: 3

ARB 3412: Special Topics

Advanced study of topics of special interest in Arabic literary and/or cultural studies. May be repeated for credit if topic changes. Fulfills core requirements for Arabic minor.

Credits: 3

ARB 5900: ARB: Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Art History

AAH 1101: His West Art: Ancient-Med

Art & architecture in Europe, the Mediterranean (esp. Greece & Rome,) & the Middle East in prehistoric, ancient, & medieval periods, with introduction to issues & themes of art history.

Credits: 3

AAH 1102: His West Art: Renaiss - Cont

The history of the visual arts in the West from the Early Renaissance to the present.

Credits: 3

AAH 1103: Visual Arts in US 1607-1876

A survey of painting, sculpture, and architecture created in the present-day United States, from the founding of Jamestown to the great Philadelphia Centennial Exhibition.

Credits: 3

AAH 1104: Visual Arts in US 1877-Present

A study of painting, sculpture, and architecture done in the United States since the Philadelphia Centennial exhibition from Thomas Eakins and Gross to great contemporary artists such as Andrew Wyeth, Frank Gehry, and Jeff Koons.

Credits: 3

AAH 1903: Internship Elective

An internship in an elective area of concentration.

Credits: 3

AAH 2000: Ancient Art

The artistic contributions of the ancient societies of Egypt, the Aegean, Greece and Rome, placed within appropriate cultural contexts.

Credits: 3

AAH 2001: Medieval Art

European & Mediterranean art & architecture from the late Roman Empire to the 14th c. with emphasis on the social, religious & political contexts of visual production.

Credits: 3

AAH 2002: Early Renaissance Art in Italy

Italian art & architecture from 1300-1480, investigation of the political, religious & social contexts of the visual productions of artists such as Giotto, Donatello, Masaccio, Mantegna & Botticelli.

Credits: 3

AAH 2003: Age of Rembrandt & Bernini

Major works of European painting, sculpture, and architecture from the seventeenth through mid-eighteenth centuries. Special emphasis on how historical events affected the production of artistic monuments.

Credits: 3

AAH 2004: Modern Art

An examination of the visual arts since 1900 that emphasizes their historical roots and present social significance.

Credits: 3

AAH 2005: Modern Architecture

Notable buildings and architects in the last hundred years: Frank Lloyd Wright, Louis Sullivan, Antoni Gaudi, LeCorbusier, Mies van der Rohe, Robert Venturi, I.M. Pei, Walter Gropius, Philip Johnson, Frank Gehry. Emphasis on the influence of modern technology on the practice of architecture.

Credits: 3

AAH 2009: Contemporary Art

Artistic movements and artists around the world from the 1960s to the present; Pop Art, Minimalism, Neo-expressionism, Arte Povera, Graffiti Art, and Performance Art, from Warhol to Wyeth to Haring and Koons.

Credits: 3

AAH 2012: High Renaissance Art in Italy

Italian art & architecture from 1480 to 1550. Investigation of stylistic, political & social contexts of art. The idea of Mannerism & artists such as Leonardo, Michelangelo, Raphael & Titian.

Credits: 3

AAH 2993: Internship

Credits: 3

AAH 3001: Women in Art

Themes and images of women in the visual arts as an expression of the needs, desires and attitudes of society; and a study of women artists from ancient times to the present, with regard to how being female may, or may not, have affected their work.

Credits: 3

AAH 3002: Art of Philadelphia

Philadelphia's unique contribution to American painting, sculpture, and architecture, from the early Swedish and Welsh settlers of the Delaware Valley, to Andrew Wyeth and Robert Venturi.

Credits: 3

AAH 3003: Romantic to Post-Impress

Nineteenth century painting and sculpture in Europe and America, focusing on Cezanne, Courbet, Delacroix, Goya, Eakins, Homer, Manet, Monet, Rodin and West.

Credits: 3

AAH 3005: Gender Sexuality Visl Culture

Construction of gender and sexuality as visualized through art and various forms of visual culture. Topics include the gaze, feminist art, gendered construction of fashion, queer identities and art, and bodies and censorship.

Credits: 3

AAH 3006: History of Photography

History of photographic styles and techniques from 1826-Present. Emphasis on the relation of photography to capitalism, colonialism, racism, feminism, and gender identities in contemporary culture.

Credits: 3

AAH 3007: The Art of Ireland

The visual arts in Ireland concentrating on the Golden Age from the 5th to the 9th Century: architecture of the early monastic settlements, manuscript illumination and its influence, and the cultural impact of the Irish forms of monasticism.

Credits: 3

AAH 3009: Topics in Art History

Selected themes or periods in the history of art examined in depth.

Credits: 3

AAH 4005: Picasso and Friends

Seminar on the 20th century's most famous artist, with discussion of friends such as Braque, Apollinaire, Gertrude Stein, and Erik Satie.

Credits: 3

Prerequisites:

AAH 2004 :D-

AAH 4007: Special Topics

The course will consist of two 50 min lectures (MF) and a Wednesday evening movie screening. There are no prerequisites, and the course will count for Fine Arts credit. Students will take both a midterm and final and write short movie review/responses.

Credits: 3

AAH 4010: Interpreting Art

An introduction to the theories and criticism relevant for the study and interpretation of art and art history such as feminism, psychoanalysis, structuralism, deconstruction, post-colonialism, and postmodernism. Prerequisite: At least one prior Art History course.

Credits: 3

AAH 5010: Senior Research Seminar

Art History capstone writing and research seminar, which builds on AAH-4010 Interpreting Art. Students practice advanced art historical research and write culminating research project.

Credits: 3

Prerequisites:

AAH 4010

AAH 5515: Independent Research

An intensive research project under individual direction. Permission of chairperson required.

Credits: 3

Arts & Sciences Professional Development

ASPD 1001: Transitioning to College

Transition to College is a one-credit class for first-year students. Goals of this course include addressing social skills, residence hall life, classroom etiquette, executive functioning skills, and self-advocacy. This course will be especially beneficial for, and geared toward, students with Asperger's Syndrome and/or on the Autism Spectrum.

Credits: 1

ASPD 2000: Prof Dev for Arts & Sciences

Discovering your professional passion, path, and purpose. Designed for students to acquire and demonstrate professional and career readiness skills, which greatly enhance student employability in the workplace.

Credits: 1

ASPD 2001: Intro. to Professional Writing

Learn the hallmarks of effective professional writing: How to target an audience while writing clearly, concisely, and persuasively. Gain valuable professional writing experience directly transferable to writing in internships and professional positions.

Credits: 1

ASPD 2002: The Legal Profession

Investigate areas of law and potential legal paths as you learn what it means to "think like a lawyer." Learn how to maneuver successfully through the application process and how to transition well to the challenges of law school.

Credits: 1

ASPD 2003: Professional Communication

This course provides a foundation for leadership studies and professional speaking. You will enhance your professional communication by learning various perspectives that will deepen your understanding of leadership and enable you to succeed in a diverse, ever-changing workplace.

Credits: 1

ASPD 2004: Social Networking

Making connections and staying connected has never been easier with sites like Facebook, Twitter, and LinkedIn. Learn how to harness the power of social media for professional gain and become a savvy social networker.

Credits: 1

ASPD 2005: Networking for Success

Learn the importance and relevance of networking for your professional success. This course is designed for students who want to identify, understand, and develop personal strengths and relationships to explore and expand professional opportunities.

Credits: 1

ASPD 2007: Global Leadership

Using a case study approach, introduce global leadership by demonstrating how a corporation applies leadership theories and practices while achieving a global mindset.

Credits: 1

ASPD 2008: Organizational Leadership

Using a case study approach, introduces students to organizational leadership, demonstrating how a firm applies leadership theories and practices through its organizational units to achieve success.

Credits: 1

ASPD 2009: Creativity and Innovation

Collaborate on team-based projects designed to foster an understanding of real-world business problems that require creative and innovative solutions. Open to All Undergraduate Students Weekend commitment is a requirement Class will meet for three prep sessions prior to weekend event.

Credits: 1

ASPD 2011: Personal Finance

Personal finance is an important life skill, and after graduation, you will be responsible for your own money. Explore topics such as budgeting; living on your own; saving for that dream car, house, and vacation; responsible use of credit cards; and investing for retirement. You'll identify your values and differentiate needs from wants, and learn how to set short, medium and long-term financial goals.

Credits: 1

ASPD 2012: Professional Skills-Strengths

Professional Skills and Strengths teaches students how to understand, communicate, and leverage their skills and strengths when applying for internships and jobs.

Credits: 1

ASPD 2013: Introduction to Data Analysis

Introduction to Data Analysis teaches students how to interpret, create, and analyze data utilizing spreadsheets and other technological tools.

Credits: 1

ASPD 2014: Public Policy Paths

Public Policy Paths teaches students about careers and professional opportunities available in national and state government, and in non-profit organizations.

Credits: 1

ASPD 2015: Management Consulting

Students will learn about the management consultancy field and how to best pursue opportunities while engaging with alumni professionals who've built careers in the industry.

Credits: 1

ASPD 2016: The Professorial Life

Students will learn what the professional life of a professor is like, from teaching, research and scholarship, to administration, mentorship, service and more.

Credits: 1

ASPD 2017: Mathematical Communities

This course is an introduction to the study of mathematics. Creative thinking, problem solving, and collaboration are explored. Mathematics research and careers in the mathematical sciences are emphasized. Students also build community with fellow math majors. This course is restricted to First-year Mathematics majors

Credits: 1

ASPD 2018: A Life Well Lived

Discuss and practice the core concepts of a life well lived, as studied by the Greater Good Science Center at UC Berkeley, around the core concepts of generosity, gratitude, awe, positive neuroscience, and future mindedness.

Credits: 1

ASPD 2019: Science of Happiness

Follow along with the Greater Good Science Center at UC Berkeley's podcasts, "The Science of Happiness," and integrate the concepts and practices for a daily routine defined by gratitude, resilience, forgiveness, and attention to the present moment.

Credits: 1

ASPD 2020: Building a Resilience Resume

Failure is normal and healthy - and it can be transformative. Learn from the failure resumes of others, and walk away with your own failure resume and ability to articulate how you have demonstrated growth, change and resilience.

Credits: 1

ASPD 2021: Adulting 101

From saving for retirement and renting that first apartment to negotiating your starting salary and sorting out employer provided health benefit, Adulting 101 prepares students for life after graduation and beyond.

Credits: 1

ASPD 2022: Prep for Careers in Fin Serv

Learn how to successfully identify, apply for, and interview for internships and entry-level positions in the financial services industry, and build relationships with alumni who are industry experts.

Credits: 1

ASPD 2023: Navigating Roadblocks

In Navigating Roadblocks, students will have the opportunity to discuss and consider effective approaches to managing stress, setting realistic goals, and persisting after failure or setbacks.

Credits: 1

ASPD 2024: Understanding Financial Rpts

This course will emphasize the creation and analysis of the basic financial accounting statements - the income statement, balance sheet, and cash flow statement - as well as their interpretation and how they are used in making financial and investing decisions.

Credits: 1

ASPD 2025: Careers in Sustainability

Careers in Sustainability examines professional paths related to "green jobs" and the field of environmental sustainability, and how to best prepare to pursue relevant opportunities with confidence.

Credits: 1

ASPD 2026: Intergrating Study Abroad Exp

Students returning from studying abroad will develop a framework in which they can reflect upon and discuss their international experiences, and foster their intercultural competencies, while integrating their experiences into their academic and career goals.

Credits: 1

ASPD 2027: Understanding Fincl Rpt II

This course is a continuation of Understanding Financial Reporting and will emphasize the creation and analysis of the basic financial accounting statements: the income statement, balance sheet, and cash flow statement, as well as their interpretation and how they are used in making financial and investing decisions.

Credits: 1

Prerequisites:

ASPD 2024

ASPD 2028: Diversity & Incl the Workplace

Learn why respectful language and vocabulary are essential to approaching uncomfortable yet important conversations about diversity, equity, and inclusion in the workplace. Develop strategies for breaking down barriers, fostering greater understanding, and creating and sustaining equitable, open, and progressive workplaces.

Credits: 1

ASPD 2029: Applying to Law School

Understand the process of applying to law school, including selecting target schools, writing a personal statement, requesting letters of recommendation, obtaining official transcripts, navigating the Law School Admission Council's Website, and more.

Credits: 1

ASPD 2030: Introduction to Law School

Review topics, cases, and statutes typically studied during the first year (1L) of law school. Develop strong law school study strategies by reading and briefing cases.

Credits: 1

ASPD 2031: LSAT Prep

Develop greater understanding and confidence related to preparing for and taking the LSAT, which is the standardized Law School Admission Test. Examine and prepare for all parts of the LSAT, including Logical Reasoning, Analytical Reasoning, Reading Comprehension, and Writing.

Credits: 1

ASPD 2032: The Intersection of Work & Pol

This course aims to prepare students for a job market and professional environment in which political concerns and controversies are appearing in new and sometimes problematic ways. The course is based around specific questions and problems, and addresses them through specific cases.

Credits: 1

ASPD 2033: Rewrite Your Story

This course is designed for the student that is transitioning back from time off from academics and/or interested in developing academic and professional skills to improve performance. We will start with reframing past experiences as growth moments and opportunities for learning.

Credits: 1

ASPD 2034: Career Pathways

Discover, explore, and prepare to enter a variety of different industries and careers.

Credits: 1

ASPD 2035: Leadership in Biology

Designed for Biology students who have completed BIO 2105/6 and will facilitate weekly sessions of fellow students enrolled in General Biology to reinforce concepts learned in lecture. Students in this course will be trained in practices to enhance leadership skills, such as communication, pedagogy, reading primary literature, and the dialogical process.

REGISTRATION BY DIRECTOR ONLY

Credits: 1

ASPD 2100: Preparing for Health Careers

Five interpersonal and four intrapersonal competencies sought by health professions schools. What they mean, why they are important in health care, and how to develop them in oneself.

Credits: 1

ASPD 2101: The Road Less Traveled

This course is designed to expand students' awareness of the array of health professions. Guest speakers from fields students choose less frequently will come to class and introduce their professions. Students will have the opportunity to expand their perspective in search of their "fit", while simultaneously learning more about health care and health professionals.

Credits: 1

ASPD 2103: Charting Your Course - Science

Exploration of professional options offered by a degree in the sciences, such as careers in pharmaceutical and vaccine development, data analytics, and more.

Credits: 1

Prerequisites:

ASPD 1000

ASPD 2200: Applied Professional Devlp

Students will enhance their professional development and career knowledge through this overview of important and relevant topics related to investigating career paths and applying to internships and jobs. The one-credit Independent Study offering is designed to give students greater flexibility in course scheduling. Restricted to CLAS students with permission of Director of Professional Development.

Credits: 1

Prerequisites:

ASPD 1000

ASPD 3000: Topics in Prof. Development

Strategies and techniques to enhance students' professional development. Students will reflect on and write about their internship and work experiences to challenge their thinking about the workplace, leadership, and efficiency on the job.

Credits: 3

Astrophysics and Planetary Science

AST 1076: How Old is the Universe?

Explores one of the most basic questions in modern astronomy. Evidence from the Earth, Moon, and meteorites will be examined, along with that from stars, white dwarfs, and the Universe itself. Includes an overview of the formation and evolution of the Universe.

Credits: 3

AST 2120: Sun and Stars

A technical study of the Sun and other stars; their internal constitutions and atmospheres, life cycles and evolutionary processes, memberships in groups, the radiations they produce, and the manner in which astronomers quantify their characteristics.

Credits: 3

Prerequisites:

MAT 1310 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500

AST 2121: Solar System Astronomy

The science of the solar system. Early ideas of the nature of the solar system; the dynamics and compositions of the planets; atmospheric evolution and maintenance. How comets and meteorites reveal the structures of the primitive solar system.

Credits: 3

Prerequisites:

MAT 1310 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500

AST 2122: Understanding Our Universe

A study of the formation and evolution of the Universe. Emphasis on the observational evidence leading to the Big Bang Theory, inflation, dark matter, and dark energy. Current model of the universe described and evidence for the "multiverse" discussed.

Credits: 3

AST 2123:**Astrodynamics: Kepler & Beyond**

Intermediate Newtonian dynamics: description of motion under forces as functions of position, time, velocity. Motion in one and three dimensions, the Kepler problem, gravitation, and the restricted three-body problem.

Credits: 3

Prerequisites:

MAT 1310 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500

AST 2133: Observational Lab I

Astronomical instruments, methods of observing, reduction of observations, and discussion of astronomical data. Observations include CCD imaging, spectroscopy, and photoelectric photometry using the observatory reflector and Schmidt telescopes. Two hours per week in the laboratory in addition to the observing time necessary to complete the assigned projects. Corequisite or prerequisite: AST 2120.

Credits: 2

AST 2134: Observational Lab II

Continuation of AST 2122.

Credits: 2

Prerequisites:

AST 2133 :D-

AST 3141: Galactic Astronomy

The nature, distribution, and motions of the constituents of the Galaxy; the major star system in which our Sun is located the stars, the gas and dust, star clusters, etc.; stellar distance determination, distribution of stars and gas, stellar kinematics, galactic dynamics, galactic radio emission, cosmic rays, and evolution of galaxies.

Prerequisite: one year of mathematics or physics and either AST 2120 or AST 2122.

Credits: 3

AST 3142: Intro to Astrophysics

Theories of stellar atmospheres, line-broadening and formation, radiative transfer, theoretical spectra, and the theory of stellar interiors are covered. Fundamental stellar timescales, thermonuclear reactions, evolutionary models, stellar pulsations, novae and supernovae.

Credits: 3

Prerequisites:

AST 2120 :D- or AST 2122 :D- and PHY 2410 :D-

AST 3143: Astrobiology, Planets, & Life

Are we alone? Does life exist elsewhere in the Universe? Focus on the origin of life on Earth and the possibility of life in the Solar System and beyond. Topics include: Planetary-Habitability, Exoplanets, Astro/Exobiology, Extremophiles, Techniques, and searches for Extraterrestrial-Intelligence.

Credits: 3

AST 3148: The Princpl of Scientific Model

Discusses the principle aspects of computational modeling in science, with stress on interdisciplinarity and synergy with big data science. Students gain hands-on experience in solving prototypical scientific problems using modern computational techniques.

Credits: 3

AST 4121: Undergrad Research I

Student participation in departmental or independent research under faculty supervision; frequent conferences on literature search, research techniques, experimental procedures and results.

Credits: 3

AST 4122: Undergrad Research II

Continuation of AST 4121.

Credits: 3

AST 5900: Independent Study

Supervised study, activity or research in a selected area of astronomy & astrophysics. May be repeated for credit if the topics are different. Prior approval of chair and instructor.

Credits: 3

AST 5930: Topics in Astron & Astrophysics

Lecture presentation of selected topics in astronomy & astrophysics. May be repeated for credit if topics are different. Prerequisites may be imposed depending on the topics.

Credits: 3

Augustine and Culture Seminar

ACS 1000: Ancients

A Humanities seminar based principally on texts and readings drawn from primary sources up to 1650. Extensive written work and seminar discussions. Required readings: Hebrew and Christian scriptures, selections from the works of Augustine, Greek and Renaissance works. Readings from different genres and disciplines. Themes developed by the instructor in accordance with the selected readings.

Credits: 3

ACS 1001: Moderns

A Humanities seminar based principally on texts and readings drawn from primary sources 1650 to the present. Extensive written work and seminar discussions. Readings from each of the following five historical eras: Early Modern, Enlightenment, Romantic, Modernist, Contemporary. Readings will also reflect different genres and disciplines. Themes developed by the instructor in accordance with the selected readings, including a specific Augustinian theme.

Credits: 3

Biology

BIO 1057: Intro to Occupational Therapy

Provide an understanding of the practice of Occupational Therapy through observation & readings in an independent study format.

Credits: 2

BIO 1101: Biology

General principles, cells and energy, hereditary mechanisms, survey of organisms, evolution and ecological principles. For non-biologists who do not plan a more extensive study of biology. Open to VSB majors.

Credits: 3

BIO 1181: Microbiology and Genetics

The structure of prokaryotic and eukaryotic cells; microbial classification; control of microbial growth, principles of disease; pathogenic mechanisms; host defenses. Eukaryotic and prokaryotic gene organization and function; analysis of patterns of inheritance; recombinant DNA technology; linkage and genetic maps, genetic variation in human populations; inheritance, diagnosis and treatment of metabolic disease; cytogenetics; immunogenetics; cancer; developmental genetics. Open to Nursing majors.

Credits: 3

BIO 1205: Human Anatomy & Physiology I

Basic concepts and laboratory studies of anatomy and physiology with presentation of overall morphology and function of the integumentary, skeletal, muscular, nervous, and endocrine systems. Designed primarily for Nursing majors and students interested in allied health professions.

Credits: 4

BIO 1206: Human Anatomy & Physiology II

Continuation of Biology 1205. The structure and function of the cardiovascular, lymphatic, respiratory, digestive, urinary, reproductive, and immune systems. Designed primarily for Nursing majors and students interested in allied health professions.

Credits: 4

BIO 1903: Internship Elective

Open to BIO and BSC majors.

Credits: 3

Prerequisites:

(BIO 2105 (or concurrently) :D- or HON 1075 (or concurrently) :D-) and (BIO 2106 (or concurrently) :D- or HON 1076 (or concurrently) :D-)

BIO 1906: Internship Elective

Open to BIO and BSC majors.

Credits: 6

Prerequisites:

(BIO 2105 (or concurrently) :D- or HON 1075 (or concurrently) :D-) and (BIO 2106 (or concurrently) :D- or HON 1076 (or concurrently) :D-)

BIO 1950: TOPIC: Elective in Biology

Selected topics in biological and interdisciplinary studies. Will not count for credit for the biology major.

Credits: 3

BIO 1955: Lec&Lab Free Elective in Bio

Selected topics in biological and interdisciplinary studies with lectures and accompanying lab. Will not count for biology credit for the major or minor.

Credits: 4

BIO 2101: General Biology I Lecture

The lecture portion of Bio 2105. An introduction to biological organization stressing the molecular and cellular aspects of living organisms. The chemistry of life, the cell, the gene, and mechanisms of evolution.

Credits: 3

BIO 2102: General Biology I Lab

The laboratory portion of BIO 2105; taken with BIO 2101. An introduction to biological organization stressing the molecular and cellular aspects of living organisms. The chemistry of life, the cell, the gene, and mechanisms of evolution.

Credits: 1

BIO 2103: General Biology II Lecture

The lecture portion of BIO 2106. The origin of life and diversity of organisms seen in five biological kingdoms. Topics include nutrient acquisition, digestion, circulation, response to stimuli, movement, reproduction, behavior, and ecology.

Credits: 3

BIO 2104: General Biology II Lab

The laboratory portion of BIO 2106; taken with BIO 2103. The origin of life and diversity of organisms seen in five biological kingdoms. Topics include nutrient acquisition, digestion, circulation, response to stimuli, movement, reproduction, behavior and ecology.

Credits: 1

BIO 2105: General Biology I

An introduction to biological organization stressing the molecular and cellular aspects of living organisms. The chemistry of life, the cell, the gene, and mechanisms of evolution.

Credits: 4

BIO 2106: General Biology II

The origin of life and diversity of organisms seen in five biological kingdoms. Topics include nutrient acquisition, digestion, circulation, response to stimuli, movement, reproduction, behavior, and ecology.

Credits: 4

BIO 2993: Internship

Open to BIO and BSC majors.

Credits: 3

Prerequisites:

(BIO 2105 (or concurrently) :D- or HON 1705 (or concurrently) :D-) and (BIO 2106 (or concurrently) :D- or HON 1076 (or concurrently) :D-)

BIO 2996: Internship

Open to BIO and BSC majors.

Credits: 6

Prerequisites:

(BIO 2105 (or concurrently) :D- or HON 1705 (or concurrently) :D-) and (BIO 2106 (or concurrently) :D- or HON 1076 (or concurrently) :D-)

BIO 3011: Animal Behavior Lecture

This is the lecture-only alternative to the lecture/lab course BIO 3015; Animal Behavior, and does not count towards the EcoEvoPop Bio requirement for the Biology major. Topics include communication, foraging, territoriality, mating systems, parental behavior, and social organization.

Credits: 3

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3015: Animal Behavior

Lecture topics cover communication, foraging, territoriality, mating systems, parental behavior, and social organization. Laboratories include collection, statistical analysis, and interpretation of behavioral data, culminating in a small-group independent research project.

Credits: 4

Prerequisites:

(BIO 2105 or HON 1075) and (BIO 2106 or HON 1076)

BIO 3055: Human Physiology

The basic principles underlying how animals function and the mechanisms used to solve physiological problems.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3105: Biostatistics & Exp Design

The conceptualization of experimental design, hypothesis testing, execution of statistical analyses, written and oral expression of statistical results, and effective graphical presentation of quantitative data.

Credits: 4

Prerequisites:

(BIO 2105 or HON 1075) and (BIO 2106 or HON 1076)

BIO 3155: Comparative Anatomy

Evolution of homologous structures of vertebrates including functional considerations. Laboratory includes systematic and topical dissection of representative chordates and demonstrations of living organisms' functions.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3225: Imaging Technology

Introduction to imaging technologies, including light and fluorescent microscopy and scanning and transmission electron microscopy. Course covers both theoretical and applied microscopy.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3255: Evolutionary Ecology

Factors affecting the distribution, abundance, and interactions of organisms. Climate patterns, biomes, physiological adaptation, behavioral ecology, population dynamics, species interactions, biodiversity, and conservation ecology. Emphasis on community level of organization and below; complements BIO 3385 Global Change Ecology. Hypothesis testing using statistical analysis of data.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3351: Genetics

Transmission, molecular, evolutionary and population genetics, gene regulation and genomics. Heredity; how genetic information is stored, regulated and transferred; how genes interact and relate to phenotype. Tutorials develop problem-solving and bioinformatics skills, and provide a forum for discussion. Chemistry pre-requisites may be taken concurrently.

Credits: 4

Prerequisites:

(BIO 2105 or HON 1075) and (CHM 1103 and CHM 1151 or CHM 1161) or (CHM 1311 and CHM 1301)

BIO 3385: Global Change Ecology

Roles of ecology in documenting, responding, feeding back to, and mitigating human-caused changes to Earth's chemistry, geography and climate. Laboratories include ecological techniques, such as carbon flux measurements, and independent research projects. Emphasis on ecosystem-level processes with global consequences; complements BIO 3255 Evolutionary Ecology.

Credits: 4

Prerequisites:

BIO 2105 and BIO 2106

BIO 3405: Higher Vertebrates

Evolutionary history, diversification and basic biology of birds and mammals: ecological and physiological adaptations, reproductive biology, social behavior, population ecology, life history strategies, taxonomy and identification. Field trips.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3455: Histology

The microscopic study and demonstration of cells, tissues and organ systems of the mammalian body.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3485: Marine Biology

An introduction to chemical, physical and geological oceanography; the biology and ecology of marine organisms (Plankton, seaweeds, invertebrates, fishes, sea birds, marine mammals); and the comparative ecology of marine communities and ecosystems (estuaries, rocky intertidal, kelp forests, coral reefs, the deep sea and hydrothermal vents).

Credits: 4

Prerequisites:

(BIO 2105 or HON 1075) and (BIO 2106 or HON 1076)

BIO 3525: Entomology

Lecture includes anatomy, sensory systems, physiological adaptations, reproductive biology, social behavior and interactions with humans. Laboratory includes functional morphology, ecology and taxonomy of preserved and collected specimens. Complements Invertebrate Zoology, which covers freshwater and marine invertebrates.

Credits: 4

Prerequisites:

BIO 2105 and BIO 2106

BIO 3591: General Microbiology Lecture

This is the lecture-only alternative to the lecture/lab course BIO 3595: General Microbiology. Bacteria, viruses, eukaryotic microbes, immune function. Microbes in air, water, soil: interactions with plants and animals. Agricultural, commercial, industrial, and medical applications.

Credits: 3

Prerequisites:

BIO 2105 or HON 1075

BIO 3595: General Microbiology

Bacteria, viruses, eukaryotic microbes, immune function. Microbes in air, water, soil: interactions with plants and animals. Agricultural, commercial, industrial, and medical applications. Laboratory studies in growth and analysis of selected organisms/viruses.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-)

BIO 3661: Environment and Human Health

Presentation and discussion of scientific aspects of topics relating to the environment and human health. Specific topics covered vary, but could include biodiversity and health, ecosystem services, infectious diseases, climate change, endocrine disruption, food production (including GMOs), and urban ecology.

Credits: 3

Prerequisites:

(BIO 2105 and BIO 2106) or (GEV 1050 and GEV 1051)

BIO 3905: Vascular Plants

Organization of the vascular plant body, plant reproduction and development, systematic and environmental considerations, tissue culture and hormonal regulation.

Credits: 4

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 3950: Special Topics in Biology

Coverage of current topics in biology. Topics will be announced on a semester-by-semester basis. Specific information available in the departmental office.

Credits: 3

Prerequisites:

BIO 2105 and BIO 2106

BIO 3952: Special Topics in Biology LAB

One credit lab in Biology. Topic to be determined by term.

Credits: 1

Prerequisites:

BIO 2105 and BIO 2106

BIO 3955: Lec+Lab in Topics in Biology

Coverage of current topics in biology with lectures and accompanying lab. Topics will be announced on a semester-by-semester basis. Specific information available in the departmental office.

Credits: 4

Prerequisites:

BIO 2105 and BIO 2106

BIO 4105: Medical Microbiology

In-depth study of medical microbes including bacteria, viruses, fungi, parasites. Discussion of pathogenesis, disease diagnosis, vaccine design, microbe hunting. Case studies presented. Lab provides hands-on microbiology including diagnostics, horizontal gene transfer, and tissue culture assays.

Credits: 4

Prerequisites:

BIO 3595 :D- or BIO 3351 or BIO 3755

BIO 4201: Cell Biology Lecture

This is the lecture-only alternative to the lecture/lab course BIO 4205: Cell Biology. The mechanisms of cell signaling, regulation of growth and division, adhesion, movement, macromolecular, biosynthesis, processing and trafficking.

Credits: 3

Prerequisites:

BIO 3351 and CHM 2212 (or concurrently)

BIO 4205: Cell Biology

The mechanisms of cell signaling, regulation of growth and division, adhesion, movement, macromolecular biosynthesis, processing and trafficking. Important experimental techniques and strategies for study of the eukaryotic cell.

Credits: 4

Prerequisites:

BIO 3351 :D- and CHM 2212 (or concurrently) :D-

BIO 4251: Endocrine Physiol/ Pharmacology

Mechanisms of endocrine control of growth, metabolism, reproduction, adaptation, and behavior. The endocrine glands.

Credits: 3

Prerequisites:

BIO 3055 :D-

BIO 4252: Endocrine Physiol/ Pharmacology

Laboratory experience in endocrinology, demonstrative and analytical.

Credits: 1

Prerequisites:

BIO 3055 :D-

Co-Requisites:

BIO 4251

BIO 4285: Developmental Biology

Mechanisms and patterns of vertebrate embryo development from primordial germ cells to formation of organ systems. Lectures on, and laboratory work with living embryos; microscopic study of prepared embryos; and individual research projects.

Credits: 4

Prerequisites:

BIO 3351 :D-

BIO 4305: Evolution

Process and pattern from micro- and macro-evolutionary perspectives. Evolutionary genetics, natural selection, speciation, macroevolutionary trends, and extinctions. Field, laboratory, and computer approaches.

Credits: 4

Prerequisites:

BIO 3351 :D-

BIO 4331: Biology of Cancer

Coverage of causes, genetics, clinical aspects, and cell biology of cancer from preneoplastic state to invasive metastasis. Includes diagnosis, therapeutics, treatment, and prevention. Coursework in cell and/or molecular biology preferred.

Credits: 3

Prerequisites:

BIO 3351

BIO 4355: Experimental Genetics

Laboratory exploration and discussion of topics in bacterial, developmental, molecular, population and transmission genetics. Readings in the primary literature are stressed.

Credits: 4

Prerequisites:

BIO 3351 :D-

BIO 4451: Field Ecol and Evol

Advanced study of organisms and ecosystems of a particular region (location varies; has included Florida, Puerto Rico, Nova Scotia). General principles explored using examples from focal area: historical and ecological biogeography, habitat patterns, biotic and abiotic interaction, evolutionary processes, and conservation problems.

Credits: 2

Prerequisites:

BIO 3012 :D- or BIO 3255 :D- or BIO 4305 :D- or BIO 3505 :D- or BIO 3555 :D- or BIO 3905 :D- or BIO 4485 :D- or BIO 3505 :D-

BIO 4452: Field Ecol and Evol Lab

Field study of organisms and ecosystems of a focal region. Trip lasting 15-20 days usually in late May to geographical area covered in BIO 4451, with focus on local habitats and conservations projects, field identification, group exercises, and independent research projects. Costs to students and timing vary with site chosen. (2 cr) Sem 2, even year.

Credits: 2

Prerequisites:

BIO 3012 :D- or BIO 3255 :D- or BIO 4305 :D- and BIO 4451 (or concurrently) :D-

BIO 4501: Molecular Biology Lecture

This is the lecture-only alternative to the lecture/lab course BIO 4505: Molecular Biology. DNA structure, replication, recombination, mutagenesis and repair, transcription, RNA processing, translation and the genetic code, control of gene expression, eukaryotic genome structure. Molecular aspects of immunity, cancer; and AIDS

Credits: 3

Prerequisites:

BIO 3351 and CHM 2212 (or concurrently)

BIO 4505: Molecular Biology

DNA structure, replication, recombination, mutagenesis and repair, transcription, RNA processing, translation and the genetic code, control of gene expression, eukaryotic genome structure. Molecular aspects of immunity, cancer, and AIDS. Laboratory exercises in gene cloning and analysis.

Credits: 4

Prerequisites:

BIO 3351 :D- and CHM 2212 (or concurrently)

BIO 4605: Neurobiology

The physiology of the nervous system using vertebrates and invertebrates. The function of nerve cells, synapses, sensory, motor, behavior and learning.

Credits: 4

Prerequisites:

BIO 3055 :D-

BIO 4801: Conservation Biology

Scope of global biodiversity crisis and causes of endangerment. Ecology of rare and declining species. Biological aspects of species, community, and ecosystem management. Scientific foundation of conservation policy development and implementation.

Credits: 3

Prerequisites:

BIO 3255

BIO 4940: Topics in Biology

Current topics in biology. Topics will be announced on a semester-by-semester basis. Typically has a course at the 3000-level as a prerequisite. Specific information will be available in the department office.

Credits: 2

Prerequisites:

BIO 2105 and BIO 2106

BIO 4950: Advanced Topics in Biology

Coverage of current topics in biology. Topics will be announced on a semester-by-semester basis. Typically has a course at the 3000-level as a prerequisite. Specific information available in the departmental office.

Credits: 3

Prerequisites:

BIO 2105 and BIO 2106

BIO 4955: Lec+Lab in Adv Topics in Bio.

Advanced topics course with integrated lab. Topics will be announced on a semester-by-semester basis. Typically has a course at the 3000-level as a prerequisite. Specific information available in the departmental office.

Credits: 4

Prerequisites:

BIO 2105 and BIO 2106

BIO 5100: Senior Seminar

Special topics in modern biology, presented by student lectures and informal discussions. Topics to be announced each semester.

Credits: 1

BIO 5200: Biology Capstone

Special topics in biology, covered through readings from primary and secondary literature, student presentations and/or projects and discussions. Topics to be announced each semester.

Credits: 2

BIO 5300: Biology Capstone

Special topics in biology, covered through readings from primary and secondary literature, student presentations and/or projects, and discussions. Topics to be announced each semester.

Credits: 3

Prerequisites:

BIO 2105 :D- and BIO 2106 :D-

BIO 6100: Affiliation Study

Credits: 0

BIO 6101: Leadership & Mentoring in Bio

Student mentors will learn about leadership, pedagogy and higher learning by helping first-year Biology students, including those with socioeconomic or other disadvantages, to develop study skills, time management assistance, test anxiety strategies, and pathways for navigating academics.

Credits: 1

Prerequisites:

BIO 2105 and BIO 2106

BIO 6102: Special Biology Lab Topics

Students attend research meetings in a specific lab and complete activities determined by the instructor.

Credits: 1

Prerequisites:

BIO 2105 and BIO 2106

BIO 6401: BS/MS Independent Study 1

Supervised laboratory/field research

Credits: 1

BIO 6402: BS/MS Independent Study 2

Supervised laboratory/field research.

Credits: 1

BIO 6403: BS/MS Independent Study 3

Supervised laboratory/field research.

Credits: 1

BIO 6404: BS/MS Independent Study 4

Supervised laboratory/field research.

Credits: 1

BIO 6509: Directed Research

Library &/or laboratory research under student-selected Biology faculty member (can lead to thesis research.) Sem 1&2.

Prerequisite: permission of faculty mentor & instructor; 3.0 QPA. Restricted to junior or senior biology & BSC majors. Does not count for biology laboratory credit alone.

Credits: 2

Prerequisites:

(BIO 2105 :D- or HON 1075 :D-) and (BIO 2106 :D- or HON 1076 :D-)

BIO 6609: Thesis Research I

Laboratory research with Biology faculty member selected by student (part 1 of two-semester sequence). Fall semester. Requires permission of faculty mentor & instructor and 3.0 QPA. Part 1 of two-semester sequence; continues as Thesis Research II, which culminates in a written thesis.

Credits: 3

Prerequisites:

(BIO 2105 or HON 1075) and (BIO 2106 or HON 1076)

Co-Requisites:

BIO 6610

BIO 6610: Thesis Proseminar

Scheduled group meetings with other research students in the department, focusing on general and specific aspects of thesis research. Fall semester. Requires permission of instructor and 3.0 QPA.

Continues as Thesis Research II, which culminates in a written thesis. (Corequisites: BIO 6609 or HON 6000 or HON 6001)

Credits: 1

Prerequisites:

(BIO 2105 or HON 1075) and (BIO 2106 or HON 1076)

BIO 6709: Thesis Research II

Continuation of Thesis Research I or Directed Research. Laboratory research with Biology faculty member selected by student. Spring semester. Requires permission of faculty mentor & instructor and 3.0 QPA. Culminates in a written thesis. Counts typically for Laboratory credit toward the major.

Credits: 2

Prerequisites:

BIO 6509 or BIO 6609

Co-Requisites:

BIO 5100

Business Administration

BA 2002: Bus Admin Internship-Global

Employment with an approved firm with the internship taking place outside of the United States where experience is gained with appropriate training, instruction, and supervision. Prerequisites: minimum GPA; approval of chair.

Credits: 3

Business Law

BL 2135: Bus. Entity Law, Gov, Ethics

The law of agency, partnerships and corporations; personal property; the Uniform Commercial Code sections dealing with secured transactions and negotiable instruments; moral and ethical dimensions; comparison with other legal systems.

Credits: 3

Prerequisites:

VSB 2007

BL 2149: Cont. Topics in Business Law

Contemporary issues and topics which affect the legal environment of business.

Credits: 3

Prerequisites:

VSB 2007

BL 2160: International Business Law

The nature, sources, functions and practical applications of International Law, approached from a perspective of the individual, governments, and business entities. Emphasis on the "rules" that govern doing business globally and resolving disputes.

Credits: 3

Prerequisites:

VSB 2007

BL 2185: Law of Contracts & Sales

Elements for legal agreements; Uniform Commercial Code Article 2; moral and ethical dimensions; comparison with other legal systems.

Credits: 3

Prerequisites:

VSB 2007

BL 3350: Independent Study - BL

Independent Study under faculty guidance in an area of student's special interest. Permission of Faculty and Department Chair.

Credits: 3

Prerequisites:

VSB 2007

Center for Irish Studies

IS 1111: Introductory Irish Language I

Groundwork in Irish (Gaelic), including oral proficiency, aural comprehension, and reading knowledge; for students with no prior knowledge of Irish. Supplementary language laboratory work and oral drills.

Credits: 4

IS 1112: Introductory Irish Language II

Groundwork in Irish (Gaelic), including oral proficiency, aural comprehension and reading knowledge; for students with one semester of Irish study completed. Supplementary language laboratory work and oral drills. Students should have completed IS 1111 or equivalent.

Credits: 4

IS 1121: Intermediate Irish Language I

Review of grammar and vocabulary in Irish (Gaelic). Recitations, readings and oral drills. Supplementary cultural study, language laboratory, and conversation comprehension. Prerequisites: IS 1111 and 1112, equivalent or permission of instructor. Taught by a Fulbright language instructor from Ireland. Counts toward the Irish Studies Concentration.

Credits: 3

Prerequisites:

IS 1112

IS 2222: Topics: Irish Language

Specific topics concerning the Irish language (Gaelic); topics vary by semester.

Credits: 3

IS 3100: Topics: Irish Studies

Study of topics of special interest in Irish Studies, both on campus and abroad. May be repeated two times if topics change.

Credits: 3

IS 4000: Intro Irish Studies Abroad

On the culture, history, politics of Ireland. Presentations by the Academic Program

Coordinator, readings on Irish culture and society, and field trips. Required of all students participating in the summer abroad program at NUI Galway, Ireland.

Credits: 1

Co-Requisites:

VAB 1000

IS 4100: Spec Top in Irish Studies

Perspectives on the culture and history of Ireland. Presentations by the Resident Program Director, lectures by a range of NUI faculty, readings by noted Irish writers, performances by a local musicians, and field trips. Required of all students participating in the semester abroad program at NUI Galway, Ireland.

Credits: 3

IS 4101: Studying in Ireland

Intercultural education preparing for study in Ireland through critical readings, reflective writing, and foundational concepts in Irish Studies.

Credits: 1

Chemical Engineering

CHE 1102: Material Balances

Introduction to chemical engineering processes and modeling them with material balances.

Credits: 3

Prerequisites:

EGR 1200

CHE 2101: Thermodynamics 1

Thermodynamics of single component systems: applications of first and second laws, steady-state energy balances, equations of state, thermodynamic properties of fluids, thermochemistry.

Credits: 3

Prerequisites:

CHE 1102

CHE 2102: Thermodynamics 2

The fundamental property relation, thermodynamic properties of single and multiple pure phases, homogeneous multicomponent phases, ideal and non-ideal liquid solutions, phase equilibria, chemical reaction equilibria, problem solving techniques, applications.

Credits: 3

Prerequisites:

CHE 2101

CHE 2201: Fluid Dynamics

Fluid statics, fluid properties, flow of incompressible fluids in conduits, friction factors, meters, pumps, external flow, drag, flow in packed and fluidized beds.

Credits: 3

Prerequisites:

CHE 1102 and MAT 2705 (or concurrently)

CHE 2202: Heat Transfer

Principles of heat flow, mechanisms of conduction, convection and radiation, correlations for heat transfer coefficients, heat transfer equipment and process applications.

Credits: 3

Prerequisites:

CHE 2201

CHE 2232: Fluid Mechanics

Fluid statics, fluid properties, flow of incompressible fluids in conduits, friction factors, meters, pumps, external flow, drag, flow in packed and fluidized beds.

Credits: 3

Prerequisites:

CHE 2031 :C-

CHE 2301: ChE Computational Methods

Introduction to the software and computational tools necessary for chemical engineers, including MathCAD, MatLAB, ASPEN, and others.

Credits: 3

Prerequisites:

CHE 1102

CHE 2402: Technical Communications

Oral and written communication skills, reporting and analyzing results of experiments and/or literature investigations, graphical reporting.

Credits: 3

Prerequisites:

CHE 2301

CHE 2900: Global Pharmaceutical Industry

Fundamental drivers such as new technologies that characterize the global pharmaceutical industry. Includes attention to regulatory harmonization and global access to medicines; as well as elements such as global supply chain management and risk based quality.

Credits: 3

CHE 3201: Mass Transfer

Fundamentals of interphase mass transfer: mechanisms, driving force and resistance to transfer, design and analysis of continuous and staged contacting processes, gas absorption and stripping, binary distillation, liquid extraction.

Credits: 3

Prerequisites:

CHE 2202

CHE 3202: Reactor Design

Principles and methods of chemical kinetics and reactor design. Introduction to heterogeneous systems. Stiochiometry and rate laws for simple and complex reactions, analysis of reaction rates, isothermal reactors, introduction to temperature effects.

Credits: 3

Prerequisites:

CHE 3201

CHE 3301: ChE Applied Mathematics

Application of differential equations, linear algebra and conversation laws to model complex chemical processes (including non-steady state, and multi-dimentional examples).

Credits: 3

Prerequisites:

CHE 2202

CHE 3401: Unit Operations Lab 1

Application of chemical engineering principles to laboratory and pilot scale equipment. Oral and written reporting of results.

Credits: 3

Prerequisites:

CHE 2402

CHE 3402: Unit Operations Lab 2

Design and analysis of chemical engineering experiments using laboratory and pilot scale equipment. Oral and written reporting of results.

Credits: 3

Prerequisites:

CHE 3401

CHE 4201: Process Design

Application of fundamental principles of chemical engineering to design of industrial chemical processes; use of process simulators (such as Aspentech ASPEN PLUS) for process design.

Credits: 3

Prerequisites:

CHE 3202

CHE 4202: Process Controls

Introduction to process control concepts and applications, computer simulation of processes during transient change, real-time and LaPlace domain analysis of controlled systems.

Credits: 3

Prerequisites:

CHE 4201

CHE 4232: Chemical Process Control

Introduction to process control concepts and applications, computer simulation of processes during transient change, real-time and LaPlace domain analysis of controlled systems.

Credits: 3

Prerequisites:

CHE 4331

CHE 4831: Senior Project Studio I

Independent investigation of a chemical engineering problem, under supervision of a faculty advisor, or industry sponsor, including a written comprehensive report. (Nine hours per week of independent study).

Credits: 3

CHE 4832: Senior Project Studio II

Continuation of CHE 4831. May include further investigation of same problem or a different topic.

Credits: 3

Prerequisites:

CHE 4831 :D-

CHE 5001: Industrial Liq & Slid Waste

Industrial waste management: nature and sources of waste streams, principles underlying chemical and physical treatment methods, case studies of treatment technology.

Credits: 3

CHE 5002: Prin of Air Pol Control

Causes, effects and control of air pollution, emphasizing abatement technologies: classification and sources of airborne pollutants, particulate control devices, VOC abatement technologies, NO_x and SO_x abatement, and meteorological effects.

Credits: 3

CHE 5032: Equipment Design & Spec.

Equipment design and specification based on theoretical and practical knowledge of unit operations. Analysis and design of several types of process equipment. Mandatory tours of chemical process facilities will be scheduled on Friday afternoons based on student interest.

Credits: 3

Prerequisites:

CHE 4131 :D-

CHE 5062: Chemical Engineering Economics

Methods of economic evaluation & decision making, applied to engineering problems. Cost estimation & indexing, time value of money, depreciation, comparison of alternatives.

Credits: 3

CHE 5131: CHE Math and Num Method

Mathematical and numerical method techniques for solving equations of importance to chemical engineering applications.

Credits: 3

CHE 5133: Brewing Science & Tech

The science in the suds: course covers chemistry of malt and mashing, hops chemistry, biology of fermentation, and the engineering technology of brewing beer. This course requires an understanding of organic chemistry and microbiology. Pre-requisites: CHM 2211 Organic Chem I/ permissible instead. Must be 21 years old at the start of the class.

Credits: 3

Prerequisites:

CHM 2211

CHE 5232: Industrial Catalytic Processes

Principles and methods of chemical kinetics and reactor design applied to heterogeneous reactive systems of industrial importance: catalysis and catalytic reactors, catalyst deactivation, diffusion effects, design of heterogeneous catalytic and non-catalytic chemical reactors.

Credits: 3

Prerequisites:

CHE 4031 :D- or CHE 3332 :D-

CHE 5332: Special Topics in CHE

Selected topics in chemical engineering: recent developments, new technology, applications of other disciplines to chemical engineering problems.

RESTRICTION: Must have Chair's Permission.

Credits: 3

CHE 5530: Gene Therapy Methods & Research

Lectures on common cloning methods and DNA sequencing/analysis techniques, along with labs that require students to design/construct a mammalian gene expression plasmid and evaluate it in animal cells.

Credits: 3

CHE 5532: Intro to Biotechnology

Production of commercially useful materials by living organisms, emphasizing emerging technology: biologically important compounds, their relationships to genetics and metabolic pathways, controlled growth of microbes, separation and purification of products.

Credits: 3

CHE 5533: Bioseparations

Factors underlying physical and chemical separations of natural (biological) products: centrifugation and filtration, cell Breakage, precipitation, extraction, adsorption, chromatography and crystallization; process-scale equipment and operations.

Credits: 3

CHE 5534: Biomaterials

Materials for use in medicine and in/on the body, material bulk and surface properties, biological responses to materials, applications, manufacturing processes, cost, sterilization, packaging and regulatory issues.

Credits: 3

CHE 5535: Bioengineering Lab Techniques

Fundamental concepts of current biotechnology techniques; demonstration and application of laboratory methods encountered in industry or academia, including genetic engineering, bacterial/ mammalian cell culture, and protein expression, purification, and characterization.

Credits: 3

Prerequisites:

BIO 2105

CHE 5536: Biochemical Data Analysis

Analysis techniques applied to process biochemical data, including basic R programming, hypothesis testing, regression and ODE modeling, and multivariate statistical data analysis. Practical term projects to analyze literature data using learned techniques.

Credits: 3

CHE 5540: Cellular Engineering

An overview of genome editing, manipulation, and sequencing techniques. Various applications of genetic engineering in microbes, plants, animals, and humans are also discussed.

Credits: 3

CHE 5632: Polymer Sci and Engr

Basic principles of polymer science: nature and structure of organic high-polymers, polymerization reactions, physical and chemical properties, mechanical testing, viscoelasticity, flow and processing applications.

Credits: 3

Prerequisites:

CHM 2211 :D-

CHE 5633: Nanomaterials & Surface Scienc

Factors underlying interfacial phenomena and nano-material formation; thermodynamics of surfaces; emulsification, foaming, detergency, nucleation, wetting adhesion, surface films; particle growth, micelles, self-assembled monolayers; unique nanoscale characterization and properties.

Credits: 3

CHE 5634: Intro to Material Science

Comprehensive introduction to structure/property relationships of engineering materials; atomic & molecular structure of materials; means to control structure; mechanical behavior; electronic behavior; effects of treatment history on properties; effects of usage conditions on properties; material selection.

Credits: 3

CHE 5715: Alternative Energy

Technical, economic, and social evaluations of alternative and sustainable energy sources focusing on liquid fuels as well as other energy sources.

Credits: 3

CHE 5842: Safety Analysis

Hazard identification; flammability; material properties; pressure relief; toxicity; risk analysis.

Credits: 3

Prerequisites:

CHE 3931

CHE 6000: CBE Co-Op

CBE Co-Op is an optional course for juniors entering their senior year. The Co-Op is to be completed with a company for 6 months during the summer and fall semesters. The course should be 0 credits in the summer session and 12 credits in the fall. The co-op must be engineering-related and allow the student to gain real world experiences as chemical, biochemical engineer or closely related field.

Credits: 12

CHE 8586: Biomaterials & Drug Delivery

Materials for use in medicine and in/on the body, material bulk and surface properties, biological responses to materials, applications, manufacturing processes, cost, sterilization, packaging and regulatory issues. Drug delivery mechanisms, issues, and modeling.

Credits: 3

Chemistry

The Department of Chemistry at Villanova University offers masters and bachelors degrees, including an American Chemical Society accredited

degree program for undergraduates. Our faculty actively conduct research in diverse areas such as environmental chemistry, protein biochemistry, fuel cell research, and computational chemistry. We recognize that undergraduate research provides a unique opportunity to work closely alongside a faculty mentor, gaining an experience that extends far beyond typical classroom learning, and we encourage all undergraduates to participate in undergraduate research.

CHM 1000: Profesl Development Sem

These courses taken by all chemistry majors each semester with presentations on the chemical profession by students, faculty and visiting chemical professionals. A broad range of activities will include presentations on undergraduate research, career planning, the chemical industry, chemical safety and such topics as medicinal chemistry, polymer chemistry, pharmacology, etc.

Credits: 1

CHM 1103: General Chemistry Lab I

Qualitative and quantitative laboratory experiments which include: the reactions of metals with water; the collection and plotting of data; acid-base titrations; oxidation-reduction titrations; the use of the pH meter and the determination of acid-base titration curves; the use of the spectrophotometer. Coreqs. CHM 1131 or CHM 1151

Credits: 1

CHM 1104: General Chemistry Lab II

Students will be required to identify all metal ions present in an unknown solution. Quantitative titrations of sodium carbonate and the total hardness of water. Synthesis of inorganic compounds and determination of the formula of a transition metal complex ion using spectroscopic methods. Corequisites: CHM 1152 or CHM 1156 (Note: Engineering students are waived from this lab.)

Credits: 1

Prerequisites:

CHM 1103

CHM 1107: General Chemistry Lab: Nursing

Qualitative and quantitative laboratory experiments which include: chemical identification testing, molecular modeling, coordination compound synthesis, reaction kinetics and equilibrium, acid-base titrations, and gas laws Coreq. CHM 1131.

Credits: 1

Co-Requisites:

CHM 1131

CHM 1108: General Chemistry Lab II

Chemistry of organic and biochemical compounds with an emphasis on the identification and chemical reactivities of functional groups. Students will be required to separate and identify various organic and biochemical compounds. Open to health affiliation students.

Credits: 1

Prerequisites:

CHM 1131 and (CHM 1103 or CHM 1107)

Co-Requisites:

CHM 1134

CHM 1131: General Chemistry I

Fundamental laws and theories of chemistry: atomic theory, chemical bonding, chemical kinetics and chemical equilibrium, gases, liquids, solids, solutions, stoichiometry, acid-base theories, electrochemical concepts, and an introduction to nuclear chemistry will be included. Open to health affiliation students.

Credits: 3

Co-Requisites:

CHM 1107

CHM 1134: General Chemistry II

Introduction to organic and biochemistry stressing the application of principles developed in CHM 1131. Open to health affiliation students.

Credits: 3

Prerequisites:

CHM 1131 and (CHM 1103 or CHM 1107)

Co-Requisites:

CHM 1108

CHM 1151: General Chemistry I

Basic concepts of chemistry covering the following topics: stoichiometry, redox reactions; properties of gases; thermochemistry; descriptive presentation of atomic orbitals; molecular structure and bonding; chemical trends in the periodic table; properties of bulk matter; colligative properties of solutions.

Credits: 4

Co-Requisites:

CHM 1103

CHM 1152: General Chemistry II

Continuation of CHM 1151. Introduction to chemical kinetics and equilibrium; the chemistry of acids and bases; buffers and titrations; complex ions and solubility; factors that drive chemical reactions; electrochemistry; nuclear chemistry.

Credits: 4

Prerequisites:

CHM 1151 :D- or CHM 1611 :D-

Co-Requisites:

CHM 1104

CHM 1156: General Chemistry II for Egr

Continuation of CHM 1151. Introduction to chemical kinetics and equilibrium; the chemistry of acids and bases; buffers and titrations; complex ions and solubility; factors that drive chemical reactions; electrochemistry; introduction to organic chemistry.

Credits: 4

Prerequisites:

CHM 1151 :D- and CHM 1103 :D-

CHM 1301: Inorganic Chemistry Lab I

Selected experiments to illustrate fundamental laboratory techniques and skills. Qualitative and quantitative measurements, synthesis and characterization of inorganic complexes, literature searching and computer usage. Emphasis on modern research applications of metals and main group elements.

Credits: 2

Co-Requisites:

CHM 1311

CHM 1311: Inorganic Chemistry I

Fundamental principles in inorganic chemistry stressing relationships among structure, bonding, and reactivity. Properties of matter, periodic trends, acid/base reactions, redox reactions, and bonding in transition metal complexes.

Credits: 3

Co-Requisites:

CHM 1301

CHM 1502: Quant Anal Lab

Laboratory experiments to complement CHM 1512 covering the following: gravimetric analysis, acid-base titrations (weak acid; mixed acid), compleximetric titration and redox reactions.

Credits: 2

Prerequisites:

CHM 1301 :D-

Co-Requisites:

CHM 1512

CHM 1512: Quantitative Analysis

Chemical analysis, with emphasis upon statistical methods, acid-base properties, pH, equilibrium expressions, complexation equilibria, solubility properties, redox potentials, electrolysis, and electrochemical cells.

Credits: 3

Prerequisites:

CHM 1311 :D-

Co-Requisites:

CHM 1502

CHM 1611: Gen'l Chem I for BIOC Majors

Basic concepts of chemistry covering the following topics: stoichiometry, redox reactions; properties of gases; thermochemistry; descriptive presentation of atomic orbitals; molecular structure and bonding; chemical trends in the periodic table; properties of bulk matter; colligative properties of solutions.

Credits: 4

Co-Requisites:

CHM 1103

CHM 1903: Internship Elective

Credits: 3

CHM 1906: Internship Elective

Credits: 6

CHM 1909: Internship Elective

Credits: 9

CHM 2201: Organic Chemistry Lab I

Practical experience in techniques used for separation, purification, and isolation of synthetic as well as naturally occurring organic compounds. Semi-micro and micro scale experiments. Crystallization, distillation, extraction, and chromatography are introduced.

Credits: 1

Co-Requisites:

CHM 2211

CHM 2202: Organic Chemistry Lab II

Further training in laboratory techniques used in organic chemistry, including those introduced in CHM 2201, and utilization of such techniques in representative types of organic reactions. Semi-micro and micro scale experiments.

Credits: 1

Prerequisites:

CHM 2211

Co-Requisites:

CHM 2212

CHM 2211: Organic Chemistry I

Fundamental principles of organic chemistry stressing the relation of structure and reactivity. Structure and bonding; stereochemistry; acids, and bases; electrophilic addition, elimination and nucleophilic substitution.

Credits: 3

Prerequisites:

(CHM 1151 and CHM 1152) or

(CHM 1151 and CHM 1156) or

(CHM 1611 and CHM 1152)

Co-Requisites:

CHM 2201

CHM 2212: Organic Chemistry II

Continuation of CHM 2211. Carbonyl group reactions, aromatic chemistry, spectroscopy and special topics such as heterocycles, carbohydrates and nucleosides, amino acids and proteins, lipids, radicals, rearrangements, polymers and photochemistry.

Credits: 3

Prerequisites:

CHM 2211 :D- and CHM 2201 :D-

Co-Requisites:

CHM 2202

CHM 2993: Internship

Credits: 3

CHM 3201: Organic Chemistry Lab I

Provides practical experience in the principal techniques utilized for the purification, separation, identification, and synthesis of organic compounds on the micro scale. Open to Chemistry majors.

Credits: 2

Prerequisites:

CHM 1502 :D-

Co-Requisites:

CHM 3211

CHM 3202: Organic Chemistry Lab II

The semi-micro techniques include distillation, recrystallization, extraction, sublimation, and chromatography. Synthesis of representative organic compounds. An introduction to research in organic chemistry, introduction to qualitative organic analysis and practical use of infrared and nuclear magnetic resonance spectroscopies.

Credits: 2

Prerequisites:

(CHM 3211 and CHM 3201)

Co-Requisites:

CHM 3212

CHM 3211: Organic Chemistry I

Fundamental principles of organic chemistry stressing the relation of structure and reactivity from a physical-chemical viewpoint. Structure and bonding; stereochemistry; acids and bases; electrophilic addition reactions of alkenes, alkynes, and dienes; nucleophilic substitution reactions at saturated carbon atoms and elimination reactions leading to alkenes or alkynes. Open to chemistry majors.

Credits: 3

Prerequisites:

CHM 1512 :D- and CHM 1502 :D-

Co-Requisites:

CHM 3201

CHM 3212: Organic Chemistry II

Addition and substitution reactions of carbonyl compounds, electrophilic and nucleophilic aromatic substitutions, radical and concerted reactions, heterocyclic compounds and polymer chemistry. Spectroscopic methods of analysis including nuclear magnetic resonance, infrared spectroscopies and mass spectrometry. Introduction to multi-step organic synthesis. Open to chemistry majors.

Credits: 3

Prerequisites:

CHM 3211 :D- and CHM 3201 :D-

Co-Requisites:

CHM 3202

CHM 3301: Inorganic Chem Lab II

This laboratory course emphasizes preparative techniques of inorganic compounds. Instrumental methods of structure elucidation are included.

Credits: 2

Prerequisites:

(CHM 2212 :D- or CHM 3212 :D-) and (CHM 2202 :D- or CHM 3202 :D-)

Co-Requisites:

CHM 3311

CHM 3311: Inorganic Chem II

The second course in the sequence on principles of inorganic chemistry with emphasis on bonding, structure and reactivity. Application of these principles to problems in acid-base, coordination, organometallic, bioinorganic and materials chemistry.

Credits: 3

Prerequisites:

(CHM 2212 :D- or CHM 3212 :D-) and (CHM 2202 :D- or CHM 3202 :D-)

Co-Requisites:

CHM 3301

CHM 3402: Physical Chem Lab II

Experimental methods of chemical kinetics will be covered. Spectroscopic, polarimetric, and conductimetric methods will be used.

Credits: 1

Prerequisites:

MAT 1505 :D-

CHM 3404: Physical Chem Lab I

Experiments on chemical kinetics and optical spectroscopic methods including fluorescence, un-visible, infrared and Raman spectroscopy as well as conductance, viscosity, and numerical analysis of data.

Credits: 2

Prerequisites:

(CHM 2212 :D- or CHM 3212 :D-) and (CHM 2202 :D- or CHM 3202 :D-)

Co-Requisites:

CHM 3412

CHM 3405: Physical Chem Lab II

Experiments centered on chemical thermodynamics including calorimetry and phase equilibria, emphasizing data treatment, including error analysis curve fitting, and related topics.

Credits: 2

Prerequisites:

CHM 3412 :D- and CHM 3404

Co-Requisites:

CHM 3413

CHM 3412: Quantum Chemistry

This course will present an introduction to quantum mechanics and its implications including molecular orbital theory, electronic structure, and molecular spectroscopy.

Credits: 3

Prerequisites:

MAT 1505 :D-

Co-Requisites:

CHM 3404

CHM 3413: Molecular Thermodynamics

First, second, and third laws of thermodynamics; phase equilibria and chemical equilibria; gases; and electrochemistry will be covered in this course.

Credits: 3

Prerequisites:

MAT 1505 :D-

Co-Requisites:

CHM 3405

CHM 3416: Physical Chem for Engineers

Chemical kinetics, electrochemistry, and the structure and properties of materials, including atomic structure, solid and liquid state chemistry, surface and colloid chemistry, and transport properties.

Credits: 3

CHM 3417: Biophysical Chemistry

A study of thermodynamics, kinetics, chemical equilibria, and spectroscopy as they apply to biological molecules, macromolecules, and cells.

Credits: 3

Prerequisites:

(CHM 2212 or CHM 3212) and (CHM 4611 or CHM 4621)

CHM 3501: Instrumental Analysis Lab

Laboratory techniques to obtain quantitative information about the composition of unknown samples, including potentiometric titration, spectrophotometry, chromatography, kinetic analysis, anodic stripping voltammetry, spectrofluorometry and atomic absorption spectrometry. Designed to complement CHM 3511 lecture.

Credits: 2

Prerequisites:

CHM 1152 :D- or CHM 1512 :D-

Co-Requisites:

CHM 3511

CHM 3503: Bioanalytical Chem Lab

Laboratory course to complement CHM. 3514; emphasis on the analysis of biological systems utilizing modern analytical techniques. Designed for the biochemistry concentration.

Credits: 1

Prerequisites:

(CHM 1152 and CHM 1104)

Co-Requisites:

CHM 3514

CHM 3511: Instrumental Analysis

The utilization of instruments covering the following topics: analog and digital signals, absorption and emission of light by molecules and atoms, chromatography (HPLC, GC) and detection, use of enzymes and antibodies, radioactivity, and chemometrics.

Credits: 3

Prerequisites:

CHM 1152 :D- or CHM 1512 :D-

Co-Requisites:

CHM 3501

CHM 3514: Bioanalytical Chemistry

Designed for the biochemistry concentration with emphasis on theory, instrumentation and practical applications of analytical chemistry to biological materials.

Credits: 3

Prerequisites:

CHM 1152 :D- or CHM 1512 :D-

Co-Requisites:

CHM 3503

CHM 4222: Organic Struct Analysis

The currently most useful spectroscopic methods for the structural determination of molecular systems, including: NMR (2D and 2D), mass spectrometry, infrared and ultraviolet-visible spectroscopies.

Credits: 3

Prerequisites:

CHM 3212 or CHM 2212

CHM 4224: Spec Top: Medicinal Chemistry

History and fundamentals of modern Medicinal Chemistry and drug discovery. Drug targets, drug-target relationships: (agonists/ antagonists, inhibitors/ activators, modulators), structure activity relationships, on-versus off-target relationships, physicochemical properties, pharmacokinetics, bioisosteres, structure- and property-based design. A previous Biochemistry class is suggested but not required.

Credits: 3

Prerequisites:

CHM 2212 or CHM 3212

CHM 4229: Organic Reactions & Synthesis

Survey of organic reactions with emphasis on modern synthetic methods and their applications to the synthesis of complex organic compounds. Enolates, carbonyl condensation reactions, functional group interconversions, electrophilic addition reactions, reductions, organometallic reagents, concerted reactions, oxidations. Synthetic strategies including retrosynthetic analysis in the context of specific examples of multi-step synthesis from recent literature.

Credits: 3

Prerequisites:

CHM 3212 or CHM 2212

CHM 4292: Advanced Organic Chemistry

An expanded presentation of fundamental topics in organic chemistry: structure, bonding, stereochemistry, molecular orbital theory, reactive intermediates and reaction mechanisms.

Credits: 3

Prerequisites:

(CHM 3212 :D- or CHM 2212 :D-)

CHM 4315: Organometallics

Examination of the bonding, spectroscopic properties and reactivity of a range of ligands and complexes. Reaction mechanisms and catalytic cycles will be emphasized.

Credits: 3

Prerequisites:

CHM 3301 :D- and CHM 3311 :D-

CHM 4325: Introductory Polymer Chemistry

Topics include: step- and chain-polymerizations, copolymerizations, molecular weight determination, polymer morphology, polymer testing and characterization, and current advances in polymer chemistry.

Credits: 3

Prerequisites:

CHM 2212 or CHM 3212

CHM 4331: Bioinorganic Chemistry

The roles metal ions play in biological systems are explored using relevant examples from natural systems and areas of current research including (but not limited to): catalysis, photosynthesis, respiration, biomimetic modeling, and solar energy conversion.

Credits: 3

Prerequisites:

CHM 3301 and CHM 3311

CHM 4441: Colloidal&Interfacial Science

Basic physicochemical principles of colloids and interfaces such as adhesion, capillarity, interfacial and solution thermodynamics as well as theories of colloidal stability (electrical double layer, zeta potential, DLVO theory), and Light scattering methods.

Credits: 3

CHM 4447: Computational Chemistry

Focus on basic theories behind popular computational models (e.g., molecular mechanics, density functional theory) and their application to chemical problems.

Credits: 3

Prerequisites:

CHM 3412 and CHM 3416 and CHM 3417 or PHY 5100

CHM 4517: Environmental Chemistry

Apply key concepts in chemistry to global scales by examining chemical systems within Earth's lithosphere hydrosphere and atmosphere. Examine and discuss natural processes as well as anthropogenic impacts like climate change and environmental contamination using central scientific literature.

Credits: 3

Prerequisites:

CHM 2211 or CHM 3211

CHM 4601: Survey Biochemistry Lab

An introduction to laboratory techniques in biochemistry; enzyme kinetics, column chromatography, electrophoresis, standard biochemical assays and interpretation of data.

Credits: 1

Prerequisites:

CHM 2202 :D- or CHM 3202 :D- and CHM 4611 (or concurrently) :D- or CHM 4610 (or concurrently) :D- or CHM 3202 :D-

Co-Requisites:

CHM 4611

CHM 4603: Biochem Tech. and Pract.

A laboratory course to complement CHM 4621 with emphasis on enzyme purification, enzyme characterization, and nucleic acid analysis.

Credits: 1

Prerequisites:

(CHM 2212 :D- or CHM 3212 :D-) and CHM 4621 (or concurrently) :D-

CHM 4604: Biochem Tech. and Pract II

A continuation of the introduction of fundamental biochemistry laboratory techniques, along with the application of skills acquired in CHM 4603.

Credits: 1

Prerequisites:

CHM 4603 :D-

CHM 4610: Principles of Biochemistry

A terminal, one semester biochemistry course for the physical sciences and engineers; the kinetics and thermodynamics of biochemical systems and associated molecules, including proteins, nucleic acids, and carbohydrates.

Credits: 3

Prerequisites:

CHM 2212 or CHM 3212

CHM 4611: Survey of Biochemistry

A terminal, one semester survey of biochemistry; carbohydrates, lipids, proteins, nucleic acids, enzymes, vitamins & hormones; consideration of their utilization & metabolism in living systems.

Credits: 3

Prerequisites:

CHM 2212 :D- or CHM 3212 :D-

CHM 4621: Biochemistry I: Structure

An in depth study of the structure and function of the structure and function of proteins, enzymes, carbohydrates, nucleic acids and lipids.

Credits: 3

Prerequisites:

CHM 2212 or CHM 3212

CHM 4622: Biochemistry II:Metabolism

A study of the metabolism of biomolecules, including carbohydrates, lipids, amino acids and nucleotides, including the integration, regulation and control of intermediary metabolism. Emphasized are the hormonal regulation of pathways and metabolic disease.

Credits: 3

Prerequisites:

CHM 4621

CHM 4623: Biochemistry III

Integration of metabolism in organisms, membrane receptors expression of genes, gene manipulation, translation, transcription.

Credits: 3

Prerequisites:

CHM 4622 :D-

CHM 4633: Biochemical Parasitology

Brief overview of parasitology, the unique biochemistry associated with parasites, discussions of relevant therapeutic applications. The parasites responsible for malaria, toxoplasmosis, trichomoniasis, giardiasis, and African Sleeping Sickness will be studied. The biochemistry of host parasite interaction will also be explored.

Credits: 3

Prerequisites:

CHM 4611 or CHM 4622

CHM 4641: Chemical & Biochemical Imaging

The course provides a survey of recent microscopy advances that push the boundaries of image resolution. Instruments and techniques that probe the inner workings of the cell at the level of individual molecules will be discussed, including confocal, TIRF, quantum dots, AFM, and PALM.

Credits: 3

CHM 4652: Biochemical Basis of Disease

A study of the relationship between protein structure and disease, enzymes as therapeutic targets, peptide hormones and obesity, and glucose metabolism and cancer.

Credits: 3

Prerequisites:

CHM 4611 or CHM 4622

CHM 4661: Proteomics

Principles, techniques and applications for the large-scale study of proteins, particularly in humans. Mass spectrometry will be covered in detail, and alternative methods and approaches will also be covered.

Credits: 3

Prerequisites:

CHM 4621 or CHM 4611

CHM 4663: Bioinformatics

This course focuses on bioinformatic approaches to studying protein function, structure, and evolution. Other topics will be discussed; for example, genomics and gene expression.

Credits: 3

Prerequisites:

CHM 2212 or CHM 3212

CHM 4664: Signal Transduction

Overview of signal transduction and the biochemistry of receptors and other cell sensors, with an emphasis on oxygen, reactive oxygen species, inflammation, and disease. Current literature will be used, in addition to the textbook.

Credits: 3

Prerequisites:

CHM 4611 or CHM 4622

CHM 4665: Enzymes

Structural and mechanistic aspects of enzymes. Topics include chemical catalysis, steady state and pre-steady state kinetics, mechanisms, and biological relevance of specific enzyme systems.

Credits: 3

Prerequisites:

CHM 4621 or CHM 4611

CHM 4710: Safety Culture in the Sci Com

Introduction to the principles and practices of laboratory safety; understanding, recognizing, and communicating laboratory chemical, physical and biological hazards; risk assessment and management of hazards; laboratory accident prevention and safe use of emergency equipment.

Credits: 3

CHM 4800: Research

Student participation in independent research under faculty supervision, frequent conferences with advisor on literature search, theoretical and experimental research.

Credits: 0

CHM 4801: Research I

Student participation in independent research under faculty supervision, frequent conferences with advisor on literature search, theoretical and experimental research.

Credits: 3

CHM 4802: Research II

Continuation of CHM 4801.

Credits: 3

Prerequisites:

CHM 4801

CHM 4803: Research III

Continuation of CHM 4802.

Credits: 3

Prerequisites:

CHM 4802

CHM 4851: Thesis Research I

Directed research with a Chemistry or Biochemistry faculty mentor that culminates in a written thesis and seminar presentation. Part I of a two-semester sequence with CHM4852. Permission of participating faculty member required. A written interim report is required at the end of the semester.

Credits: 3

CHM 4852: Thesis Research II

Continuation of CHM4851 - Thesis Research I. Directed research with a Chemistry or Biochemistry faculty mentor that culminates in a written thesis and seminar presentation. Permission of participating faculty member required.

Credits: 3

Chinese Language

CHI 1111: Basic Chinese I

Functional use of Chinese for students with no prior knowledge of Chinese. New pronunciation system, PINYIN, readings and oral drills. Supplementary language laboratory work.

Credits: 6

CHI 1112: Basic Chinese II

Continuation of CHI 1111-Basic Chinese I New pronunciation system, PINYIN, readings and oral drills. Supplementary language laboratory work. CHI 1111 or equivalent or permission of instructor.

Credits: 6

Prerequisites:

CHI 1111 :D

CHI 1121: Intermediate Chinese I

Review of Grammar and vocabulary. New pronunciation system, PINYIN, reading and oral drills. Supplementary language laboratory work. CHI 1112 or equivalent or permission of instructor.

Credits: 5

CHI 1122: Intermediate Chinese II

Review of grammar and vocabulary. New pronunciation system, PINYIN, readings and oral drills. Supplementary language laboratory work. CHI 1121 or equivalent or permission of instructor.

Credits: 5

CHI 1131: Advanced Chinese I

Advanced communication skills including reading and discussing topics on current events. Supplementary language laboratory work. CHI 1122 or equivalent or permission of instructor.

Credits: 3

CHI 1132: Advanced Chinese II

Advanced communication skills including reading and discussing topics on current events. Supplementary language laboratory work. CHI 1131 or equivalent or permission of instructor.

Credits: 3

CHI 1133: Advanced Chinese III

Advanced communication skills including reading & discussing topics on current events. Supplementary language laboratory work. CHI 1132 or equivalent or permission of instructor.

Credits: 3

Prerequisites:

CHI 1132

CHI 1134: Advanced Chinese IV

Advanced communication skills including reading & discussing topics on current events. Supplementary language laboratory work. CHI 1133 or equivalent or permission of instructor.

Credits: 3

Prerequisites:

CHI 1133

CHI 1137: Advanced Chinese V

Further refinement of advanced communication skills in writing and the reading and analysis of Chinese text. Refinement of conversational skills through reading and discussion of current events. Prerequisites: CHI 1134 or approval of instructor.

Credits: 3

Prerequisites:

CHI 1134

CHI 1138: Advanced Chinese VI

Further refinement of advanced communication skills in writing and the reading and analysis of Chinese text. Refinement of conversational skills through reading and discussion of current events. Prerequisites: CHI 1137 or approval of instructor.

Credits: 3

Prerequisites:

CHI 1137

CHI 1151: Spec. Top. in Chinese Language

Intensive instruction in conversation, reading and writing with emphasis on the refinement of Chinese language skills.

Credits: 3

Prerequisites:

CHI 1122

CHI 2143: Chinese Culture

Chinese culture and civilization from the beginning to the present. Conducted in English.

Credits: 3

CHI 3412: Chinese Special Topics

Advanced study of topics of special interest in Chinese literary and/or cultural studies. May be repeated for credit if topic changes. Taught in English.

Credits: 3

CHI 3413: Chinese Calligraphy

Two part course: Textual study: History of Chinese calligraphy emphasizing how the Chinese culture blossomed and developed; Calligraphy practice: an on-hand developing of Chinese characters including the study of character's original meaning, transformation, and cultural context.

Credits: 3

CHI 5900: CHI:Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Civil and Environmental Engineering

CEE 1205: Introduction to CEE

Introduction to Civil and Environmental Engineering for freshman. Students are exposed to environmental, geotechnical, structural and material, transportation, and water resource problems and exercises.

Credits: 3

CEE 1601: Civil Engineering Fundamentals

Introduction to civil engineering, development of analytical experimental, interpretive and field-based skills and procedures for civil engineering; computation and computer methods; professional engineering. Course topics include: maps, ArcGIS, plan sets, surveying, AutoCAD, probability and statistic.

Credits: 4

CEE 2100: Egr Mechanics I- Statics

Vector analysis of force systems on particles and rigid bodies with particular emphasis on mathematical and physical formulation of principles underlying the solution of engineering problems; vector algebra; friction; centroids and moments of inertia.

Credits: 3

Prerequisites:

MAT 1505 :D- and (PHY 2400 :D- or PHY 2410 :D-)

CEE 2103: Mechanics of Solids

Stress resultants in bodies from tension, compression, shear, flexure, torsion and temperature; stress and strain transformations; combined stresses; load deformation relationships; Euler buckling.

Credits: 3

Prerequisites:

ME 2100 :C- or CEE 2100 :C- or CEE 2105 :C-

CEE 2105: Mechanics I:Fund. Behavior

Forces & moments; equilibrium of particles and rigid bodies; analysis of trusses; stress & strain; axial deformations; distributed force patterns; centroids & moments of inertia; dry friction; column buckling.

Credits: 4

Prerequisites:

MAT 1505 :D- and (PHY 2400 :D- or PHY 2410 :D-)

CEE 2106: Mech II:Material Behavior

Shear & moment diagrams; bending & shear stresses; beam deflections; torsion; stress & strain transformations; combined loadings; characteristics of civil engineering materials including Portland cement concrete, masonry, wood, composites, & asphalt; experimental testing using recognized standards.

Credits: 4

Prerequisites:

CEE 2105 :C

CEE 2211: Transportation Engineering

Introduction to transportation planning, intermodal transportation systems, roles of government agencies, alternatives analysis, environmental justice and right-of-way process, facility design (alignment, geometrics), operations (capacity, level of service, traffic control, queuing), and air/public/freight/port and future modes of transportation.

Credits: 3

Prerequisites:

(PHY 2400 :D- or PHY 2410 :D-) and CEE 1601 :D-

CEE 2301: Environmental Eng. Science

Fundamental physical/chemical/microbiological principles of environmental engineering applications including air and water quality control and soil and groundwater remediation.

Credits: 4

Prerequisites:

CHM 1152 (or concurrently) or CHM 1156 (or concurrently)

CEE 2701: CE Project Development

Fundamental topics underlying civil engineering project design and management over the life cycle of a project including engineering economics, cost estimation (including life cycle costs) project management and leadership, project scheduling, and engineering ethics.

Credits: 3

CEE 2805: Geology for Engineers

Development and composition of minerals, rocks and soils; geologic structure and deformation of rock masses; weathering, mass wasting, erosion, groundwater, streams, ocean currents and glaciers.

Credits: 3

CEE 3107: Mechanics III: Fluid Behavior

Fluid properties; kinematics of particles & flow; conservation of mass, energy and momentum; fluid resistance, boundary layer theory, flow in conduits; lift and drag; turbomachines.

Credits: 4

Prerequisites:

MAT 2500 :D- and (CEE 2100 :D- or CEE 2105 :D-)

CEE 3301: Unit Operations/Pro in Env Eng

Analysis of unit operations and processes in environmental engineering including sedimentation, coagulation and flocculation, absorption, filtration, disinfection, oxygen transfer, and activated sludge.

Credits: 4

Prerequisites:

CEE 2301 and CEE 3107 (or concurrently) or CEE 3500 (or concurrently)

CEE 3401: Structural Analysis

Concepts of stability and determinacy; moment area, conjugate beam and energy principles; indeterminate analysis by method of consistent deformation, slope deflection, moment distribution, introduction to analysis software.

Credits: 3

Prerequisites:

CEE 2103 :D- or CEE 2106 :D-

CEE 3402: Structural Steel Design

Design of structural steel members using the AISC Manual; Topics include: structural loads; ASD and LRFD design methods; local buckling; design of beams for flexure, shear, and serviceability; compression members; tension members; combined loading. Includes an integrated laboratory component.

Credits: 3

Prerequisites:

CEE 2103 or CEE 2106

CEE 3500: Fluid Mechanics

Fluid properties; fluid statics, kinematics of flow; conservation of mass, energy and momentum; dynamic similarity; fluid resistance, boundary layer theory, flow in conduits; lift and drag; potential flow; compressible flow.

Credits: 3

Prerequisites:

MAT 2500 :D- and (CEE 2100 :D- or CEE 2105 :D-)

CEE 3507: Hydraulic Egr & Hydrology

Study of open channel flow, hydraulic structures, and principles of hydrology through computational procedures and experimentation.

Credits: 4

Prerequisites:

CEE 3107 or CEE 3500

CEE 3601: GIS for Engineers

Basic principles of GIS as applied in civil engineering projects, including planning and design analysis of an interdisciplinary infrastructural project. Topics include data formats, georeferencing, mapping and visualization, site assessment, spatial and 3D analysis, asset management, tool automation, and sustainability.

Credits: 3

Prerequisites:

CEE 1601

CEE 3602: AutoCAD/Civil 3d for Engineers

Basic principles of AutoCAD and Civil 3D as applied in civil engineering projects, including planning and designing an interdisciplinary infrastructure project. Topics include 2D/3D dimensional drawing and editing layers, dimensioning, viewpoints and scaling, grading, alignments, profiles, surfaces, and quantity takeoffs.

Credits: 3

Prerequisites:

CEE 1601

CEE 3705: Engineering Economics

Components of economic analysis for decision making among alternative including cash flow diagrams, break-even analysis, money-time relationships and equivalent worth, present worth analysis, rates of return, cost estimation, pricing strategy, life cycle analysis and benefit/cost ratio analysis.

Credits: 3

Prerequisites:

CEE 2604 or CEE 2602

CEE 3802: Soil Mechanics

Properties of soil as an engineering material, stresses in soil masses, consolidation and settlement, seepage, soil stabilization, and geotechnical testing.

Credits: 4

Prerequisites:

CEE 2103 and CEE 2805

CEE 3901: Soil Mechanics Lab

Soil classification; techniques for determining properties of soil and soil aggregate; case histories in geotechnical engineering. One period a week.

Credits: 1

Co-Requisites:

CEE 3801

CEE 3902: Civil Egr Materials

Basic properties of civil engineering materials including steel, Portland cement concrete, asphalt binder and concrete, aggregates, wood, masonry, and composites.

Credits: 2

Prerequisites:

CEE 2103 :D-

CEE 3903: CE Materials

Basic properties of civil engineering materials including steel, Portland cement concrete, asphalt binder and concrete, aggregates, wood, masonry, and composites.

Credits: 3

Prerequisites:

CEE 2103 (or concurrently)

CEE 3910: Fluid Mechanics Laboratory

Experiments and demonstrations illustrating principles of flow behavior including computer-aided analysis and interpretation. Co-requisite: CEE 3500 Fluid Mechanics or permission of CEE Chair.

Credits: 1

CEE 3913: Hydraulic Egr & Hydrology Lab

Experiments and demonstrations illustrating principles of flow in open channel flow, hydraulic structures, pressure conduits, pumping and hydrology. Laboratory includes numerical simulation and analysis of experiments.

Credits: 1

Co-Requisites:

CEE 3511

CEE 3921: Environmental Egr Lab

Physical, chemical, and microbiological analyses of water and wastewater; quantitative analysis of several unit operations and processes for water and wastewater treatment plant design and control; field trips to water and wastewater processing facilities.

Credits: 1

Co-Requisites:

CEE 3321

CEE 3950: Graphical Communications

Expressing calculations and designs through graphical techniques.

Credits: 1

Prerequisites:

CEE 2604

CEE 4224: Trans Facilities Design

(CEE Senior Elective)

Engineering applications of transportation design process including design philosophies, environmental impact evaluations, materials design, pavement design, and design of highway, airport, rail facilities. Use of national and state codes and computer-based design software.

Credits: 3

Prerequisites:

CEE 2211 and CEE 3802

CEE 4226: Transportation System Design

(CEE Senior Elective and/or Technical or Free Elective) Engineering applications of transportation design process including design philosophies, elements of systems capacity design, intersections, and interchange design. Use of national and state codes and computer-based design software.

Credits: 3

Prerequisites:

CEE 2211 or CEE 3211

CEE 4331: Solid & Hazardous Waste

(CEE Senior Elective) Solid waste generation, composition, collection, management and regulations; hazardous waste classification, regulation and management; air pollution control methods.

Credits: 3

Prerequisites:

CEE 3301 :D-

CEE 4404: Reinforced Concrete Design

Design of reinforced concrete members using ACI 318. Topics include: structural loads, design of flexural members (rectangular beams, t-beams and slabs), shear design, serviceability, column design, and detailing. Includes an integrated laboratory component.

Credits: 3

Prerequisites:

CEE 3401

CEE 4521: Water Resources Egr Design

(CEE Senior Elective) Design fundamentals of hydrology and open channel hydraulics using production-level programs. Topics include design storms, storm water design and open-channel river modeling.

Credits: 3

Prerequisites:

CEE 3507 :D-

CEE 4601: CEE Capstone Design 1

Relationships among planning, design, and construction processes for civil engineering projects. Multidisciplinary team feasibility study, alternatives analysis, and development of a conceptual design in civil engineering. Seminars on professional practice.

Credits: 3

Prerequisites:

CEE 2701 or CEE 4226 (or concurrently) or CEE 4331 (or concurrently) or CEE 4404 (or concurrently) or CEE 4521 (or concurrently) or CEE 4801 (or concurrently)

CEE 4602: Professional Practice in CEE

Relationships among planning, design, and construction processes for civil engineering projects. Multidisciplinary team feasibility/alternative study focusing on conceptual design. Seminars on career choices, ethics, business, public policy, and leadership.

Credits: 2

CEE 4606: CEE Capstone Design 2

Culminating design experience in civil engineering. Written and oral reports on a design project in one or more civil engineering disciplines.

Credits: 3

Prerequisites:

CEE 4601 and CEE 4224 or CEE 4226 or CEE 4331 or CEE 4404 or CEE 4521 or CEE 4801

CEE 4607: Selected Topics in CEE

Specialty class in or independent study on a current engineering topic. Section numbers below 10 are technical electives within the CEE curriculum.

Credits: 3

CEE 4609: CEE Special Topics

Specialty class in or independent study on an engineering topic. Civil Engineering with permission of chair.

Credits: 1

CEE 4610: Intern'l. Res. Collaboration

Research performed off campus at an international destination. Topic, program, and work plan must be pre-approved. Requires approval of Chair.

Credits: 3

CEE 4611: Civ Engr Service Learning

Service learning experience related to civil engineering. Mandatory weekly group meetings for preparation and reflection on service activities and their impacts. Consent of instructor required.

Credits: 1

CEE 4612: CEE Undergraduate Research

(Technical Elective) Individual participation in modern analytical or experimental research activities under faculty supervision; required technical report and presentation at end of semester. Consent of department chair required.

Credits: 3

CEE 4613: CEE Service Learning Project

Service learning design project focused on civil engineering topics. Students must identify the project and submit a proposal describing the project to the department for review prior to enrolling in the course. Requires approval of Chair.

Credits: 3

CEE 4614: Prof Devel Topics in CEE

Specialty class in or independent study on an engineering topic. Civil Engineering with permission of chair.

Credits: 3

CEE 4702: Construction Engineering

Project documents and processes from procurement through project completion. Topics include: construction methods and equipment, management, planning and scheduling, safety, quality control and assurance.

Credits: 3

Prerequisites:

CEE 2701

CEE 4801: Foundation Design

(CEE Senior Elective) Soil testing, site investigation, design of both shallow and deep foundations.

Credits: 3

Prerequisites:

CEE 3802 :D-

Classical Studies

CLA 1250: Enemies of Rome

Examination of the growth of the Roman Empire throughout the Mediterranean world, with an emphasis on issues of imperialism and cultural identity.

Credits: 3

CLA 1975: Literature and Classics

Survey of ancient and modern classical literature, varying in topic and theme, guiding students in written and oral analysis of themes in texts of the varying genres of epic, tragedy, comedy, novel, short story, film, et al., fulfilling core literature requirement.

Credits: 3

CLA 2021: Language of Science & Medicine

Language of Science and Medicine Greek and Latin prefixes, roots, and suffixes in modern vocabulary; vocabulary building, with emphasis on technical terminology in scientific and medical usage. Knowledge of the languages is not required.

Credits: 3

CLA 2032: Classical Mythology

The myths, legends and folklore of the Greeks and Romans as they developed in their life, thought and literature; their influence on the Renaissance and modern times.

Credits: 3

CLA 2051: Cities of Ancient Greece

Classical archaeology and architecture of Greece. Selected sites in the Greek world with emphasis on their architectural, artistic and history significance.

Credits: 3

CLA 2052: Rome: The Ancient City

Classical archaeology and architecture of Italy. Selected sites in the Roman world with emphasis on their architectural, artistic and historical significance.

Credits: 3

CLA 3001: Independent Study

Reading of selected material in Latin or Greek or in classical literature in translation under the direction of a member of the staff.

Credits: 3

CLA 3040: Studies in the Classics

Selected themes of special interest. Topics vary according to interests of students and instructor: e.g. Women in the Classical World, Slavery in the Ancient World, Classical Rhetoric, etc.

Credits: 3

CLA 5900: CLA: Independent Study

Supervised study, activity, or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Cognitive and Behavioral Neuroscience

Chair: Michael Brown, PhD.
Office Location: Tolentine Hall Rm. 334
Telephone: (610) 519-4722
[\[Website\]](#)

About

The major in Cognitive and Behavioral Neuroscience (CBN) provides an intensive course of study focused on brain-

behavior relationships, ranging from genetic to whole brain contributions to behavior and mental processes. The program is excellent preparation for a variety of careers focusing on research and/or practice in neuroscience, medicine, allied health fields, and psychology, as well as for more general careers in areas such as public policy and education.

CBN 2900: Topics in Cog & Behav Neuro

Topics in Cog & Behav Neuro: Neuroscience and ethics, Neuroeconomics, Drugs and behavior, etc.

Credits: 3

CBN 4000: Cell & Behavioral Neuroscience

Neuronal mechanisms of behavior: Molecular and cellular processes, neural plasticity, sensory encoding, optogenetics, psychopharmacology.

Credits: 3

Prerequisites:

PSY 4200

CBN 4100: Cognitive Neuroscience

Theory and research on the neural and cognitive processes that support higher-level cognition, such as memory, attention, judgment & decision making, perception, language, emotion.

Credits: 3

Prerequisites:

PSY 4500

CBN 5000: Seminar in Neuroscience

Seminar exploring selected contemporary issues in neuroscience with a focus on cognitive and behavioral processes. Capstone experience for advanced (senior) CBN majors.

Credits: 3

Prerequisites:

CBN 4000 and CBN 4100 (or concurrently)

CBN 5900: Undergraduate Research in CBN

Supervised research project and report. Student may register for CBN 5900 more than once; however, only 3 hours of research can be applied toward the degree requirements in cognitive and behavioral neuroscience.

Credits: 3

CBN 6001: Thesis Research I

Library and/or Laboratory Research under CBN-affiliated faculty mentor. Requires successful application as CBN junior, permission of faculty mentor, department chairperson, and major GPA >3.0. Culminates in a literature review and research proposal. CBN 6001 credit toward major requires completion of CBN 6002.

Credits: 3

CBN 6002: Thesis Research II

Continuation of Thesis Research I. Laboratory Research under CBN-affiliated faculty member mentoring student in Thesis Research I. Culminates in a written thesis.

Credits: 3

Prerequisites:

CBN 6001

Cognitive Science

CGS 2000: Linguistics as a Cognitive Sci.

Introduction to key areas of linguistic research and their contributions to cognitive science. Emphasis on morphosyntax, phonetics/phonology, multilingualism, and psycholinguistics.

Credits: 3

CGS 4000: Bilingualism

Examination of cognitive correlates of bilingualism and multilingualism through review of primary psycholinguistic research and hands-on linguistic experimentation. Focus on cross-language transfer, language coactivation, language mixing and immersion effects in language processing.

Credits: 3

CGS 5900: Cognitive Science Seminar

Interdisciplinary seminar focusing on theories, methods, and applications related to the study of intelligent systems.

Credits: 3

CGS 5910: Psychology of Language

Processes underlying use of language, including speech perception and production, comprehension of meaning and grammar, and conversational interaction. Draws upon research from psychology, linguistics, computer science, neuroscience, and speech pathology.

Credits: 3

CGS 5990: Special Topics

Selected topics in Cognitive Science: attention, computational modeling, linguistics, deep learning, embodiment etc.

Credits: 3

College of Professional Studies

CPS 1001: College & Prof Success Strategies

This course is designed for first-year students within the College of Professional Studies and will lay the groundwork for your success at Villanova and thereafter. In this course you will gain knowledge about Villanova, acclimate to the academic world, and develop a sense of self-awareness to assist you in future endeavors. Class meetings will cover topics of special interest to CPS students. In addition, you will be introduced to valuable student services that will support and contribute to your success.

Credits: 1

CPS 1002: Tech Competency

This course is designed for first-year students within the College of Professional Studies and will provide a framework for readiness and success to adopt, adapt, and apply technology for success at Villanova and thereafter. In this course, you will gain knowledge about various technology platforms that are essential to your success as a college student.

Credits: 2

Co-Requisites:

CPS 1001

CPS 1200: New Managers Bootcamp

Through this highly interactive bootcamp students will develop and strengthen their management skills, strategic perspective and gain tools to become an effective leader in their organization. Additionally it will afford participants a learning environment where they can expand their personal and professional networks while discussing leadership challenges and strategies with peers

Credits: 1

CPS 3000: Introduction to Project Mgmt

This course will give a true introduction to the practice of project management and how to efficiently and effectively plan, oversee and execute projects in the workplace.

Credits: 3

CPS 3400: Internship Practicum

Approved semester internship project involving practical application of previously learned knowledge to a business enterprise, government and/or non-profit organization; supervision by both faculty member and corporate/non-profit executive. CPS Only, Director Approval

Credits: 3

CPS 4400: Internship Practicum

Approved semester internship project involving practical application of previously learned knowledge to a business enterprise, government and/or non-profit organization; supervision by both faculty member and corporate/non-profit executive. Permission of College Required.

Credits: 6

CPS 5400: Internship Practicum Part 2

Approved second semester internship project involving practical application of previously learned knowledge to a business enterprise, government and/or non-profit organization; supervision by both faculty member and corporate/non-profit executive. Permission of College Required. CPS Only, Director Approval.

Credits: 3

CPS 5900: Foundation in Sales

This course is designed to address the major elements of the entire sales process. This class is designed for those who may pursue a career in sales, entrepreneurs who will need new sales to grow their businesses, current professionals whose duties may expand to include business development. This class will have 1 weekend of live instruction with asynchronous pre and post work.

Credits: 3

Communication

COM 1000: Surv of Communication Studies

Process of communication; range of perspectives from which communication can be studied (from classical rhetoric to contemporary theory); the functions communication serves; and the forms of communication such as interpersonal, small group, organizational, public address, and mass media.

Credits: 3

COM 1100: Public Speaking

Principles of communication related to speech composition and delivery; finding, analyzing, organizing and presenting material in ways appropriate to and effective with diverse audiences.

Credits: 3

COM 1101: Business & Prof Communication

Communication strategies and skills for a variety of business professional settings. Combines public speaking and small group organizational communication, featuring individual and group presentations. Not intended for Communication Department majors.

Credits: 3

COM 1102: COM Foundations for Engrs

Technical & professional communication: Oral & visual presentations, including technical reports; formulation/evaluation of data-driven arguments; group communication & listening skills. This course is only for students enrolled in Mechanical Engineering.

Credits: 3

COM 1300: Film Analysis

Methods and perspectives used to analyze visual media drawing on contemporary and historically important films. Historical, theoretical, and aesthetic approaches to film analysis, as well as the social, political and economic forces that influence film content. This course does not fulfill a COM major requirement.

Credits: 3

COM 1400: Introduction to Deaf Studies

Introduces the history, language, culture, artistry, and contemporary life of the American Deaf community from a Communication and interdisciplinary perspective.

Credits: 3

COM 1903: Communication Internship

Supervised work/study program in radio, television, advertising, publicity or public relations.

Credits: 3

COM 1906: Communication Internship

Supervised work/study program in radio, television, advertising, publicity or public relations.

Credits: 6

COM 1909: Communication Internship

Supervised work/study program in radio, television, advertising, publicity or public relations.

Credits: 9

COM 1910: Journalism NonCred Intership

COM1910 is a 0-credit placeholder for students who are completing an internship for a particular concentration but are not looking to receive course credit for it.

Credits: 0

COM 1920: Production NonCred Internship

com1920 is a 0-credit placeholder for students who are completing an internship for a particular concentration but are not looking to receive course credit for it.

Credits: 0

COM 1930: PR NonCred Internship

COM 1930 is a 0-credit placeholder for students who are completing an internship for a particular concentration but are not looking to receive course credit for it.

Credits: 0

COM 2200: Theories of Rhetoric

Rhetoric as the process of symbolic creation and recreation of community identity. Theory and history of rhetoric applications to the study of politics, popular culture, speeches, media images, artistic works, advertising, and legal issues.

Credits: 3

COM 2240: Theories of Perform Studies

Exploration of theory surrounding the embodied and aesthetic elements of solo and group performance. Evaluates key approaches to performing literature, performance art, performance for social change, oral traditions, performance ethnography, and performance in everyday life.

Credits: 3

COM 2280: Theories of Persuasion

Presents the theoretical processes by which communication influences the attitudes, beliefs, and behaviors of message recipients. Both rhetorical and social scientific approaches to persuasion are examined. Application is made to the areas of advertising, public relations, politics and health communication.

Credits: 3

COM 2300: Theories of Mass Communication

Traces the evolution and structure of core theoretical approaches to understanding mass communication phenomena. Both behavioral and critical approaches and their related research traditions are explored.

Credits: 3

COM 2340: Theories of Visual Com & Cultu

Introduction to the major theoretical and methodological approaches to the study of images as communicative phenomena. Explores the philosophical and strategic implications of these approaches and applies them both to the analysis and production of visual messages in a variety of media and contexts.

Credits: 3

COM 2400: Theories of Interpersonal Com

Survey of concepts and theories in interpersonal communication. Focuses on dyadic interaction and relationships as created, maintained, and modified through verbal and nonverbal behavior.

Credits: 3

COM 2440: Theories of Organizational Com

Exploration of the relationship between organizational and communication theories. Addresses issues of leadership, structure, culture, decision-making, communication channels, conflict, change, motivation, performance, diversity management, and external communication as they relate to organizations.

Credits: 3

COM 2993: Communication Internship

Supervised work/study program in radio, television, advertising, publicity or public relations.

Credits: 3

COM 2996: Communication Internship

More intensive, in depth work/study/program in radio, television, advertising, publicity or public relations.

Credits: 6

COM 3201: Rhetoric & Social Justice

Examination of public discourse surrounding issues in social justice and human rights. Through traditional and contemporary rhetorical theory, rhetorical strategies are traced through contemporary movements.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3202: Rhetoric, Identity & Conflict

Focused reading of contemporary rhetorical theorists. Examines the cultural use of symbols for the generation of community and/or the promotion of social conflict; rhetoric as performed through ritual acts; and correct and incorrect enactment resulting in social acceptance and alienation. Instructor's permission required.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3203: Communication Law & Policy

Constitutional, statutory, and case law as well as other public policies affecting communication professions. Surveys a wide-range of issues related to the First Amendment, access, broadcasting, commercial speech, copyright, defamation, obscenity, political speech and privacy.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3204: Rhetoric and Democracy

An upper-level course in which students study important rhetorical artifacts and theoretical perspectives to come to understand important ways that rhetoric has served and sometimes disserved democracy. The specific focus of the course will change according to the instructor and the semester taught. (Pre-requisites will be waived when the course is offered for the Study Abroad in Greece program). Instructor's permission needed to waive pre-requisites.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3207: African American Rhetoric

The symbolic construction of African American identity in the United States through an analysis of speeches, films, television and other media. (Pre-requisites will be waived for Africana Studies concentrators or minors).

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3208: Rhetoric and Myth

The relationship among rhetoric, myth, and culture with attention paid to the forces that shape mythic consciousness in culture(s). The focus of the course will vary according to instructor and semester the course is taught. (Pre-requisites will be waived when offered for the study abroad in Greece program or instructor's permission).

Credits: 3

Prerequisites:

COM 2240 or COM 2280 or COM 2340 or COM 2200 or COM 2300 or COM 2400 or COM 2440

COM 3209: Rhetorics of Race

Explores the rhetorical constructions, through language, visual, and material artifacts, of racialized identities and publics. Focus on rhetorical theories that explore and challenge these constructions.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3212: Rhetoric of Conspiracy Theories

Explores the relationships that have the most consequences for us. Examines ways to rework relational dilemmas, collisions through dialogue, and generate effective communicative strategies.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3240: Performance for Social Change

Performance as a powerful medium of art and art as a powerful tool for social change. Studying established performance artists and creating original performance pieces, students address social issues through various modes of performance.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3241: Performance of Literature

Solo and group performance of poetry, prose, and drama. Focus on rhetorical power of performed literature. Combines elements of theatre, literature and communication.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2400 or COM 2280 or COM 2300 or COM 2340 or COM 2440

COM 3243: Performance Art

Introduction to performance art, a highly diverse theatrical art form that has gained popularity in American and European performance since the 1960s. Analysis of well-known performance artists as well as creation and performance of original student pieces. Emphasis on relationships among language, visual arts, music and dance; the construction and expression of self and identity through performance; and the relationship of performance to rhetoric and social change. Previous performance experience a bonus but not required.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3245: Voice & Diction

Improvement of vocal quality and articulation through study of vocal anatomy, phonetics, projection, and expressiveness. Emphasis on live and taped performance of readings.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3246: Performance of Greek Lit

Students analyze and perform both ancient and contemporary Greek literary texts; the performances, both solo and group are at Greek archaeological sites based on Greek oral traditions, poetry and drama, such as from Homer, Sappho, Antigone and Medea. THIS COURSE IS ONLY OFFERED IN THE SUMMER STUDY ABROAD IN GREECE PROGRAM.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3247: Storytelling

Focus on story craft, form and practice. May include sound stories, image stories, performance, personal narrative, oral history, nonfiction. Attention on how to use stories for personal and social change.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3248: Performance Ethnography

Explores ethnographic and autoethnographic performance as an artistic tool to make discoveries about our world. Uses methods such as interviewing, participant observation fieldwork, and self-reflection to create original performance that challenge ideas of "self" and "other".

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3290: Spec Top in Rhetoric & Perf

Topic or problem in the Rhetoric & Performance area of communication selected by the instructor.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3291: Spec Top in Performance

Special Topic in Performance.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3301: Intro to Film & Video Prod

In-studio workshop that deals with basic television production techniques, including producing and directing short interview programs, news, demonstrations and short dramatic pieces. Discussion of current problems in the management and operation of a television broadcasting station.

Credits: 3

Prerequisites:

COM 2280 or COM 2300 or COM 2340 or COM 2200 or COM 2240 or COM 2400 or COM 2440

COM 3302: Advanced Film & Video Prod

Visual aspects of location single camera video productions, audio acquisition, lighting, post production support, video editing and digital effects and finished distribution. Each student will work as producer, director, cameraman, editor and writer. Helps students understand the world of film and video funding, production and distribution.

Credits: 3

Prerequisites:
COM 3301

COM 3303: Screenwriting

Development of narrative strategies through improvisation and techniques of mediated visualization using video.

Credits: 3

Prerequisites:
COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440 and COM 1300

COM 3304: Documentary Theory & Practice

A study of the documentary as art, propaganda, social document, and instrument for social change. After a review of theory and work in documentary, students develop their own short works. For COM majors who have taken COM 3600, this course counts as a Free Elective. For COM majors who have not taken COM 3600, this course counts as a COM 3000-level course.

Credits: 3

COM 3305: Radio Broadcasting

The history and principles of commercial radio broadcasting: programming, research, sales, promotions, broadcast engineering and federal regulations. Hands-on-audio production experience with broadcast equipment focusing on the art of audio production and development of public affairs radio program to air on WXVU.

Credits: 3

Prerequisites:
COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3306: Audio Production

Hands-on studio course serves as introduction to the history, fundamentals and methods of audio production used in radio, television and recording studios. Students learn, identify and operate different aspects of audio production hardware such as microphones, mixing boards, and digital multi-rack recorders. Students will complete in-studio or remote recording projects for evaluation.

Credits: 3

Prerequisites:
COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3308: Digital Image Production

This hands-on workshop introduces to the fundamentals of using digital images to communicate specific information. Students produce still and moving images for use in public relations, advertising, photojournalism, and electronic or web-based publication.

Credits: 3

Prerequisites:
(COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440)

COM 3321: Interactive Media Design

Study of the principles of creating effective communication for the World Wide Web. Explores basic web design techniques with emphasis on designing and integrating diverse media elements. Focus on the creation and manipulation of text, graphics, audio and video for the Web.

Credits: 3

Prerequisites:
COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3340: Film History

Evolution of film as an art form; includes the impact of technology.

Credits: 3

Prerequisites:
COM 1300 and COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3341: Gender and Film

This course attends to the role of cinematic images in the cultural production of gender in contemporary societies. Students analyze images of gender in a variety of films, as well as the work of film makers who have been marginalized because of gender. This analysis of specific films is grounded in course readings taken from primary sources in feminist film theory and criticism, gender theory and media studies. Students will have the opportunity to propose and explore analytic, creative, and/or theoretical projects within the purview of the course theme. Outside viewing required. (Pre-requisites will be waived for Women's Studies concentrators or minors).

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3342: International Cinema

Study of the film of or about a particular country with emphasis on political, social, cultural and artistic issues.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2400 or COM 2440 or COM 2340

COM 3343: Contemporary Cinema

Seminar course in which various strategies are applied to the analysis of contemporary films.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3351: Media & Society

Structure and content of the major media industries in America (radio, television, film, newspapers, magazines, recordings, and books), and how each interacts with individuals, groups, and institutions. Students analyze and critique media systems and content in terms of social, legal, political, and economics forces that influence them.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3352: Media & Technology

Surveys the development of communication technologies from the printing press through the internet and beyond. Technological development will be used as a way to explore critical issues about economic development, the nature of meaning, technological determinism and globalization.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3353: Media & Politics

Examination of political communication research, theory and history. A particular focus on the role of media, such as advertising and news reporting on political campaigns and policymaking.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3354: Media Criticism

Analysis of contemporary film, television, music, print media and electronic media from a cultural studies perspective.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3355: Media Effects

A service learning course that trains students on how to critically evaluate media content given its role in society and degree of compliance with prevailing media policies. The course culminates with a compilation of analysis results and the production of a research report to be disseminated to academics, advocacy groups, industry executives, and parents.

Credits: 3**Prerequisites:**

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3356: Media Audiences

Introduction to the study, measurement and analysis of media audiences, merging theoretical approaches with applied methods for understanding user behavior.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3360: Introduction to Journalism

News is an integral part of our lives. This course aims to provide a critical understanding of the role of journalism in modern society, combining theoretical perspectives on the making of news with insights from the journalists, broadcasters and editors who produce it. Students will analyze research material on journalism in the press, as well as examining newsmaking on television and on the internet.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3361: Journalism Practices

Principles of gathering, researching and writing the news for students interested in journalism and those who expect to interact with journalists professionally. Press releases, news leads and features and techniques for successful interviewing. Surveys critical and ethical challenges facing today's journalist; explores business news, media reviews and comment writing, editing and page design, and how computer technology is changing investigative reporting. Classes will be held in a computer lab to simulate newsroom conditions.

Credits: 3

Prerequisites:

COM 3360

COM 3363: Broadcast Journalism

Styles and techniques of broadcast journalism performance, including studio and location reporting and interviewing. Historical and contemporary trends in broadcast journalism explored.

Credits: 3

Prerequisites:

COM 3360

COM 3365: Sports Journalism

Evolution and current trends in sports journalism, emerging platforms and technologies, reporting with social media, developing source relationships, competing with your sources, working with media relations, developing written and oral reporting skills, anchor-analyst and sports-talk formats.

Credits: 3

Prerequisites:

COM 3360

COM 3366: Multimedia Journalism

Students learn to write across media platforms, create integrated news packages, and maintain strong journalistic principles, techniques and ethics.

Credits: 3

Prerequisites:

COM 3360

COM 3367: Journalism Topics

Rotating topics in journalism. Each offering will give students in-depth exposure to a particular area of journalism, taught by a foremost expert in that area.

Credits: 3

Prerequisites:

COM 3360

COM 3390: Spec Top in Media Studies

Topic or problem in the Media & Film area of communication selected by the instructor.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3391: Spec Top Media Production

Special Topics - Media Production

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3401: Relational COM Studies

Explores everyday communication between people across many contexts. Critical examination of the personal, social, and cultural dimensions of human relationships. Experiential activities augment lectures/discussions.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3402: Family Communication

Explores the relationships that have the most consequences for us. Examines ways to rework relational dilemmas, collisions through dialogue, and generate effective communicative strategies.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3403: Intercultural Communication

The impact on culture of communication styles, and practices. The role of communication in personal and professional intercultural relationships.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3404: Communication & Conflict

Communicative elements of conflict that arise out of personal and cultural differences in a variety of interpersonal interactions and relationships.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3406: Gender & Communication

Communication of women and men against the backdrop of society and feminism in such communicative contexts as families, schools, friendships and relationships, organizations, media, and technology. (Pre-requisites will be waived for Gender & Women's Studies concentrators or minors).

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3408: Facilitation & Dialogue

Understanding and managing group dynamics occurring within diverse groups; interpersonal skills and techniques necessary for effective facilitation; conflict resolution and empathy in facilitative leadership; moving groups from discussion to dialogue; links among facilitation, group effectiveness and learning.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3441: Negotiation & Dialogue

Examination of the practical, theoretical, and critical analysis of a variety of approaches to negotiation and resolving conflicts. Verbal forms of negotiation, mediation, and dialogue are developed as key components in the maintenance of any healthy organization.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3442: Team Based Communication

Theory and practice of communication for idea generation and problem-solving in groups, teams, and in other multiple contexts.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3443: Work Life Negotiation

Explores the increasingly blurred intersections of "public" work and "private" lives, focusing on how we navigate organizational, family, community and individual roles and responsibilities. Considers organizational policies, family practices, and larger social discourses such as gender, class, consumption, and entrepreneurialism.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3444: Interviewing

Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and cultural bases of organizational persuasion.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3445: COM Consulting in Organization

Course explores theory and practice of communication consulting through a variety of case studies in the field of organizational/corporate communication. Students will be expected to work as part of a consulting team for part of the semester.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3446: Space, Time & Tech in Organiz.

Considers individuals' experiences of organizational spaces, time, and technologies across diverse social, cultural, and historical contexts. Examines how workplace designs (Facebook's new Menlo Park building), pace of life (shrinking vacation time), and technologies (audio-video conferencing tools) influence organizational communication processes.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3448: Multicultural Ldrshp & Dialog

Introduces scholarship addressing injustice and misunderstanding in America. Students will develop a dialogic perspective and a set of skills as one means of transforming themselves and their community. Must also participate in a one-credit COM 5300 topically focused dialogue group. Requires permission of chairperson.

Credits: 3

COM 3449: Applied Topics in Organization

Examines current events, social issues, and relevant topics through an organizational communication lens. Exploring a particular topic or theme, students employ organizational communication theories and approaches to consider how a chosen issue is organized, complicated, and even resolved through communication.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2340 or COM 2280 or COM 2300 or COM 2400 or COM 2440

COM 3460: Public Relations

Provides a foundation for students interested in the field of public relations. It chronicles the development of the profession from its earliest beginnings to its role in modern management. Also attempts to bridge the gap that exists between theory and practice. It achieves this by emphasizing the fundamental management perspective of the profession and the persuasive intent of message construction while highlighting the four essential skills required for success in the industry - research, writing, planning and problem solving.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3461: Advertising

Strategies and techniques used in contemporary American advertising: consumer behavior, market research and analysis, message development for print and broadcast, and media selection.

Credits: 3

Prerequisites:

COM 2200 or COM 2240 or COM 2280 or COM 2300 or COM 2340 or COM 2400 or COM 2440

COM 3462: Public Relations Writing

Offers students the foundation for producing a variety of written public relations materials. Structure includes an overview of the journalistic style of writing along with extensive practice in writing fundamentals. Following the work on enhancing writing skills, students will develop a variety of pieces for their portfolios. Final class products include print news releases, position papers, feature stories, media advisories, media kit, and other related assignments. Course is strongly recommended for students interested in public relations, advertising, marketing, and organizational communication.

Credits: 3

Prerequisites:

COM 3460

COM 3475: Com Challenge in Organizations

The purpose of the course is to make students aware of the psychology of communication and to assist them in becoming more discerning, discriminating recipients of the torrent of 24/7 bytes and bits of data. The course examines the dynamics of communication within organizations and the elements of effective leadership communication; that is, the written and spoken word; the behaviors exhibited by people who influence the way people think and act; internal and external communication planning; multigenerational communication; crisis communication; the impact of technology, and techniques used to assess the efficacy of planned communication.

Credits: 3

COM 3476: Managing Multi Gen. Workforce

The focus of this course is on understanding the impact and implications of an aging workforce and examining best practices for managing multiple generations.

Credits: 3

COM 3477: Creativity, Innov., & Entrep.

The course focuses on the similarities and dissimilarities among three related skills and competencies: creativity, innovation and entrepreneurship and the ways in which each can be applied to produce new or improved products and services. Topics are examined within in the context of the real-life situations and work place scenarios with special emphasis on creating a culture that encourages and rewards risk taking and unconventional problem solving.

Credits: 3

COM 3490: Spec Top in Interpersonal Org

Topic or problem in the interpersonal/Organizational area of communication selected by the instructor.

Credits: 3

COM 3600: Social Justice Documentary

Students will work together to create a documentary film that examines a social justice issue. This class requires substantial time commitments from all the students. Permission of instructor and at least three credits of prior courses in film or social justice. This six-credit course can be repeated once. For COM majors, six credits count toward the major. If taken twice, six credits count toward Free Electives. For the COM minor, only three credits of this six-credit course goes toward the minor.

Credits: 6

COM 4001: Qualitative Research in COM

Review of basis principles of critical inquiry in the interpretive paradigm. Reading and designing qualitative research in communication through gathering and critically analyzing literature in the field and proposing an original study. Methods include ethnography and textual analysis.

Credits: 3

COM 4002: Quantitative Research in COM

Review of basic principles of scientific inquiry in the empirical paradigm. Reading and designing quantitative research in communication through gathering and critically analyzing literature in the field and proposing an original study. Methods include experiments and surveys.

Credits: 3

COM 5050: Senior Project

Design, implementation, and presentation of a group research project in which students apply the knowledge and skills learned through the Communication program of study to the investigation of rhetorical or communication phenomena.

Credits: 3

Prerequisites:

COM 4001 or COM 4002

COM 5100: Directed Study

Supervised project culminating in term paper.

Credits: 3

COM 5200: Topics

Intensive workshops in selected areas of professional development or communication research.

Credits: 1

COM 5300: Topics in Intergroup Dialogue

Using self-reflection, identity exploration, and dialogue, learn how everyday communicative interactions can lead to cross-cultural mistrust and misunderstanding. Students also learn how social structures and institutions, e.g., schools, neighborhoods, media, and health organizations, function to allocate privilege and sustain societal inequities. Permission of chair.

Credits: 1

COM 5464: Public Relations Campaigns

Course explores a variety of case studies in the field of public relations including examples in media relations, crisis communication and planning. Following the review of cases, student groups will be created and will spend the remainder of the semester developing a professional campaign for a client. The final project is a presentation of this overall public relations plan.

Credits: 3

Prerequisites:

COM 3462

COM 5600: Special Topics in Production

One-Credit Workshops in areas of media and multimedia production. Course may be repeated six times

Credits: 1

Comprehensive Science

SCI 1903: Internship Elective

Permission of Program Director. Junior or senior Comprehensive Science students with a 3.0 QPA only.

Credits: 3

SCI 1906: Internship Elective

Permission of Program Director. Junior or senior Comprehensive Science students with a 3.0 QPA only.

Credits: 6

SCI 2993: Internship Elective

Permission of Program Director. Junior or senior Comprehensive science students with 3.0 QPA only.

Credits: 3

SCI 2996: Internship Elective

Permission of Program Director. Junior or senior Comprehensive Science students with a 3.0 QPA only.

Credits: 6

SCI 5300: Capstone Seminar

Selected topics with an interdisciplinary/multidisciplinary science viewpoint; reading of primary literature, secondary literature, and/or selected experiments; students oral and written presentations and discussions.

Credits: 3

SCI 5900: Independent Research

Supervised study, activity or research with interdisciplinary or multidisciplinary content. Prior approval of director and instructor.

Credits: 3

Computing Sciences

Chair: Daniel Joyce, Ph.D.
Office Location: Mendel Science Center Rm. 161
Telephone: (610) 519-7307
[Website](#)

About

The Department of Computing Sciences seeks to provide outstanding education, to advance scholarship, and to engage in activities that benefit society as a whole, in accordance to the University mission. The Department aims to equip students with a solid foundation in computing theory, and to prepare them for lifelong independent learning and innovative thinking in a constantly changing discipline. Its faculty members strive to

maintain professional currency, and to involve students and colleagues in their research investigations. These endeavors support the University mission to transmit, pursue, and discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

CSC 1010: Programming for All

Programming fundamentals using the Python programming language: data, variables, selection, loops, arrays, input/output, basic graphics and functions. Object-oriented design: encapsulation, objects, classes and methods.

Credits: 3

CSC 1020: Computing and the Web

Information representation and manipulation; file systems and directories; compatibility and data exchange; security and privacy; elements of computer architectures and operating systems; computer networks, the Internet, and the World Wide Web; web site design principles and creation; PC-based examples and illustrations.

Credits: 3

CSC 1030: Prob Solv with Computers

Using the microcomputer as a problem solving tool; system use; general purpose language programming; spreadsheet analysis and modeling; retrieving information from the Internet; strengths and weaknesses of computer based problem solutions.

Credits: 3

CSC 1035: Databases for Many Majors

No background in computing necessary. Design and implementation of your own database as a group project. Cooperative learning techniques to demystify key concepts: the relational model, normalization, the Entity-Relationship model and SQL.

Credits: 3

CSC 1040: Computing with Images

Computing systems as tools for designing and publishing graphically rich material in many forms; image processing techniques and systems; image style and related tools; digital image processing theory; computational complexity; multimedia presentations.

Credits: 3

CSC 1043: Laptop Instrument

Music structure and theory; programming structures, algorithms and language to create music on your laptop; component of Living in the KnowlEdge Society project (NSF) connecting computing with other disciplines.

Credits: 3

CSC 1045: 3D Modeling and Animation

Computer-assisted animation & its programming dialects; cartoon creation from storyboarding to product delivery; algorithms - efficiency, correctness, understanding via animation.

Credits: 3

CSC 1051: Algorithms & Data Struc I

Object-oriented design: objects, classes, methods, encapsulation; programming fundamentals: data, variables, selection, loops, arrays, input/output; exceptions. EXCLUSION: This course may not be taken by students who have already taken and passed ECE 1620.

Credits: 4

CSC 1052: Algorithms & Data Struc II

Object-oriented design: inheritance, interfaces, polymorphism; problem analysis; recursion; abstract data types; dynamically linked structures; data structures: stacks, queues, lists, collections, trees, maps, priority queues, library collections framework.

Credits: 4

Prerequisites:

CSC 1051 :C or CSC 2014 :C

CSC 1300: Discrete Structures

Mathematical structures that support computer science: sets, matrices, trees, graphs, logic and proof, mathematical induction, relations, functions, sequences, summations, and elementary combinatorics.

Credits: 3

CSC 1600: Operating Systems

System software design and implementation; process and resource management; concurrency, scheduling, and deadlock; memory management; file systems and security.

Credits: 3

Prerequisites:

CSC 2400 :D- or ECE 2042 :D-

CSC 1700: Analysis of Algorithms

Efficiency classifications and mathematical analysis of recursive and nonrecursive algorithms; design techniques: brute force, greedy, divide-and-conquer, dynamic programming, backtracking, branch-and-bound, space and time tradeoffs; NP-completeness; approximation algorithms; computational problems: sorting, searching, string processing, graphs, arithmetic, linear algebra.

Credits: 3

Prerequisites:

(CSC 1300 or MAT 2600) and (CSC 1052 or ECE 2620)

CSC 1800: Organ of Prog Languages

High level language features: data types, control structures; formal lexical and syntactical analysis; operational semantics; language translation.

Credits: 3

Prerequisites:

(CSC 1300 or MAT 2600) and (CSC 1052 or ECE 2620)

CSC 1930: Explorations in Computing

Emerging technologies & their applications; computing in support of investigations & applications in the humanities & social sciences.

Credits: 3

CSC 1990: Enrichment Sem in Computing

Skills for success in computing: research questions and methodologies, oral and written presentation techniques, argumentation and critical thinking, time and project management strategies, study skills.

Credits: 1

CSC 2000: Digital Divide, Theory & Praxis

Students will research the effects of the digital divide and implement a program that addresses the needs of underserved high school students preparing for their transition to college.

Credits: 1

Prerequisites:

CSC 1990

CSC 2014: Java Bootcamp

Fast-paced coverage of object-oriented programming using Java and the Java API, including packages for creating graphics and applets; Java syntax and control structures; arrays; designing objects, classes, and methods; graphical user interfaces; input streams, exception handling and threads.

Credits: 1

Prerequisites:

CSC 1010 or ECE 1620 or MIS 2020

CSC 2020: Web Devel & Tech I

Design of web content, utilization of web tools, configuration of supporting technologies. Emphasis on client-side services: HTML, style sheets, Javascript, DHTML.

Credits: 3

Prerequisites:

CSC 1020

CSC 2025: Web Devel & Tech II

Design of web content, configuration of supporting web technologies. Emphasis on server-side services: databases and forms, XML, AJAX, cookies, security CGI.

Credits: 3

Prerequisites:

CSC 2020

CSC 2053: Platform Based Computing

Python APIs, internet programming and security, mobile app programming, a team project.

Credits: 3

Prerequisites:

CSC 1052 or ECE 2620

CSC 2300: Statistics for Computing

Probability, counting, discrete and continuous distributions, descriptive and inferential statistics, experimentation, reading of scientific papers -- all taught from the point of view of computer science. Some programming may be required.

Credits: 3

Prerequisites:

CSC 1051 and CSC 1300

CSC 2400: Computer Systems I

Architecture of computer systems: representation of data; processor, memory and I/O organization. Assembly language programming. C programming language constructs and their relationship to the underlying architecture. Basics of operating systems: interrupts, concurrency, process scheduling, security, networking.

Credits: 3

Prerequisites:

CSC 1052 and (CSC 1300 or MAT 2600)

CSC 2405: Computer Systems II

Processes, threads and concurrent programming. Scheduling and dispatching. Linking and relocation. Memory management. Virtual memory. System-level I/O Device management. File systems. Security and protection in depth. Real-time and embedded systems. System performance evaluation. Scripting.

Credits: 3

Prerequisites:

CSC 2400

CSC 2500: Survey of Information Science

Brief introductions to several areas in which problems in information use are important. Examples are business, law, biology, medicine, electronic commerce, and libraries.

Credits: 3

CSC 2993: Internship in Computing

Internship in computer science involving computer system development, maintenance, or evaluation in an environment which supports sound software engineering techniques. Restricted to second semester sophomore with junior standing and above.

Credits: 3

CSC 3010: Overview of Cybersecurity

Exploration of the basic concepts and terminology in cybersecurity for students from a variety of technical or non-technical backgrounds; major sub-disciplines of cybersecurity; impact of cybersecurity on business, ethical, and technical levels; data protection concepts, privacy, and intellectual property; data protection techniques, encryption, and authentication; security in wired and wireless networks, operating systems, applications, databases, and the cloud; ethical hacking and vulnerability management; lab exercises and case studies to introduce technical concepts; prepares students to study cybersecurity in-depth in future coursework; course is the introductory required course for a minor in cybersecurity.

Credits: 3

CSC 3070: Emerging Technology Trends

Investigate new technologies and current applications. Explore when and how to apply new technologies with sensitivity to feasibility, financial viability, and overall effectiveness. Culminates in team-driven exploitation of a new technology.

Credits: 3

CSC 3080: Info Security & Protection

Explores the criticality of protecting information's availability, accuracy, authenticity, confidentiality, and integrity. Analysis of topics to include redundancy, backup and recovery, business continuity, security technologies, and controls such as audit, change management and testing.

Credits: 3

Prerequisites:

CSC 2400 or ECE 2042

CSC 3150: Game Development

Theory of game development, game programming, artificial intelligence, state machines, 2D/3D assets, visual communication, game mechanics, navigation meshes, path planning.

Credits: 3

Prerequisites:

CSC 1052 or ECE 2620

CSC 3300: Linear Algebra for Computing

Fields, vectors and vector spaces, linear transformations, matrices and matrix algebra, eigenvalues and eigenvectors; Structures and computations in Python for these mathematical objects; Computational applications selected from data science, machine learning, computer vision, graphics, image processing, graph algorithms, quantum computing, information retrieval and web search.

Credits: 4

Prerequisites:

CSC 1300

CSC 3400: Information Retrieval

Theory and practice of location, organization, and rendering of meaningful content from largely unorganized sources.

Credits: 3

Prerequisites:

CSC 1052 :D- and CSC 1300 :D-

CSC 4170: Theory of Computation

Finite automata and regular expressions; push down automata and context-free grammars; Turing machines; Church's thesis; computability; NP-completeness.

Credits: 3

Prerequisites:

CSC 1700 :D-

CSC 4181: Compiler Construction

Lexical and syntactical analysis; code generation; error recovery; recursive descent compilation; handling of run-time environment.

Credits: 3

Prerequisites:

CSC 2400 or ECE 2042

CSC 4300: Computer Graphics

Hardware and software in computer graphics; graphics programming language; input/output device handling; modeling in 3D space; development of interactive software.

Credits: 3

Prerequisites:

CSC 1052 :D-

CSC 4380: Info Visualization

The presentation of information; visual cognition, scientific visualization, illustration presentation, color theory, motion dynamics, image processing.

Credits: 3

Prerequisites:

CSC 1052 :D-

CSC 4450: Digital Forensics

In-depth study of digital evidence presentation, digital forensic techniques, and data analysis. Password cracking, encryption/decryption, volatile data extraction and network forensics of advanced forensic tools, legal and ethical issues related to forensics and security management techniques required for resiliency in today's digital workplace.

Credits: 3

Prerequisites:

CSC 2400 or ECE 2042

CSC 4480: Principles of Database Systems

Concepts and technology of database management systems and data modeling with an emphasis on the relational model; database querying and normalization; physical data organization. A group project to design and implement a database is a key aspect of this course.

Credits: 3

Prerequisites:

(CSC 1051 or ECE 1620) and
(CSC 1300 or MAT 2600)

CSC 4490: Data Warehousing & Mining

Tools and techniques, theory and practice for storage and effective use of massive data sets.

Credits: 3

Prerequisites:

CSC 4480 and (CSC 2300 or
MAT 4310 or STAT 4310)

CSC 4500: Artificial Intelligence

History of AI, what it is and isn't; the nature of intelligence and the question of its computer implementation; search algorithms; knowledge representation; automated deduction; machine perception techniques; machine learning; planning; problem solving.

Credits: 3

Prerequisites:

CSC 1051 or ECE 1620

CSC 4505: Applied Machine Learning

Introduction to machine learning through Python based projects; machine learning tools; supervised and unsupervised learning algorithms and modeling accuracy, bias, and overfitting issues.

Credits: 3

Prerequisites:

(CSC 1052 or ECE 2620) and
(CSC 1300 or MAT 2600) and
(CSC 2300 or MAT 4310 or
STAT 4310)

CSC 4510: Machine Learn&Theory&Evolution

The mathematical theory behind the design of software systems that adapt to new circumstances and detect and extrapolate patterns; computational complexity; neural networks; decision tree induction; genetic algorithms and genetic programming; research foundations.

Credits: 3

Prerequisites:

CSC 1700 and (CSC 2300 or
MAT 4310 or STAT 4310)

CSC 4550: Computing for Data Science

The computing parts of the interdisciplinary subject, Data Science. Topics include: data cleaning, data wrangling, visualization, time series, machine learning fundamentals. Python or similar libraries that support managing datasets. Students will complete a major project that demonstrates an understanding of the entire data science process.

Credits: 3

Prerequisites:

(CSC 1300 or MAT 2600) and (CSC 1052 or ECE 2620)

CSC 4598: Machine Translation

Exploration of the broad field of machine translation; automated computer systems that translate human language using statistical approaches; digital representation transformations, such as readability and sentiment analysis, spam filtering, plagiarism detection, and other natural language processing techniques; building machine translation systems using real-world data; formulating and investigating research questions in machine translation; typically includes collaboration with a non-Computer Science course on interdisciplinary, team-based student projects.

Credits: 3

Prerequisites:

(CSC 1052 or ECE 2620)

CSC 4630: Software Dev and Systems

Operating system structures; system calls; system libraries; interprocess communication; user-interface programming environments; software utilities; software portability.

Credits: 3

Prerequisites:

CSC 1600 :D- or CSC 2405 :D- and CSC 2053 :D-

CSC 4700: Software Engineering

Management and production of software systems; the software life cycle; software design techniques and methodologies; participation in a team software development project.

Credits: 3

Prerequisites:

CSC 1052 or ECE 2620

CSC 4710: Info Syst Project Management

Principles and techniques of information systems project management; qualitative and quantitative essentials to include project integration, scope, schedule, cost, quality, human resources, communications, and risk. Practical experience managing a project with complex technology issues.

Credits: 3

CSC 4730: Human Computer Interaction

Design of the user/system interface; measurement of human-computer interaction; models of the user and user communities; design criteria for the interface; user interface management systems (UIMS); test and evaluation strategies and tools.

Credits: 3

Prerequisites:

(CSC 1052 :D- or ECE 2620)

CSC 4790: Senior Projects

Capstone course centered around a semester long software development or research project; project planning; requirements elicitation and specification; teamwork; oral presentations required of all students.

Credits: 3

Prerequisites:

CSC 4700 :D-

CSC 4797: Information Systems Capstone

A cumulative experience to complete a student's portfolio of expertise in information systems and technology. Student driven project emphasizing system integration, design and communication skills. Prerequisites: Information Systems majors or FIT certificate candidates only.

Credits: 3

Prerequisites:

CSC 4710 :D- and CSC 4700 :D- or DIT 2165 :D- and CSC 2500 :D- and DIT 2175 :D-

CSC 4800: Web Application Development

Theory and design of web-based applications: stylesheets, applets, HTML, CGI programming, web server design, website design, security, multimedia representations, encryption, compression.

Credits: 3

Prerequisites:

CSC 2053 :D-

CSC 4810: Mobile App Development

Theory and practice of designing apps for mobile devices; interface design, platform-specific and platform-independent programming, sensor-based computing, cloud data management, security, and privacy; entrepreneurial practices for app development: ideation, business planning, and commercialization.

Credits: 3

CSC 4900: Networks and Security

Organization of computer networks (eg., the internet); TCP/IP protocols; switching and routing methods; IP addressing and forwarding; TCP flow and congestion control; client-server communication; cryptography: secret-key, public-key, digital signatures; security attacks and defenses: authentication and authorization, denial of service, firewalls, VPNs.

Credits: 3

Prerequisites:

CSC 2405

CSC 5920: Logic

Boolean connectives and propositional logic; quantifiers and first-order logic; natural deduction, resolution and other methods of human or computer reasoning; set theory; induction; formal arithmetic.

Credits: 3

CSC 5930: Topics Computer Science

Lecture presentation of selected topics in computer science. May be repeated for credit if topics are different. Prerequisites may be imposed depending on the topics.

Credits: 3

CSC 5993: Independent Study

Reading, research and/or projects in a selected area of computer science under the direction of a member of the staff. May be repeated for credit.

Credits: 3

SCSC 1000: Topics in Social Sciences

Selected interdisciplinary topics of special interest in the Social Sciences.

Credits: 1

Counseling

COU 2000: Introduction to Counseling

Designed to introduce students to the Counseling profession and to acquaint them with the history, structure, practices, standards, values and ethics of the counselor.

Credits: 3

COU 2500: Counseling for Women

Special needs and considerations for counseling with Women addressed, including: violence against women, women living in poverty, health concerns, infertility, motherhood, development and aging, racial-ethnic differences, inhibited anger, envy, success or inhibition, gender stereotypes, and more. Feminist psychoanalysis emphasized.

Credits: 3

COU 3000: Counseling Theory & Skills

Course will cover theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. The course is divided into a didactic and experimental component.

Credits: 3

COU 3100: Group Counseling

An examination of group development theories, leadership, ethical and professional issues in groups. Students will apply learned group leadership skills within the classroom setting.

Credits: 3

COU 3400: Culturally Competent Counseling

Course explores historical and contemporary issues related to providing culturally congruent/competent human services with myriad populations. The impact of socio-identities (e.g., race, ethnicity, gender, religion, socioeconomic status, sexual orientation, and disability) will be examined, considering individual, group, and macro-system functioning.

Credits: 3

COU 3500: Devlp Perspective to Diagnosis

Not your average abnormal psychology class. Application of diagnostic systems of mental illness to counseling practice. Experiential and didactic learning methods elucidate the etiology and treatment of mental illness. Great course if planning to pursue psychology, social work, counseling, or other helping professions.

Credits: 3

COU 3600: Motivational Counseling Skills

Provides a comprehensive overview of the theory and techniques associated with Motivational Interviewing. Motivational Interviewing is a person-centered style of counseling for eliciting and strengthening a person's own motivation for and commitment to change.

Credits: 3

COU 3700: Family & Couples Counseling

Examines the principles of general systems theory as it applies to working with multi-person client systems in therapy.

Credits: 3

Criminology

CRM 1001: Introduction to Criminology

The nature and extent of crime; the factors related to criminal behavior; theories of the treatment and control of offenders; crime prevention programs.

Credits: 3

CRM 3001: Justice and Society

This course presents an overview of the criminal justice system. It focuses on the nature, operation and critical issues of law enforcement, the courts and corrections.

Credits: 3

CRM 3100: Juvenile Delinquency

Meaning and scope of delinquency; delinquency theories; role of social institutions and social agencies; prevention, control, and treatment programs.

Credits: 3

CRM 3200: Police & Society

Police are the gatekeepers of the criminal justice system - their decisions and actions can have enormous consequences for people's lives. But these decisions are not made mechanically by a simple application of criminal statutes. Rather police are empowered with discretion. The course will examine the police role in contemporary society, the nature of police discretion, and how discretion is exercised in the handling of individual cases.

Credits: 3

CRM 3300: Criminal Courts

This is a comprehensive introduction to the U.S. criminal court system. It provides an overview of the stages of the criminal process. It examines critical issues surrounding each stage and the roles of the prosecutor, defense attorney and judge.

Credits: 3

CRM 3330: Sociology of Law

The meaning, origin and impact of law viewed from several sociological perspectives; the law in action and the social context of legal professions.

Credits: 3

CRM 3350: The Supreme Court

This course examines the factors which influence the decision to charge a person with a crime, public policy considerations relating to restraints on law enforcement and the property and wisdom of some established rules of law. Supreme Court decisions affecting the criminal process will be discussed.

Credits: 3

CRM 3400: Punishment and Society

Survey of the historical and contemporary treatment of convicted offenders; analysis of the prison social system; analysis of the theory, practice and function of correctional programs.

Credits: 3

CRM 3500: Capital Punishment

This course will examine the historical, ethical and moral implications of the death penalty. This course will discuss the imposition and effectiveness of the penalty. The international perspective will also be addressed.

Credits: 3

CRM 3700: White Collar Crime

White collar crimes are committed by professionals for the benefit of individuals or organizations. This course examines the nature and magnitude (cost in dollars and lives) of white collar crime. Sociological theories explaining the commission of "crime in the suites" and society's response will be discussed.

Credits: 3

CRM 3800: Intro to Victimology

This is a study of the victims of crime. Topics include the victim-offender relationship, victim vulnerability and victim culpability. A typological study of the characteristics of crime, its victims and offenders will be presented. Victim rights and compensation will be discussed.

Credits: 3

CRM 3850: Drugs and Society

History of drug use and drug laws; relationship between drug use and crime; drug offenses and the criminal justice system; treatment and prevention issues.

Credits: 3

CRM 3900: Race, Crime, and Justice

Racial and ethnic disparities in crime and justice both reflect and contribute to social injustice. Theories and research provide insight about individual biases and structural racism that are evident in criminal justice practices, policies, and institutions.

Credits: 3

CRM 4000: Special Top In Criminology

This course investigates special topics or emerging issues within criminology. Topics are selected for their importance or the expertise of the instructor.

Credits: 3

CRM 5000: Criminology Independent Study

Supervised research project which results in a major research paper.

Credits: 3

CRM 5100: Criminological Theory

The nature of criminological theory and the major theoretical developments that have shaped criminology.

Credits: 3

Prerequisites:

CRM 1001 or CRJ 3000

CRM 5200: Criminology Res & Statistics

Basic methods of sociological research including the collection and organization of data, statistical analysis, testing hypotheses and the interpretation of data.

Credits: 3

CRM 6003: Internship

Supervised work experience in a criminal justice agency.

Credits: 3

CRM 6006: Internship

Supervised work experience in a criminal justice agency.

Credits: 6

CRM 6009: Internship

Supervised work experience in a criminal justice agency.

Credits: 9

CRM 6500: Senior Seminar

This course focuses on a particular substantive area and integrates criminological theory and research methodology.

Credits: 3

Prerequisites:

(CRM 5100 and SOC 5300 and SOC 5400)

Cultural Studies

CST 2100: Intro. to Cultural Studies

Theoretical basis of cultural studies is covered; students are introduced to the most common methods of research in these areas. Mandatory for CST majors, open to others.

Credits: 3

CST 3000: Topics Course

Credits: 3

CST 4100: Capstone Sem of Cultural Stud

Application of different theoretical approaches to the study of cultural phenomena and praxis in a major research project, a senior thesis.

Mandatory for CST majors, open to others.

Credits: 3

CST 5900: Independent Study

Credits: 3

Economics

Chair: Erasmus Kersting, Ph.D.
Associate Chair: Mary Kelly, Ph.D.

Office Location: 2014 Bartley Hall

Telephone: 610-519-4370

[Website](#)

About

Economics is the science that studies the behavior of social systems – such as markets, legislatures, corporations, and families – in allocating scarce resources. It is a discipline which brings together the diverse worlds of business, social science, and public policy. The study of economics is an excellent preparation leading to many career options. Economics majors are well positioned to be the future managers and leaders in both the private and public sectors. The study of economics at the undergraduate level provides a solid basis for graduate study in the social sciences and for professional study in business administration, law, public administration, and in the health sciences.

ECO 1000: Introductory Topics-Economics

An examination of basic Micro- and Macroeconomic topics. CANNOT COUNT FOR ECONOMICS MAJORS.

Credits: 3

ECO 1001: Intro to Micro

The price system; demand and supply analysis; the production process; analysis of market structures.

Credits: 3

ECO 1002: Intro to Macro

The economic system and its fundamental principles. The economic functions of government, monetary and fiscal policy, and international trade.

Credits: 3

ECO 1565: Topics: Study Abroad

Specific topics vary. Only for study abroad. Cannot count for Economics major. May be taken more than once.

Credits: 3

ECO 1903: Internship Elective

Fulfills 3.0 free elective credits.

Credits: 3

ECO 1906: Internship Elective

Fulfills 6.0 free elective credits.

Credits: 6

ECO 1909: Internship Elective

Fulfills 9.0 free elective credits.

Credits: 9

ECO 2101: Macroeconomic Theory

The components of aggregate economic growth. Theories underlying public policies which attempt to achieve the objectives of price stability, full employment and economic growth in the United States.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and (ECO 1002) and (MAT 1310 or MAT 1312 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500)

ECO 2102: Microeconomic Theory

Economic and mathematical analysis of the equilibrium conditions of the household, the firm, and industry, in various market structures, together with a brief examination of the general equilibrium of the economy; emphasis upon developing a working knowledge of elementary mathematical analysis as it applies to present economic theory.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002 and (MAT 1310 or MAT 1312 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500)

ECO 2130: Intro to R Prog for Econ & Fin

Fast paced coverage of R. Topics include libraries, tidyverse, IO, data types and storage, data analysis and display, function writing, higher order functions vs loops, and performance.

Credits: 1

Prerequisites:

MAT 1400 or MAT 1500 and (MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430) and MIS 2020 or CSC 1010

ECO 2993: Internship

Fulfills 3.0 economic elective credits.

Credits: 3

ECO 2996: Internship

Fulfills 6.0 economic elective credits.

Credits: 6

ECO 3106: Econ of Money & Banking

Principles of money, banking and financial markets; the relationship of the monetary and banking system to the functioning of the economy; the theory and practice of monetary policy; the function of money in international payments.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3107: FED Challenge

Competition style course structured to combine concepts of Federal Reserve monetary policy and advanced macroeconomic analysis with enhanced presentation skills. Students will be selected from the class to represent Villanova in an intercollegiate Fed Challenge Competition.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002 and (ECO 2101 or ECO 3106)

ECO 3108: Global Political Econ

Socio-economic conditions, political history, and government policy and the global impact on international trade and monetary relations; regional integration; stability of international economic systems; economic development and transition strategies; role of multinational corporations in the global world.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3109: International Economics

Comparative advantage; gains from foreign trade; Heckscher-Ohlin doctrine; technology and product cycles; tariff theory and policy; Other protection measures; economic integration; foreign exchange rates; fixed and flexible rates; balance of payments; multinational corporations.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3111: Hist of Economic Thought

The evolution of economic analysis within the context of contemporary economic institutions and associated social, ethical, and political thought.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3112: Public Sector Economics

The economic roles of various levels of government and the theory and practice of public expenditure and taxation. Government's impact on the allocation of resources and the distribution of income in a mixed economy.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3118: Women in the Economy

The role of women in the economy and its implications. Economics of the household, marriage, fertility, divorce unemployment, earnings of women and occupational choice. International comparisons and current public policy issues.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3120: Financial Economics

This course introduces students to the subject matter of corporate finance and financial economics. Topics covered include The Time Value of Money, Interest Rates, Stocks and Bonds, Firm Valuation, Investment Risk and Return, Corporate Financing, Capital Structure, Financial Modeling and Forecasting, Options, and Mergers and Acquisitions. Restricted to: Non-VSB majors and minors.

Credits: 3

Prerequisites:

ECO 1001 and ECO 1002

ECO 3123: Labor Economics

Economic theories concerning the employer's labor demand, the individual's labor supply, educational/occupational choices, labor unions, on-the-job training, discrimination, labor market mechanisms and wage determination. Public policies which affect the market.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3124: Economics of Sports

Key economic concepts and theories of Industrial Organization and Public Policy, Public Finance, and Labor Economics, discussed in the context of the sports industry. An in-depth look at related econometric research of sports economists.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3125: Industr Org & Public Pol

Economics of American industrial organization; market structure, conduct, and performance; the workability of competition in selected industries; the application of public policy and anti-trust law.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3126: Amer Econ Development

Growth of the American economy in terms of its various sectors and their interrelations; the evolution of important economic institutions and ideas and of the role of the entrepreneurs.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3127: Development Economics

Structural change in the process of development; growth patterns and income distribution; determinants and role of saving, investment, technological change; strategy and methods of development planning; the role of government; social institutions.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3128: Intro Mathematical Econ

Variables and functions, matrices and determinants, difference equations, and calculus. Applications to economic and business problems, including market equilibrium, revenue and cost functions, marginal theory, maximization problems, input-output analysis, and selected deterministic models.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and (ECO 1002) and (MAT 1310 or MAT 1320 or MAT 1330 or MAT 1400 or MAT 1500)

ECO 3130: Programming for Econ & Fin

Programming in R for economics and finance applications. Topics include libraries, tidyverse, IO, data types and storage, indexing/slicing, data wrangling, regression, display, function writing, control structures, loops, higher order functions, performance, functional and objected oriented design.

Credits: 3

Prerequisites:

MAT 1400 or MAT 1500 and (MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430)

ECO 3132: Research Methods in Economics

The scientific methodology of studying economics. Emphasis on practical aspects of developing and undertaking an economics research project that includes the formation of a research question, literature review, and empirical testing.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and (ECO 1002) and (MAT 1235 or MAT 1430 or MAT 2310 or MAT 4310 or STAT 1235 or STAT 1430 or STAT 2310 or STAT 4310 or VSB 2005)

ECO 3133: Economics of Healthcare

Examination of health as a durable good and specific markets for services to enhance health, including physician, nursing, hospital, and private insurance. The role of government and comparison to health care systems and outcomes in other countries are all studied.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3135: Case Studies Amer Indust

Structure and conduct of selected industries in the U.S. Economy chosen from the manufacturing, finance, energy, public utility, and transportation sectors. Effects of government policies such as regulation, deregulation, antitrust, subsidization, and protection from foreign competition.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3137: Intro to Econometrics

Intermediate course in stochastic methods with emphasis on applications; estimation, hypotheses testing, regression analysis, economic forecasting, time series analysis and probabilistic formulation of economic relationships such as consumption and production functions.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and (ECO 1002) and (MAT 1430 or MAT 1235 or MAT 2310 or MAT 4310 or STAT 1235 or STAT 1430 or STAT 2310 or STAT 4310 or VSB 2005)

ECO 3138: Game Theory

Basic game theoretic framework, concepts and applications; mathematical models to understand the behavior of humans in strategic situations.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

ECO 3139: Behavioral Economics

Examine cutting edge theories of how cognitive, psychological, social, and emotional factors affect economic decisions. Evidence from lab and field experiments is presented to support these behavioral models.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002 and (MAT 1310 or MAT 1320 or MAT 1400 or MAT 1500)

ECO 3140: Urban Economics

Utilizes economic theory to examine the major contemporary issues confronting urban areas; explores economic solutions to the problems of housing, transportation, education, poverty, crime, growth, employment, taxes and redevelopment.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 3200: Topics in Economic

Selected topics in economics currently of interest to faculty and students.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002

ECO 4132: Seminar in Economics

Capstone course requiring students to utilize the tools of analysis and expression, including not only economic theory and applications, but also writing, speaking and mathematics. Computer skills expanded.

Credits: 3

Prerequisites:

ECO 2101 and ECO 2102 and (ECO 3132 or ECO 3137)

ECO 4200: Advanced Topics in Economics

Selected topics in economics currently of interest to faculty and students.

Credits: 3

Prerequisites:

ECO 2101 and ECO 2102 and ECO 3137

ECO 4201: Dynamic Macroeconomic Theory

Modern methods used in macroeconomic research based on microeconomic principles; dynamic processes of economic growth and business cycles; impact of rational expectations on fiscal and monetary policies; mathematical tools for dynamic economic models.

Credits: 3

Prerequisites:

ECO 2101 and ECO 2102

ECO 4203: Pol Eco of Development Aid

This course examines foreign aid using a variety of economic approaches and tools including growth models, a public choice approach, principal-agent theory, and econometric analysis. Building on the history and institutions of foreign aid, we will delve into current policy and academic debates including aid effectiveness, agency problems, conditionality, and selectivity. A recurring theme is how the economic and political objectives of aid donors and recipients influence the development effectiveness of aid.

Credits: 3

Prerequisites:

(ECO 2102 and ECO 3137)

ECO 4205: Time Series Analysis

Introduction to methods of time series analysis including univariate models, trends, seasonality, structural breaks, forecasting, policy analysis, vector autoregression and panel techniques.

Credits: 3

Prerequisites:

(ECO 2101 or ECO 2102) and ECO 3137

ECO 4207: Economics of Risk&Uncertainty

Capstone course. Analyze microeconomic and macroeconomic situations involving risk, uncertainty, and ambiguity. Applications of expected utility theory and mean-variance theory in insurance, behavioral economics, and finance. Applications of empirically measuring and quantitatively modeling time-varying volatility in macroeconomics.

Credits: 3

Prerequisites:

ECO 2102 and ECO 2101 and ECO 3137

ECO 4209: International Macroeconomics

Capstone course. Open economy macroeconomic theory, monetary and asset-based exchange rate models; flexible vs. fixed exchange rate regimes; gains from financial globalization; financial and currency crisis; currency unions.

Credits: 3

Prerequisites:

ECO 2102 and ECO 2101 and ECO 3137

ECO 4210: Experimental Economics

Capstone course. Read seminal papers that use experiments to test economic theories. Learn how to properly design and conduct experiments.

Credits: 3

Prerequisites:

ECO 2102 and ECO 2101 and ECO 3137

ECO 4500: Independent Study in Eco

Students with specific interests work on a tutorial basis with faculty. A departmental independent Research Proposal form must be approved by the directing faculty member and the department chairman prior to registration.

Credits: 3

Prerequisites:

ECO 2101 and ECO 2102

Education

EDU 1900: Literacy Instrn for Tutors

Workshop using a strength-based approach to provide an overview for tutoring school-aged children (K-12) in an afterschool setting. Intended for students who have some experience tutoring. 1 credit

Credits: 1

EDU 2150: Disability & Deaf Studies Sem

Addresses differences and points of praxis between Disability Studies and Deaf Studies and lays the foundation for understanding how disability and Deafness have been theoretically, linguistically, socially, politically, legally, and economically constructed.

Credits: 1

EDU 2201: Social Foundation Educ I

Major movements in the history of education to 1600 with emphasis on their social and philosophical context; historical development of educational aims, curriculum and types of education; religious and political influences on education.

Credits: 3

EDU 2202: Social Foundation Edu II

Development of public and private education in America in its social and philosophical context; types of education, governmental activity in education, educational finance, religious and political influences, impact of European developments.

Credits: 3

EDU 2253: History of American Education

Focus on the people, ideas, issues and controversies that have created the current American school system. Will chronicle attempts to include (and sometimes exclude) an expanding school population as racial, gender, religious and health issues became confrontational battlegrounds.

Credits: 3

EDU 2300: Research Seminar in Education

An opportunity for students to become acquainted with the various approaches to inquiry in educational research and to design a small scale research project. Students will learn how to locate, analyze and use both qualitative and quantitative research reports.

Credits: 3

EDU 3000: Prof. Development in Education

Required course upon entry in the Teacher Certification Program. Introduction to competencies required for state certification, Standards Aligned Systems, national and state teaching standards and code of conduct and evaluation methods leading to state licensure in teaching grades 7-12.

Credits: 1

EDU 3100: Disability & Deaf Studies Semi

Addresses differences and points of praxis between Disability Studies and Deaf Studies and lays the foundation for understanding how disability and Deafness have been theoretically, linguistically, socially, politically, legally, and economically constructed.

Credits: 1

EDU 3220: Literature in Classrooms

Students will identify and critically evaluate effective practices in YA literacy instruction; analyze YA literature through the lens of diversity, equity and inclusion, and approach the instruction of YA literature through an equity, strengths-based, culturally sustaining lens.

Credits: 3

EDU 3251: Psych of Teaching & Learning

The application of learning theory to classroom teaching.

Credits: 3

EDU 3253: Educational Policy Analysis

Examines the challenges facing public schools, the policies that are designed in response to these challenges, the effects of these policies on students, and efforts undertaken by some youth to improve education policy. Core course for Educational Policy & Leadership minor.

Credits: 3

EDU 3258: Education & Society in 1960s

The relationship between educational developments and social change in the decade of the 1960s. The emergence of a distinctive youth culture and the educational impact of the civil rights and women's rights movements of the era.

Credits: 3

EDU 3260: World War II Experience in EDU

The impact of World War II on education and culture in the United States and foreign societies. Including educational experiences for women and ethnic and racial minorities.

Credits: 3

EDU 3261: Latinos in Education

Examination of methodological and analytical approaches to learning about the Education of US Latinos (Chicanos/ Mexican Americans, Puerto Ricans, Cubans, and other groups of Latin American origin.

Credits: 3

EDU 3262: Edu Pearl Harbor to Sputnik

The impact of World War II and the Cold War on American schools and society. The expansion of educational opportunities for women, ethnic and social minorities. The influence of advances in communications and technology on educational issues of the 1940s and 1950s.

Credits: 3

EDU 3263: Diversity and Inclusion

Introduction to the physical and social characteristics of diverse and exceptional students between 3 and 21. Issues of race, culture, gender, sexual orientation, and special education with respect to schools and in light of recent legislation and court decisions. Problem cases with an emphasis on the underprivileged, antisocial, and disadvantaged.

Credits: 3

EDU 3264: Intro to Disability Studies

Social, political, cultural and academic implications of disability; legacy of disability in the US and abroad; strategies for working with individuals with special needs. Service learning is required.

Credits: 3

EDU 3266: Civil War Exp in Education

Investigation of the impact of the Civil War on education and culture. Curricular and instructional issues in teaching the Civil War in selective education environments.

Credits: 3

EDU 3277: Urban Education

Examines the challenges of urban schooling, the historical roots of these challenges, and the pedagogical techniques and policy tools that are being used to respond to them. A weekly community-based learning lab in an urban school is required.

Credits: 3

EDU 4245: Literacy & Eng Lang Learning

Techniques for literacy evaluation; methods of teaching literacy and English as a second language; strategies for basic skill development and student observation in the schools.

Credits: 3

EDU 4281: Meth English Sec School

The curriculum, planning units and lessons in the teaching area; general methods of teaching, special methods and instructional materials in the subject, including textbooks, courses of study and reference works; application of the principles and techniques studied in Education 3254 to teaching the subject; lesson plans, units and tests in using methods, techniques, and materials in the subject; planned experiences and weekly assignments in neighboring secondary schools to observe, assist teachers, and teach pupils in the subject.

Credits: 3

Prerequisites:

EDU 3251 :D-

EDU 4282: Meth Fgn Lang Sec School

The curriculum, planning units and lessons in the teaching area; general methods of teaching, special methods, and instructional materials in the subject, including textbooks, courses of study and reference works; application of the principles and techniques studied in Education 3254 to teaching the subject; lesson plans, units and tests and in using methods, techniques, and materials in the subject; planned experiences and weekly assignments in neighboring secondary schools to observe, assist teachers and teach pupils in the subject.

Credits: 3

Prerequisites:

EDU 3251 :D-

EDU 4283: Meth Math Sec School

The curriculum, planning units, and lessons in the teaching area; general methods of teaching special methods, and instructional materials in the subject; including textbooks, courses of study and reference works; application of the principles and techniques studied in Education 3254 to teaching the subject; lesson plans, units and tests and in using methods, techniques, and materials in the subject; planned experiences and weekly assignments in neighboring secondary schools to observe, assist teachers and teach pupils in the subject.

Credits: 3

Prerequisites:

EDU 3251 :D-

EDU 4284: Meth Science Sec School

The curriculum, planning units, and lessons in the teaching area; general methods of teaching special methods and instructional materials in the subject; including textbooks, courses of study and reference works; application to the principles and techniques studied in Education 3254 to teaching the subject; lesson plans, units and tests and in using methods, techniques, and materials in the subject, planned experiences and weekly assignments in neighboring secondary schools to observe, assist teachers and teach pupils in the subject.

Credits: 3

Prerequisites:

EDU 3251 :D-

EDU 4285: Meth Soc Stud Sec School

The curriculum, planning units, and lessons in the teaching area; general/ methods of teaching, special methods, and instructional materials, in the subject, including textbooks, courses of study and reference works; application of the principles and techniques studied in Education 3254 to teaching the subject, practice in preparing lesson plans, units and tests and in using methods, techniques, and materials in the subject; planned experiences and weekly assignments in neighboring secondary schools to observe, assist teachers and teach pupils in the subject.

Credits: 3

Prerequisites:

EDU 3251 :D-

EDU 4289: Education Independent Study

Supervised independent study, specific requirements will be determined by the faculty member. Students may only register for this class once with special permission of chairperson.

Credits: 3

EDU 4290: Philosophy of Education

The development of a sound personal philosophy of education and practice in applying that philosophy to current educational issues.

Credits: 3

EDU 4291: Student Teaching

Observation and teaching under actual classroom conditions in the student's field of teaching specialization; open only to students of the Senior year who have completed all the subject matter courses in the field of specialization.

Credits: 9

Prerequisites:

(EDU 2201 :D- or EDU 2202 :D-) and EDU 3251 :D-

Co-Requisites:

EDU 4292

EDU 4292: Senior Seminar

The student teaching experience; elements of school law; current educational issues; use of computers in the classroom; relationship of practice to theory; sharing of experiences, common problems and alternative teaching practices; open to student teachers.

Credits: 3

Prerequisites:

(EDU 2201 :D- or EDU 2202 :D-) and EDU 3251 :D-

Co-Requisites:

EDU 4291

EDU 4298: Student Teaching

Credits: 6

EDU 4301: Humanistic Education

Principles of humanistic psychology as they apply to education: Active listening, kinesics, values clarification, motivation, classroom groups, and the teacher as a group facilitator.

Credits: 3

Electrical and Computer Engineering

ECE 1205: ECE Freshman Projects

Project-based introduction to engineering course for freshman electrical and computer engineering majors.

Credits: 3

Prerequisites:

EGR 1200

ECE 1260: EGR Prog and Applic

Introductory C programming - engineering-focused algorithms and program development in C using: elementary data structures, conditional branching, loop control, console and file I/O operations, pseudo-random numbers, functions, strings, arrays, matrices, structures and pointer variables.

Credits: 3

Co-Requisites:

ECE 1261

ECE 1261: EGR Prog and Applic Lab

Hands-on exercises in implementing, debugging and testing engineering-focused programs in Linux/C using an IDE; examples drawn from math, physics, audio and image processing, cybersecurity, peripheral device control, etc.s

Credits: 1

Co-Requisites:

ECE 1260

ECE 1620: Egr Prog & Applic

Engineering problem solving using the C programming language, C control structures, data files, debugging, functions, arrays, elementary data structures, and pointers. Two lecture hours per week and 1 lab period per week.

Credits: 3

ECE 2030: Electrical Circuit Fundamental

Basic concepts, steady-state dc circuit analysis, network theorems, energy storage elements, complete response of first-order circuits, steady-state sinusoidal circuit analysis, AC systems and Laplace Transform.

Credits: 3

Prerequisites:

MAT 1505 :D-

Co-Requisites:

ECE 2031

ECE 2031: Elect Circuit Fundamentals Lab

Must be taken concurrently with ECE 2030. Laboratory exercises cover electrical safety and laboratory practice, basic instrumentation, computer-aided circuit analysis, and application of electronic devices.

Credits: 1

Prerequisites:

MAT 1505 :D-

Co-Requisites:

ECE 2030

ECE 2042: Fundamentals of CPE I

Number systems (signed and unsigned), conversions, Binary arithmetic, digital logic design both combinatorial and sequential, counters and state machines as well as learning VHDL (a hardware creation language) to implement the digital logic.

Credits: 3

Co-Requisites:

ECE 2043

ECE 2043: Fund of Comp Engineering I Lab

This laboratory course is intended to be taken concurrently with ECE 2042. The laboratory includes exercises on logic design and on programming FPGA's using the VHDL language.

Credits: 1

Co-Requisites:

ECE 2042

ECE 2044: Fundamentals of CPE II

The fundamentals of computer operation will be explored with emphasis on how to interface with a general-purpose processor. An ARM processor will be utilized to demonstrate memory mapped I/O, assembly programming, interrupts, serial communication, and peripheral utilization.

Credits: 3

Prerequisites:

ECE 1620

Co-Requisites:

ECE 2045

ECE 2045: Fund Comp Engineering II Lab

This laboratory course is intended to be taken concurrently with ECE 2044. The laboratory utilizes an ARM microcontroller with assembly and C programming examples

Credits: 1

Prerequisites:

ECE 2042

Co-Requisites:

ECE 2044

ECE 2052: Fund Electrical Engineering I

Basic concepts, steady-state dc circuit analysis, network theorems, ideal op-amp circuit analysis, energy storage elements, complete response of first-order circuits, steady-state sinusoidal circuit analysis and the phasor diagram.

Credits: 3

Prerequisites:

MAT 1505 :D-

Co-Requisites:

ECE 2053

ECE 2053: Fund Elect Engineering I Lab

Must be taken concurrently with ECE 2052. Laboratory exercises cover electrical safety and laboratory practice, basic instrumentation, computer-aided circuit analysis, and applications of electronic devices.

Credits: 1

Co-Requisites:

ECE 2052

ECE 2054: Fund of Elect Engineering II

Second-order circuits, complex-frequency (s-domain) analysis, network functions, RMS value, superposition of average power, maximum power transfer, frequency response (Bode) plots, ac power, balanced three-phase circuits, resonance, magnetically-coupled coils and the ideal transformer.

Credits: 3

Prerequisites:

ECE 2052 :D-

ECE 2055: Fund Elect Engineering II Lab

Must be taken concurrently with ECE 2054. Laboratory projects in system design that employ both analog and digital electronic components and various types of input/output devices.

Credits: 1

Co-Requisites:

ECE 2054

ECE 2160: C++ Algorithms & Data Struct

C++ classes access rules, inheritance, friends, abstract classes, passing parameters by value, by reference, polymorphism in functions and operations, static and dynamic binding, templates; searching, sorting; pointer implementation of lists, stacks, queues, trees, hashing; P and NP classes; analysis of algorithms.

Credits: 3

Prerequisites:

ECE 1260 and ECE 1261

Co-Requisites:

ECE 2161

ECE 2161: C++ Algorithms&Data Struct Lab

Installation, familiarization with Linux and its IDE, C++ programming exercises incorporating classes and objects, templates, pointers, dynamic variables, file access, measurements of running times of two sorting algorithms, implementation of linked lists, queues and stacks using composition.

Credits: 1

Prerequisites:

ECE 1260 and ECE 1261

Co-Requisites:

ECE 2160

ECE 2170: Fundamentals of CPE

The fundamentals of computer operation will be explored with emphasis on how to interface with a general-purpose processor. An ARM processor will be utilized to demonstrate memory mapped I/O, assembly programming, interrupts, serial communication, and peripheral utilization.

Credits: 3

Prerequisites:

ECE 1260

Co-Requisites:

ECE 1260

ECE 2171: Fundamentals of CPE Lab

This laboratory course is intended to be taken concurrently with ECE 2171. The laboratory utilizes an ARM microcontroller with assembly and C programming examples.

Credits: 1

Prerequisites:

ECE 1260

Co-Requisites:

ECE 2170

ECE 2172: Digital Systems

Number systems (signed and unsigned), conversions, Binary arithmetic, digital logic design, both combinatorial and sequential, counters and state machines as well as learning VHDL (a hardware creation language) to implement the digital logic.

Credits: 3

Co-Requisites:

ECE 2173

ECE 2173: Digital Systems Lab

The laboratory course is intended to be taken concurrently with ECE 2172. The laboratory includes exercises on logic design and on programming FPGA's using the VHDL language.

Credits: 1

Co-Requisites:

ECE 2172

ECE 2290: Engr System Models & Control

Modeling and analysis of electrical, mechanical, and electromechanical systems; open-loop and feedback systems; frequency domain models; state equations; linearization, time response; steady-state error; block diagrams and signal flow graphs; stability criteria; root locust method. Practicum includes laboratory experiments involving actual engineering systems. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

ECE 2030 and ECE 2031 and PHY 2402

ECE 2292: Engineering Probability&Stats

Basic set theory, axioms of probability, probability relationships. Concepts of a random variable. Joint random variables. Selected topics in statistics from: estimation, hypothesis testing and regression. Selected topics from: function of a random variable, random processes Markov chains, applications (e.g. reliability, queuing, microprocessor control, digital communications, detection).

Credits: 3

Prerequisites:

MAT 2705

ECE 2409: Fundamentals of MATLAB

Use of MATLAB, a matrix oriented, high level programming language, for the simulation and modeling of physical systems. Matrix operations, extensive 2-dimensional and 3-dimensional graphing, introduction to MATLAB toolboxes. Lectures are conducted in parallel with hands-on programming and computer simulations. One lecture hour and one laboratory period per week.

Credits: 2

ECE 2430: Embedded Systems

Introduction to logic design and digital computer fundamentals. Topics include computer arithmetic, Boolean algebra and logical design, basic concepts of computer architecture, programming and interfacing microcontrollers.

Credits: 3

Prerequisites:

ECE 1260 :D-

Co-Requisites:

ECE 2431

ECE 2431: Embedded Systems Lab

This laboratory course is intended to be taken concurrently with ECE 2430. The laboratory includes exercises on logic design and on programming and interfacing microcontrollers and programmable logic devices.

Credits: 1

Prerequisites:

ECE 1260 :D-

Co-Requisites:

ECE 2430

ECE 2530: Analog Electronics I

Basic electronic concepts. Waves and particles, semiconductor device physics, diodes and BJT circuits and amplifier circuits.

Credits: 3

Prerequisites:

ECE 2030 :D- and ECE 2031 :D-

Co-Requisites:

ECE 2531

ECE 2531: Analog Electronics I Lab

Must be taken concurrently with ECE 2530. Electronic circuit applications are investigated through laboratory design projects on semi conductor device physics, diodes and BJTs.

Credits: 1

Prerequisites:

ECE 2030 :D- and ECE 2031 :D-

Co-Requisites:

ECE 2530

ECE 2550: Intro to Electronics & Applic.

Basic electronic concepts. Electronic circuit applications are investigated through the creation of laboratory design projects which address contemporary topics in Electrical Engineering.

Credits: 2

Prerequisites:

ECE 2052 :D-

ECE 2620: C++, Algorithms & Data Struct

C++ classes, access rules, inheritance, friends, abstract classes, templates, passing parameters by value, by reference, polymorphism in functions and operators, static and dynamic binding, searching, sorting; pointer implementation of lists, stacks, queues, trees, analysis of algorithms; P, NP, Undecidable problems.

Credits: 4

Prerequisites:

ECE 1620

ECE 2800: Prof. Dev. Seminar

Various professional development activities including: initiation into mentoring program, introduction to engineering ethics and professional responsibilities, field trips and other events on contemporary issues, peer evaluation process, development of oral and written communication skills, workshops on a variety of professional skills.

Credits: 2

ECE 3000: Engr Systems Models & Control

Modeling and analysis of electrical, mechanical, and electromechanical systems; open-loop and feedback systems; frequency domain models; state equations.

Credits: 3

Prerequisites:

ECE 2030 and ECE 2031 and ECE 3240

Co-Requisites:

ECE 3001

ECE 3001: Systems Model&Control Lab

This laboratory provides an applied experience integrating previous engineering concepts and laboratory experiences in the context of control systems and entails hardware implementation, measurement, and analysis

Credits: 1

Prerequisites:

ECE 3000

ECE 3020: Intro to Electric Energy Systems

Fundamentals of energy conversion and storage, conventional and renewable sources of energy, introduction to the electric energy system grid, control and economic operation of the electric energy system grid, and introduction to smart grid and smart metering technologies

Credits: 3

Prerequisites:

ECE 2030

ECE 3030: Engineering Electromagnetics

Maxwell's equations, plane wave, dissipative media, reflection and transmission of waves at an interface, metallic and optical waveguides, transmission lines, linear and array antennas.

Credits: 3

Prerequisites:

MAT 2500 and PHY 2402

Co-Requisites:

ECE 3031

ECE 3031: Engineering Electromagnetics Lab

Visualization through computer aided design tools, experiments and demonstration of solutions to Maxwell's equations, plane waves, dissipative media, reflection and transmission of waves at an interface, metallic waveguides and transmission lines.

Credits: 1

Prerequisites:

ECE 2500 and PHY 2402

Co-Requisites:

ECE 3030

ECE 3040: Electrical Communications

Analog and digital communication systems: characterization of communication channels, bandwidth and signal distortion; AM and FM, FM stereo and Dolby noise reduction; sample and hold, source encoding, matched filtering, digital modulations and error control-coding.

Credits: 3

Prerequisites:

ECE 2030 and MAT 2705

ECE 3170: Computer Architecture

Fundamentals of instruction set architecture (ISA) and processor & memory organization. Topics include ISA, arithmetic circuits, register file, single-cycle, multi-cycle, and pipelined microarchitecture, memory operation, cache, virtual memory, parallel architectures.

Credits: 3

Prerequisites:

ECE 2170 and ECE 2172 and ECE 2173

Co-Requisites:

ECE 3171

ECE 3171: Computer Architecture Lab

Design, implementation, and test of various processor building components and memory units, which are integrated to build a single-cycle processor and a pipeline processor. An FPGA development board and design software are used.

Credits: 1

Co-Requisites:
ECE 3170

ECE 3180: Computer Networks

ISO/OSI, TCP/IP reference models; data transmission, encoding, framing, error detection, stop and wait, sliding windows; CSMA/CD, Ethernet; bridges, spanning tree protocol; connectionless, connection-oriented and source routing, IP addressing, forwarding, VPNs; switching fabrics; ARP, DHCP, DV, OSPF, BGP, DNS.

Credits: 3

Prerequisites:
ECE 1260 or CSC 2405

ECE 3225: Signal Processing

Signal representation, Fourier series, Fourier transform, discrete-time systems, convolution, discrete-time Fourier transform, Z-transform. Practicum includes MATLAB exercises on transform properties and their use in modulation and filtering. Three lecture hours per week.

Credits: 3

Prerequisites:
ECE 2030 :D- and ECE 2409 :D- and MAT 2705 :D-

Co-Requisites:
ECE 3230

ECE 3230: Signals Lab

Use of MATLAB on filtering, channel equalization, music synthesis and spectrum analysis. Two-hour practicum per week.

Credits: 1

Prerequisites:
ECE 2409 :D- and MAT 2705 :D- and ECE 3225 (or concurrently) or ECE 3245 (or concurrently)

ECE 3242: Fundamentals of Signal Process

Overview of signals, types of signals, signal representation phasors, power and energy, Linear time invariant systems, convolution and impulse response; Fourier analysis and concept of frequency, Fourier transform, line spectrum; Discrete time signal analysis; Discrete Fourier transform (DFT), discrete-time convolution, z-transform.

Must be enrolled in one of the following Levels:

Undergraduate

Credits: 3

Prerequisites:
MAT 2705

ECE 3245: Discrete Time Signals & System

Discrete-time signal and system representation; sampling of continuous signals; discrete-time Fourier and Z-transformations; frequency content of signals and frequency response of systems; systems analysis and filtering.

Credits: 3

Prerequisites:
ECE 2409 :D- and MAT 2705 :D-

Co-Requisites:
ECE 3230

ECE 3430: Embedded Systems II

Digital logic families with primary emphasis on external electrical characteristics of the logic devices. Applications and designs at the board-level, involving topics such as series/parallel conversion and analog/digital conversion.

Credits: 3

Prerequisites:
ECE 2430 :D- and ECE 2431 :D-

ECE 3445: Computer Architecture

Fundamentals of instruction sets and their efficient execution - e.g., pipelines, caches, out-of-order execution, and branch prediction mechanisms. Performance analysis, superscalar, VLIW, multithreading, and multiprocessing are among the topics studied. Trace-driven simulators are used in practicums to explore concepts learned in class. Three lecture hours with a two-hour practicum each week.

Credits: 4

Prerequisites:
ECE 2043 and ECE 2044 and ECE 2045

ECE 3450: Digital Electronics

Digital logic families with primary emphasis on external electrical characteristics of the logic devices. Applications and designs at the board-level, involving topics such as series/parallel conversion and analog/digital conversion.

Credits: 3

Prerequisites:
ECE 2030 :D- and ECE 2172 :D-

ECE 3476: Computer and Network Security

Computer security in the context of the Internet, including hands-on exercises and experiments in the areas of authentication, attacks and threats, email and communication digital signatures and encryption, mobile devices, privacy, safe browsing and certificates.

Credits: 3

Prerequisites:

ECE 3180 (or concurrently) or CSC 2405

ECE 3500: Electronic Materials & Devices

Physics of crystal structures, energy bands, Fermi level, charge carriers, the pn junction, and excess carriers. Devices: diodes, bipolar junction transistors and field effect transistors. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

ECE 2510 :D- or ECE 2051 :D- or ECE 2054 :D-

ECE 3530: Analog Electronics II

Analysis, design, and simulation of analog electronic circuits. Single and multistage amplifiers, amplifier frequency response, power amplifiers, linear and nonlinear op-amp circuits, active filters, oscillators. MOSFET and CMOS circuits.

Credits: 3

Prerequisites:

ECE 2530 :D- and ECE 2531 :D-

Co-Requisites:

ECE 3531

ECE 3531: Analog Electronics II Lab

Must be taken concurrently with ECE 3530. MOSFET DC Circuits, Device Parameter Extraction from BJT and MOSFET, Single and Multistage Amplifier Designs & frequency response, Power Amplifier Design with Thermal Design Considerations (Application of Heat Sinks).

Credits: 1

Prerequisites:

ECE 2530 :D- and ECE 2531 :D-

Co-Requisites:

ECE 3530

ECE 3550: Analog Electronics

Analysis, design, and simulation of analog electronic circuits. Single and multistage amplifiers, amplifier frequency response, power amplifiers, linear and nonlinear op-amp circuits, active filters, oscillators. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

ECE 2051 :D- or ECE 2054 :D- or ECE 2054 :D-

ECE 3600: Operating Systems

System software design and implementation; process and resource management; concurrency, scheduling, and deadlock; memory management; file systems and security.

Credits: 3

Prerequisites:

ECE 2170 and ECE 2160

ECE 3690: Engineering Electromagnetics

Maxwell's equations, plane waves, dissipative media, reflection and transmission of waves at an interface, metallic and optical waveguides, transmission lines, linear and array antennas. Practicum includes computer projects, laboratory demonstrations and problem solving. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

MAT 2500 :D- and PHY 2402 :D-

ECE 3720: Eng Probability & Statistics

Basic set theory, axioms of probability, probability relationships. Concepts of a random variable. Joint random variables. Selected topics in statistics from: estimation, hypothesis testing and regression. Selected topics from: functions of a random variable, random processes, Markov chains, applications (e.g. reliability, queuing, microprocessor control, digital communications, detection). Prerequisites: junior CPE or junior EE standing.

Credits: 3

ECE 3770: Electrical Communications

Introducing the elements of a modern communication system including signal representation, bandwidth, modulation, spectrum and noise, communication channels, sampling of continuous signals and digital modulations. The practicum period includes Matlab simulation of concepts and operations.

Credits: 4

Prerequisites:

ECE 3225 :D- or ECE 3245 :D- and ECE 3720 :D-

ECE 3970: Design Seminar - EE

Areas and career paths in electrical engineering. Overview of required senior project courses and faculty project sponsors. Engineering design, project selection requirements, technical communications, information gathering. Requires selection of design project adviser, project topic, and a formal written project proposal.

Credits: 2

ECE 3971: Design Seminar - CPE

Areas and career paths in computer engineering. Overview of required senior project courses and faculty project sponsors. Engineering design, project selection requirements, technical communications, information gathering. Requires selection of design project adviser, project topic, and a formal written project proposal.

Credits: 2

ECE 4290: Engr System Models & Control

Modeling and analysis of electrical, mechanical, and electromechanical systems; open-loop and feedback systems; frequency domain models; state equations; linearization; time response; steady-state error; block diagrams and signal flow graphs; stability criteria; root locus method. Practicum includes laboratory experiments involving actual engineering systems. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

(ECE 2290 :D- or ECE 2051 :D- or ECE 2054 :D-) and PHY 2402 :D-

ECE 4470: Computer Networks

ISO/OSI, TCP/IP reference models; data transmission, encoding, framing, error detection, stop-and-wait, sliding windows; CSMA/CD, Ethernet; bridges, spanning tree protocol; connectionless, connection-oriented and source routing, IP addressing, forwarding, VPNs; switching fabrics; ARP, DHCP, DV, OSPF, BGP, DNS.

Credits: 4

Prerequisites:

ECE 1620 or CSC 2405

ECE 4810: Intro. to Electric Energy Sys.

Fundamentals of energy conversion and storage, conventional and renewable sources of energy, introduction to the electric energy system grid, control and economic operation of the electric energy system grid, and introduction to smart grid and smart metering technologies.

Credits: 3

Prerequisites:

ECE 2030

ECE 4970: Design Project - EE

Completion of the design project presented in ECE 3970. Requirements: written and oral progress reports, demonstration of achieved objectives, formal written final report, oral presentation. Design groups meet weekly with their instructors. Senior standing.

Credits: 3

Prerequisites:

ECE 3970 :D- or ECE 5900 :D-

ECE 4971: Design Project - CPE

Completion of the design project presented in ECE 3971. Written and oral progress reports, demonstration of achieved objectives, formal written final report, oral presentation. Design groups meet weekly with their instructors. Senior standing.

Credits: 3

Prerequisites:

ECE 3971 :D-

ECE 4972: Design Project Report - EE

Preparation and presentation of a final written report and a formal presentation of each project team's senior design project completed in ECE 4970.

Credits: 1

Prerequisites:

ECE 4970 :D-

ECE 4973: Design Project Report - CPE

Preparation and presentation of a final written report and a formal presentation of each project team's senior design project completed in ECE 4971.

Credits: 1

Prerequisites:

ECE 4971 :D-

ECE 5010: ECE Summer Internship

Academic credit for a summer internship. Requirements: Senior standing, a technical GPA of 3.0 or greater, and sponsorship by a full-time faculty member arranged prior to the start of the internship. Program details available from the Electrical and Computer Engineering Department Chairman, Tolentine Hall, Room 403. (610-519-4971).

Credits: 3

ECE 5040: Deep Learning Methods in Wireless Communications

A primer on deep learning methods and their applications in wireless communications, including signal detection and classification, channel estimation, prediction, compression, and resource allocation using Matlab Deep Learning Toolbox.

Credits: 3

Prerequisites:

ECE 3225 or ECE 3245

ECE 5170: Intro to Post-Quantum Cryptography

Introduction to fundamental knowledge and skills related to quantum and post-quantum computing, basic and hands-on projects on different post-quantum cryptography schemes, brief introduction of emerging lightweight post-quantum techniques.

Credits: 3

ECE 5172: Fundamentals of Digital Hardware Design

Components and algorithms needed to create modern digital hardware with a sharp focus on hands on design using industry standard design automation and test tools.

Credits: 3

ECE 5240: Multimedia

Algorithms and standards that make possible multimedia communication and storage over the internet, including baseline JPEG, JPEG 2000, video compression (MPEG-1, 2, 4), audio compression and MP3, DVD, video conferencing and streaming, multimedia over broadband (DSL and cable), multimedia database search and retrieval and digital watermarking for multimedia content ownership and intellectual property rights protection. Prerequisites: Senior CPE or senior EE standing.

Credits: 3

ECE 5250: Biomedical Instrumentation

Introductory course in Biomedical Engineering emphasizing human physiology & medical measurement tools & techniques. Topics include the nervous system, the cardiovascular system & the respiratory system.

Credits: 3

ECE 5251: Biomedical Signal Processing

Signal processing of biomedical signals. Cardiac, neurological, & electromyographic signal processing. Biomedical signal filtering, frequency analysis, spectrum estimation & physiological information extraction. Prerequisites: EGR 2021 or equivalent.

Credits: 3

Prerequisites:

ECE 3225 or ECE 3245 or EGR 2021

ECE 5252: Medical Imaging

Principles of structural and functional medical imaging modalities: X-ray, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), ultrasound and optical imaging. Fundamentals of biomedical image analysis: image acquisition and display, image enhancement, segmentation and registration as used in medical imaging applications. Prerequisites: EGR 2021 or equivalent.

Credits: 3

Prerequisites:

EGR 2021

ECE 5390: Control System Design

Problem formulation, design techniques and evaluations, time domain and frequency domain design methods. Incorporates computer-aided analysis and design in conjunction with required laboratory projects. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

ECE 2290

ECE 5400: Applied Machine Learning

Introduction to machine learning models and algorithms; Software techniques such as compression and pruning to enable efficient processing of neural networks. Hardware accelerators for training and inference process. Hardware/software optimization for using machine learning to solve practical problems.

Credits: 3

ECE 5450: Microcontrollers & Applic

ARM-Based microcontroller design and the following related topics: General purpose input/output, counters/timers, pulse-width modulation, A/D conversion, stepper motor control, use of integrated development environments, practical application programming in C.

Credits: 3

Prerequisites:

ECE 1620

ECE 5451: Adv Microcontroller App Design

Communications and complex inputs/outputs in ARM-based microcontroller design: Fast input/output, I²C bus, UARTs, SPI bus, CAN bus, vectored interrupts, USB, JTAG, in-application flash programming. Implementation of real-world designs using the C programming language.

Credits: 3

Prerequisites:

ECE 5450

ECE 5478: Eng Secure Cyber-Physical Sys

Cyber-Physical Systems include home automation and protection, connected vehicles, connected medical devices, drones, smart buildings and cities, and industrial control systems. Secure engineering of cyber-physical systems leading to a safer and more secure connected environment that also respects personal privacy. Improvement of security after deployment. Emphasis on hands-on activities and lab work.

Credits: 3

ECE 5480: Android Mobile Dev Programming

The Android software stack and the underlying device sensors. Topics covered: Mobile Design Considerations, Java Language Primer, Android SDK, Threading, Geolocation Services, NFC, Bluetooth, Wi-Fi Direct, Common Device Sensors, Persistence, Accessing Web Services and IOIO microcontroller.

Credits: 3

ECE 5690: Microwave Networks

Plane wave propagation; propagation in TEM transmission lines and waveguides; IMPATT; TRAPAT; Gunn-Effect and parametric devices; microstrip lines and microwave integrated circuits; laboratory work includes measurement of SWR, impedance, and power at microwave frequencies. Three lecture hours and a two-hour practicum per week.

Credits: 4

Prerequisites:

ECE 3530 and ECE 3690

ECE 5730: RF Circuit Design

Design of active circuits and antennas for RF and wireless systems, including semiconductor control circuits, S-parameter based amplifier and oscillator design, mixers, and antennas for portable and base station applications. CAD tools and laboratory-based projects are emphasized.

Credits: 3

Prerequisites:

ECE 5690

ECE 5760: Intro to Optoelectronics

Introduction to various optoelectronic devices, including light emitting devices, photodetectors, optical modulators, solar cells and display devices. Applications to systems.

Credits: 3

Prerequisites:

ECE 3500 :D-

ECE 5770: Organs-on-a-Chip

Microfluidic electrochemical biomimetic systems as a physical micron-scale model of a human organ for sensing pharmaceutical, cosmetics, and food ingredients toxicology. Combine fundamentals of field effect circuits, optics, fluid mechanics, soft-lithography, and biochemistry with an emphasis on life sciences applications.

Credits: 3

Prerequisites:

MAT 2705 (or concurrently) or EGR 2021 (or concurrently) or ECE 2530 (or concurrently) and PHY 1102 or PHY 2402 or PHY 2412

ECE 5800: Electric Machines

Magnetic circuits; electromechanical energy conversion; single-phase power transformers; induction motors; synchronous machines; dc machines; permanent magnet motors.

Credits: 3

Prerequisites:

ECE 2051 :D- or ECE 6020 :D- or ECE 2054 :D- or ECE 2054 :D-

ECE 5815: Power System Analysis

Balanced three-phase circuit analysis, three-phase power transformers, per-unit analysis, power flow analysis and control, balanced and unbalanced short-circuit analysis, power system stability.

Credits: 3

Prerequisites:

ECE 2051 or ECE 2054 or ECE 6020

ECE 5850: Renewable Energy Systems

The design of renewable energy systems. Topics include: Solar Thermal Energy, Photovoltaics, Bioenergy, Hydroelectricity, Tidal Power, Wind Power and Geothermal Energy. Prerequisite: ECE 2054 or equivalent.

Credits: 3

ECE 5900: Special Topics

Addresses a special topic in electrical and/or computer engineering of interest to faculty and students.

Credits: 3

ECE 5991: Elec Eng Research I

Students work with faculty on current research topics. Weekly meetings with faculty adviser and a final written report and/or oral presentation are required.

Credits: 3

ECE 5992: Elec Eng Research II

Continuation of ECE 5991.

Credits: 3

ECE 7000: Renewable Energy Policy

An introduction to renewable energy policy from inception to current state of the industry. Deals with the evolution of policy from monopolistic to competitive marketplace. Study will include the various factors affecting this process.

Credits: 3

ECE 7580: Intro to Power Electronics

Idealized power switching diodes and transistors; DC-DC converters; AC-DC rectifiers; DC-AC inverters; Magnetic circuits and elements (including inductors and transformers); soft-switching of power devices. Practical design of switch-mode DC power supplies, DC and AC motor drives.

Credits: 3

ECE 7830: Intro. to Electric Drives

Introduction to space vectors, scalar speed and torque control of induction motors, space vector representation of ac motors, dynamic dq modeling of ac motors, introduction to vector control of ac drives. Pre-req. ECE 7805 or permission of instructor.

Credits: 3

ECE 8425: Microproc & Microcomp

Advanced study of hardware and software concepts necessary for the design of 32-bit microprocessor-based systems. Topics: (for a widely-used 32-bit microprocessor) addressing modes, instruction set, input/output, and interrupts with examples taken from the areas of computer engineering, signal processing and communication. The course includes a student analysis/design project and laboratory work involving a 32-bit processor. Prerequisite: Undergraduate background in microprocessors (equivalent to ECE 3490).

Credits: 3

Engineering

EGR 1000: Online Grad EGR Orientation

This course provides an introduction to student services offered at Villanova University and the College of Engineering, as well as online learning and the necessary knowledge and skills required to complete courses in the blackboard e-learning environment.

Credits: 0

EGR 1001: Career Compass First Yr A

First part of the professional development program for first year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

**EGR 1002: Career Compass
First Yr B**

Second part of the professional development program for first year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

**EGR 1200: Egr.
Interdisciplinary Proj. I**

Core engineering concepts and project-based introduction to engineering course for freshmen engineering majors. First half of semester is lecture/project format emphasizing core concepts and math. Second half consists of an elective interdisciplinary project. Students choose from among several of these.

Credits: 3

**EGR 2001: Egr: Humanistic
Context**

The biggest issues facing the world and the role engineering must play in the solutions will be examined. Constitutive groups will be identified, and experts will discuss the problems from their perspective area of expertise. Interdisciplinary engineering teams will be used to develop ethical, sustainable, and humanistic solutions to real world problems.

Credits: 3

**EGR 2002: Intro to
Humanitarian Engr**

The Introduction to Humanitarian Engineering is the first in a series of courses intended to provide the context for undergraduate students who are interested in engaging with international program partners on global development challenges. This course provides background information about developing communities with a focus on historical issues related to colonization, development theory and poverty alleviation efforts. In addition, this course introduces technical issues related sustainable development with an emphasis on the role of external support, ethical engagement in community development and whole systems thinking. Finally, this course introduces practical skills in community engagement through a series of hands-on mini project activities, designed to provide students with the necessary skills to conduct field work with international partners.

Credits: 3

**EGR 2003: Career Compass
Second Yr A**

First part of the professional development program for second year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

**EGR 2004: Career Compass
Second Yr B**

Second part of the professional development program for second year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

**EGR 2005: Bridging Diver &
Bldg Communit**

View cultural diversities as opportunities that will enhance the creativity and overall quality of any project development process or team effort. The course will provide students with pragmatic tools for understanding and working effectively across and through differences in culture and communication in professional situations and promote an inclusive design approach for solutions. Includes tactical emphasis on effective teaming, innovative teams, and difference by design. Restricted to 30 students (15 seats reserved for Engineering. Junior or senior level.

Credits: 3

**EGR 2020: Physiology for
Engineers**

Structure and function of biomolecules, cells, tissues, organs, and organ systems (including musculoskeletal, circulatory, respiratory, and nervous systems).

Credits: 3

Prerequisites:

CHM 1151 (or concurrently)

EGR 2021: Elements of Biomed Engr

Survey of current topics in biomedical engineering; Engineering fundamentals (e.g., mechanics of materials, dynamics, transport, signal processing) with applications to biomedical engineering.

Credits: 3

Prerequisites:

MAT 2705 (or concurrently) and PHY 1102 or PHY 2402 or PHY 2412

EGR 2110: Sus Eng: Risks & Opportunities

One of two required core courses for the Sustainable Engineering Minor that introduces whole-systems thinking to address the dynamic field of sustainability. Topics include climate change, planetary boundaries, greenhouse gas management, climate change mitigation/adaptation, sustainable materials and disruptive technologies.

Credits: 3

EGR 2111: Sus Eng: LCA & Circular Econ

One of two required core courses for Sustainable Engineering Minor that introduces life cycle assessment (LCA) and circular economy (CE). Students will learn phases of LCA and application of SimaPro software and gain understanding and application of CE business models.

Credits: 3

EGR 2200: Transport in Bioengineering

Provide non-engineering students with a basic engineering background for a bioengineering minor. The content covers thermodynamics, fluid mechanics, heat transfer, mass transfer and kinetics.

Credits: 3

EGR 2930: Catholic Soc Teaching for EGRS

Tradition and key themes of Catholic Social Teaching and how engineers can incorporate these themes in developing solutions to engineering problems. Engineering topics and case studies will be analyzed, with emphasis on a comparison of "greater good" and "common good". Permission of instructor.

Credits: 3

EGR 3005: Career Compass Third Yr A

First part of the professional development program for third year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

EGR 3006: Career Compass Third Yr B

Second part of the professional development program for third year engineering students focused on four areas: The Engineering Profession, Setting the Stage for Personal Success, Post-Graduation Planning, and Communicating in the 21st Century.

Credits: 0.5

EGR 4000: Undergraduate Research I

Student participation in independent research under faculty supervision, frequent conferences with advisor on literature search, theoretical and experimental research.

Credits: 1

EGR 4007: Profess. & the Def. of Success

Interdisciplinary course directly and specifically focused on professionalism as the path to near term and long term career success. Complimentary to senior year Capstone Design Experiences.

Credits: 1

Prerequisites:

EGR 3006

EGR 4008: Profess: Your Key to Success

An in-depth analysis of required professional skills including leadership, management, ethical behavior, team and group dynamics, time management, listening, technical writing, negotiations and self-awareness delivered through a combined lecture/seminar format.

Credits: 3

EGR 5001: Engineering Service Learning

Service learning experience related to engineering. Mandatory weekly group meetings as well as participation in seminar series. Fee associated with course. Consent of instructor required.

Credits: 1

EGR 5002: EGR Service Learning Leader

Leading a service learning trip related to engineering. Mandatory weekly group meetings as well as participation in seminar series. Fee associated with course. Consent of instructor required.

Credits: 1

Prerequisites:

EGR 5001

EGR 5003: Engineering Svc Learning Capst

Engineering Service Learning Capstone.

Credits: 1

Prerequisites:

EGR 5001 (or concurrently) and EGR 5002 (or concurrently)

EGR 5050: Professional Practicum

Provides work experience for an undergraduate student who has been offered an opportunity to work in a field directly related to their major. Permission of Department of Chair and Associate Dean required.

Credits: 0

EGR 7110: Fundamentals-Sustainable Engr

Introduction to the current state of science & public policy directions; development of a comprehensive framework for evaluating the challenges and opportunities resulting from Global Climate Change and Sustainability; application of technical/economic tools for solving high-potential opportunities.

Credits: 3

EGR 7800: Solar Therm. Energy Conversion

Fundamentals of solar radiation, heat and fluid transport in active and passive solar collectors, solar ponds, solar cooling, and photovoltaic energy conversion. Analysis and design of active and passive solar systems. Needs undergrad material equivalent of ME 3100 and ME 3600.

Credits: 3

EGR 8301: Control Systems Engineering

Review of dynamic process modeling, linearization, transfer function and state-space models. Stability and dynamics of open-loop and closed-loop systems. Feedback control system design and analysis in the frequency and time domain. Topics include: Bode, Nyquist, and Root locus design; multivariable control; feedforward control.

Prerequisite: Undergraduate background in systems and control.

Credits: 3

EGR 8302: Digital Control

Introduction to digital control analysis & design techniques applied to discrete-time & sampled continuous-time systems. Sampling, difference equations, the Z-transform & modified Z-transform, discrete transfer function & state-space models, discrete-time regulator & observer design, stability of discrete-time systems, discrete linear quadratic regulator & linear quadratic Gaussian formulation. Prerequisite: EGR 8301 or equivalent with permission of the instructor.

Credits: 3

Prerequisites:

EGR 8301

EGR 8304: Nonlinear Control

Advanced treatment of nonlinear dynamical systems and control theory using modern techniques with applications. Topics include: Lyapunov stability theory, partial stability finite-time stability and control design, control Lyapunov functions, nonlinear optimal control, sliding mode control, and adaptive control.

Credits: 3

EGR 8305: System Identification

Introduction to system identification techniques for linear systems. Topics include: non-parametric time- and frequency-domain methods, parametric model structures, noise models, parametric estimation methods, recursive estimation, bias and data pre-filtering, validation methods.

Credits: 3

EGR 8306: Nonlinear Dynamics

Introduction to nonlinear dynamic analysis using analytical, graphical & numerical techniques. Linear system theory, the nonlinear pendulum, stability concepts, bifurcation theory, self-excited oscillations, overview of asymptotic methods, Floquet theory, Poincare maps, & chaos.

Credits: 3

EGR 8308: Feedforward Control

Introduction to feedforward control techniques with an emphasis on model-based methods. Design of feedforward inputs for linear systems, nonlinear systems, nonminimum phase systems, and systems with actuator redundancy; integration of feedforward and feedback; iterative control; dealing with plant uncertainty.

Credits: 3

EGR 8310: Optimization for Engineers

Linear programs, non-linear programs, and integer programs. Gradient and steepest descent methods and Newton's method for constrained and unconstrained problems. Interior point methods including cutting planes and branch bound methods. Combinatoric optimization. Heuristic methods. Engineering applications of optimization. Prerequisite: ME 7000 (concurrency allowed) or instructor's permission.

Credits: 3

Prerequisites:

ME 7000 (or concurrently)

EGR 8311: Machine Learning for Engineers

Introductions to machine learning. Overview of optimization. Least mean square algorithm and regression analysis. Artificial neural networks, radial basis function, kernel learning and support vector machines. Decision trees. Genetic algorithms. Swarm intelligence. Bayesian techniques. Hidden Markov Models. Hopfield network and Neurodynamics. Prerequisite: ME 7000 (concurrency allowed) or Instructor's permission.

Credits: 3

Prerequisites:

ME 7000 (or concurrently)

Engineering Entrepreneurship

Program Directors: Lauri Olivier, Ph.D., MBA & Rick Stumpf

Office Location: Aldwyn One - Second Floor

Telephone: (610) 519-7373 or (610) 519-7367

Email: lauri.olivier@villanova.edu or richard.stumpf@villanova.edu

EGEN 2100: Creativity and Innovation

An introduction to various methods, practices, and tools that can be effectively used to develop creative solutions to problems. Different exercises and assignments will be used to allow students to demonstrate their creative potential both as individuals and as part of a team. The connection between creativity and innovation will also be addressed.

Credits: 1

EGEN 2150: Intro to Entrepreneurial Techn

Students will gain a working understanding of technologies of interest to entrepreneurs. The course will be refreshed yearly, but the initial offering is expected to include emerging technologies and day-to-day technologies. NOTE: Only available as part of the Engineering Entrepreneurship Summer Institute (E2SI)

Credits: 3

EGEN 2200: Opport Indentif & Bus Principl

Foundation course for moving an idea from concept to reality. Topics include: opportunity discovery and analysis; business and engineering steps in product design; protecting ideas; prototyping; technical and business feasibility; team dynamics; introduction to venture financing and marketing. Prereq: Membership in the Engineering Entrepreneurial Minor

Credits: 3

EGEN 2300: Entrepreneurship Practicum I

Provides work experience in a start-up business environment for a sophomore student registered in the engineering entrepreneurship minor program.

Credits: 1

Co-Requisites:

EGEN 2200

EGEN 3100: Feas Analysis for Entrepreneur

Learn and apply techniques to prove or disprove the technical and business feasibility of product and service concepts. Help students understand plans and begin to create business plans for their own business concepts. Additional topics in opportunity analysis, feasibility analysis, accounting, marketing, financing, and product development management. Any engineering major in engineering entrepreneurship minor program.

Credits: 3

EGEN 3200: Product & Service Prototyping

Team-based course focused on the design and construction of a proof-of-principle prototype which demonstrates a product or service. Students will create a high-level product design specification (PDS), work breakdown structure (WBS), and budget for their prototype; conduct market and competitive analysis; hold consumer focus interviews and report findings. Course mastery includes the development of an investment pitch for potential funding.

Credits: 3

Prerequisites:

EGEN 3100

EGEN 3300: Entrepreneurship Practicum II

Provides work experience in a start-up business environment for a junior student registered in the engineering entrepreneurship minor program.

Credits: 1

Co-Requisites:

EGEN 3100

EGEN 3400: Entrepreneurship Practicum III

Provides work experience in a start-up business environment for a junior student registered in the engineering entrepreneurship minor program.

Credits: 1

EGEN 4100: Market, Finance, and Vent Plan

Students will experience the detailed steps in designing and commercializing a product. Development by a team of multidisciplinary engineering students of a professional quality business model for a technology based product or service of the students' choosing. Learn how to set up, staff, run and finance a company. Additional topics include Entrepreneurship Leadership, Innovation Management, and Risk Management. Cover activities of corporate CEOs, CTOs, CFOs and COOs.

Credits: 3

Prerequisites:

EGEN 3200

EGEN 4500: Sustain. Bus. Models BOP Techn

The design of business models for very low-income customers. Topics include: Money flow in low income communities, micro-lending, co-creation of technologies, appropriate technologies, and business model canvas.

Credits: 3

EGEN 5100: Medical Tech Commercialization

Working with a novel medical device, the course covers the process of medical technology commercialization. Topics include voice of the customer, clinical needs analysis, competitive positioning, and market entry strategy. Intellectual property management, regulatory process, and reimbursement are explored.

Credits: 3

English

Upcoming Courses

- [Fall 2020 Upper-Level Courses](#)
- [Fall 2020 1842 First-Year Courses](#)

ENG 1040: English as 2nd Language

This course develops the academic reading, writing, and research skills of students new to undergraduate study in the U.S. for whom English is a second language. Course aims to refine grammatical, organizational, rhetorical, and genre-based skills crucial for success.

Credits: 3

ENG 1050: The Literary Experience

Introduction to literature and the methods of literary analysis. Close readings of texts. Individual sections vary in the works covered.

Credits: 3

ENG 1842: Perspectives in Literature

Close readings of literary texts, examined from particular thematic perspectives. Individual sections vary in the works covered. Does not fulfill Core Curriculum requirements. Preference given to freshman students.

Credits: 3

ENG 1903: Internship Elective

Credits: 3

ENG 1906: Internship Elective

Credits: 6

ENG 1909: Internship Elective

Credits: 9

ENG 1975: Core Lit and Writing Seminar

Careful reading of and intensive writing about literature. Individual sections vary in themes and works covered. Restricted to Arts & Sciences students governed by the New Core Curriculum instituted in Fall 2011.

Credits: 3

ENG 2000: Adv Expository Writing

Practice in writing reports, reviews, arguments, description; emphasis on organization and development.

Credits: 3

ENG 2003: Intro to Creative Writing

Designed for students who wish to experiment with composing several kinds of creative writing: short fiction, creative nonfiction, and poetry.

Credits: 3

ENG 2004: Writing Creative Nonfiction

Creative nonfiction has been described as "true stories well told." Students will write, close read, and workshop "true stories," including travel writing, food writing, and the lyric essay.

Credits: 3

ENG 2005: Writing of Short Story

In this writing workshop course, we will explore setting, point of view, characterization, plot and other craft elements that make short stories run. We will read influential authors and give feedback to one another to foster our growth as writers.

Credits: 3

ENG 2006: The Writing of Poetry

Instruction in poetry writing, including how to craft imagery, figurative language, sound, line, and rhythm, as well as traditional and contemporary forms. Students read widely and write lyric, narrative and experimental poems that are shared in a supportive workshop setting.

Credits: 3

ENG 2007: The Writing of Screenplays

Instruction in writing screenplays. Limited to 15 students. Permission of instructor required.

Credits: 3

ENG 2009: Writing the Traditional Novel

A creative writing workshop course designed for students eager to leap into the complex process of writing a novella or short novel. Students will close-read short novels to analyze elements of craft and workshop sections of their own novel in-progress.

Credits: 3

ENG 2012: Advanced Creative Writing

Usually taught by visiting professors. For writers of poetry and short fiction. Reading of models of exemplary technique and application of these to students' own work. Critical feedback from peers and professors.

Credits: 3

ENG 2013: Writing of Memoir

Memoir is an opportunity to understand life. This writing workshop provides students with practical skills in reading and writing about the events, memories, places that inform their lives.

Credits: 3

ENG 2016: Writing Speculative Fiction

This creative writing workshop explores craft elements of writing short- and long-form fiction. Reading and writing assignments focus on speculative fiction, including the genres of horror, fantasy, science fiction and historical fiction.

Credits: 3

ENG 2017: Writing Detective Fiction

Do you love detective fiction? Have you always wanted to write your own "whodunit?" In this course, you'll read and analyze classic and contemporary detective fiction while working to produce, workshop, and polish your own creative work.

Credits: 3

ENG 2018: Nature Writing Workshop

The natural world will be a source for the creative non-fiction, poetry, and fiction pieces students will write in this class. Through readings, field trips, writing exercises, and workshops students will learn to sharpen their language and see more deeply.

Credits: 3

ENG 2019: Writing for Social Change

Can stories change society? In this workshop you will braid your social justice, environmental, healthcare, and migration interests into creative pieces. We will read works by contemporary writers that address existing problems and call for justice, resistance, equality, activism.

Credits: 3

ENG 2020: Digital Journalism

Introduces students to the fundamentals of journalism, with an emphasis on digital media. Class will focus on the ins and outs of digital journalism as a practice, with students gaining hands-on experience within a variety of media platforms.

Credits: 3

ENG 2021: Journalism for Co-ops

Journalistic principles and practice for students doing individual co-ops via ENG 2999. Distance learning.

Credits: 3

Co-Requisites:

ENG 2999

ENG 2022: Writing Through Conflict

In this creative writing workshop you will study contemporary Irish/Northern Irish writers while working on your own creative pieces. Over semester break, you will travel to Belfast for a week of seminars and creative writing workshops at the Seamus Heaney Centre.

Credits: 3

ENG 2023: Journalism

Introduces students to key techniques of news gathering and news writing. We will also explore the principles and rules that guide the writing of news pieces, editorials, and features.

Credits: 3

ENG 2030: Tutoring Writers

Theory and practice of Writing Center Work; writing, editing and tutoring skills. Permission of instructor required.

Credits: 3

ENG 2041: Travel Writing

Writing of travel narratives with focus on descriptive and narrative techniques. Readings in contemporary travel tales as well as critical theory associated with travel writing.

Credits: 3

ENG 2043: Worldwide Popular Culture

An analysis of notable works of art, music, literature, video and social media created by people of various international, ethnic and minoritized groups to publicize situations of importance to their communities.

Credits: 3

ENG 2045: Sp Top in Writing & Rhetoric

Special writing and rhetoric topics selected by the instructor.

Credits: 3

ENG 2046: Teach ENG to Non-Nat Speaker

This service-learning course provides students with the background, tools, and experience needed to teach English to non-native speakers. In addition to classes at Villanova, students practice teaching at a Hispanic culture center.

Credits: 3

ENG 2050: Writing for Magazines

The craft of magazine writing. Genres of non-fiction including profile writing, essay writing, travel writing, criticism, and long-form journalism.

Credits: 3

ENG 2051: Sports Writing

Sports are more than games; they're a crucible for examining human experience. By examining the work of some of the genre's best writers, students will learn to report and write about this arena with deeper understanding and insight.

Credits: 3

ENG 2060: Desktop Publishing

Use of software to write editorials, news articles, and press releases, and to design flyers, brochures, and newsletters for community organizations. The basics of web page design.

Credits: 3

ENG 2061: Editing & Publishing

Literary publishing in a diverse, compelling field involving both art and commerce. This hands-on class explores the economic, social, and artistic forces that shape contemporary literature. Grapple with what it means to "make culture" while honing editorial skills.

Credits: 3

ENG 2070: Legal Writing and Analysis

Fundamentals of legal writing and analysis.

Credits: 3

ENG 2250: Ways of Reading:Lit Analysis

An exploration of how we engage, understand, explicate, and enjoy texts of all sorts.

Credits: 3

ENG 2300: Women in Literature

Study of the place of women in literature, with emphasis on modern fiction, drama and poetry written in English.

Credits: 3

ENG 2301: Science Fiction

Science fiction as a significant genre.

Credits: 3

ENG 2302: Apocalyptic Literature

One of the oldest forms of narrative, apocalyptic literature is more popular - and powerful - than ever. Starting with Revelation, this course traces this tradition through fascinating poems, stories, novellas, novels and films to the present day.

Credits: 3

ENG 2304: Cont World Lit & Environment

The study of global contemporary fiction, poetry, creative non-fiction, and film that focuses on the environment, climate change, social justice and the future of nature.

Credits: 3

ENG 2305: Black Life Writing

Examines major autobiographies by African American and Africans, exploring self, truth, the body politic, and construction of identity. These authors develop crucial dimensions of black intellectual self-representation, whether as individuals or as part of a larger portrait of Black lives.

Credits: 3

ENG 2306: Harry Potter: Quests/Questions

In this course we will use the tools of literary analysis to discuss all seven Harry Potter novels. Central topics will include how the series evolves; Rowling's use of novelistic form, character and characterizations, and literary models; and the books' representations of gender, class, and other social issues.

Credits: 3

ENG 2310: Study of Poetry

Concepts of poetry with detailed analyses of selected poems.

Credits: 3

ENG 2340: Modern Short Story

Contributions to the short story form made by American, Irish, British, and Continental writers.

Credits: 3

ENG 2341: American Short Story

The short story can span vast reaches of time and space within a few pages. We examine a range of American short stories, from the fanciful to the frightening, with particular attention to questions of race, gender, and sexuality.

Credits: 3

ENG 2350: Narrative Television

Plot, character, voice, point of view in visual, aural, dramatic, and verbal aspects of serial television. What works similarly or differently in television and prose fiction? In television and film?

Credits: 3

ENG 2360: Adaptation:Film as Literature

The relationship between movies and literature dates back to film's earliest days. Comparing films and texts allows for an explanation of storytelling and the fascinating choices auteurs make. Plot, tone, and symbolism are considered alongside questions of power and representation.

Credits: 3

ENG 2400: Classical Hero in Ancient Lit

In this course we delve into some of the most famous and influential works of classical Western literature, including Homer, Sophocles, Euripides, and Virgil. We will discuss the complexities and depth of their explorations of issues such as war, glory, political power, the place of the gods, and tragic loss.

Credits: 3

ENG 2410: The Art of Translation

Translation is a passport to the world. Explore texts translated from a range of languages into English. Translation theory and experiments in translation will support our reading and writing across boundaries. Fluency in a second language is not required.

Credits: 3

ENG 2450: Irish Epics, Visions & Hauntings

A study of Irish literature from its origins in the world of Celtic mythology, epic and saga through the development of Anglo- Irish literature.

Credits: 3

ENG 2500: Irish Revival

Selected readings in the drama and fiction literature of Ireland in the 20th century.

Credits: 3

ENG 2610: Tutorial Readings

Program of approved readings under the supervision of a selected faculty member; examination on readings and a lengthy paper required. Restricted to senior English majors with high cumulative averages. Permission of chair required; ordinarily may not be repeated.

Credits: 3

ENG 2790/2791/2792/2793: Topics in Lit. and Culture

Specific topics vary each semester.

Credits: 3

ENG 2791: Topics in Lit. and Culture

Specific topics vary each semester.

Credits: 3

ENG 2800: Teaching Practicum

Open only to senior English majors with a GPA of at least 3.5. Permission of consulting teacher and chair required.

Credits: 3

ENG 2991: English Majors in Workplace

Communicating and applying skills of English Majors in the workplace.

Credits: 1

ENG 2992: English Topics Abroad

Co-requisite 1-credit course designed to provide an embedded study-abroad experience to complement a requisite English course.

Credits: 1

Co-Requisites:

ENG 2022

ENG 2993: Internship

Internship

Credits: 3

ENG 2996: Internship

Credits: 6

ENG 2998: Publishing Co-op

Full-time employment with a selected firm in the area of publishing, where experience is gained through appropriate training, instruction, and supervision. Approval of English Department Chair required.

Credits: 6

ENG 2999: Publishing Co-op

Full-time employment with a selected firm in the area of publishing, where experience is gained through appropriate training, instruction, and supervision. Approval of English Department Chair required.

Credits: 9

ENG 3000: Intro to OE Lang & Lit

Old English literary works in translation and original language.

Credits: 3

ENG 3001: Foundational Lit in ENG 1

Influential British literature from beginnings to 1750, tracing key ideas, power relations, and genres that still impact literature in English, and Anglophone culture, today. Relationships between writing and political change, media history, gender, spirituality, the environment, oppression and liberation.

Credits: 3

ENG 3150: Chaucer

This course introduces the work of Geoffrey Chaucer through a reading of his lively collection of stories and storytellers, The Canterbury Tales. Through its devout stories, explicit comedies, and probing romances, we will explore medieval society, Chaucer's insights on subjectivity, and influential medieval genres.

Credits: 3

ENG 3160: Fabulous Middle Ages

The Middle Ages mixed history (historia) and fable (fabula) freely. This course traces the intersections between the fabulous (the fictional and fantastic) and the "real" in medieval narratives about the history, global travel, and the natural world.

Credits: 3

ENG 3170: Love & War in Medieval Romance

Medieval romances - texts about chivalry and love - have shaped everything from racial identity to flirting. This course considers how romances depict sexuality and gender; construct notions of religious otherness; and shape ideas about peoples and political power.

Credits: 3

ENG 3181: Irish Epics, Visions&Hauntings

A study of Irish literature from its origins in the world of Celtic mythology, epic and saga through the development of Anglo-Irish literature.

Credits: 3

ENG 3190/3191: Medieval Brit/Ir Lit. & Cult.

Specific topics vary each semester.

Credits: 3

ENG 3195: Medieval Saints and Sinners

In this course, we will consider how and why secular Renaissance plays adapt plots, characters, and motifs of medieval religious literature, and how they both exploit and challenge medieval moral extremes, including the saint, martyr, virgin, whore, torturer, pagan, and devil.

Credits: 3

ENG 3201: English Renaissance

Non-dramatic literature of the English Renaissance.

Credits: 3

ENG 3230: Eliz & Jacobean Drama

Playwrights of the English Renaissance excluding Shakespeare.

Credits: 3

ENG 3250: Shakespeare

This course studies the plays and/or poems of Shakespeare. It may be focused on a particular genre of Shakespeare's work, a period in his career, or a topic. The course seeks to develop students' appreciation of Shakespeare's artistry and relevance.

Credits: 3

ENG 3260: Revenge Tragedy

This course studies a popular and influential type of Renaissance drama: the revenge tragedy, a genre preoccupied with spectacular acts of murder and revenge and with the psychological, social, familial, and political circumstances that motivate and justify violent revenge.

Credits: 3

ENG 3290/3291: Renaissance Br/Ir Lit. & Cult.

Specific topics vary each semester.

Credits: 3

ENG 3300: 17th Cent Poetry & Prose

The poetry of Donne, Jonson, Lanyer, Herrick, Herbert; essays, sermons, journals, letters, pamphlets of Bacon, Donne, Milton, and others.

Credits: 3

ENG 3350: Milton

Why has the writing of John Milton (especially Paradise Lost) fascinated and infuriated English speaking people for 350 years? We will explore how and why Milton's sometimes radical ideas about conscience, liberty, gender, and marriage remain influential, and how other writers (especially women) have responded to Milton.

Credits: 3

ENG 3425: British Gothic Fiction

Traces the development of British gothic fiction from the late eighteenth century to today, exploring its themes of violence, sexuality, anxiety and social turmoil alongside its historical contexts and major theoretical approaches to understanding this genre.

Credits: 3

ENG 3426: Science, Lit & Enlightenment

In this course, students will read and analyze some of the key philosophical texts that established the founding principles of modern science alongside literary texts from different genres that explore science's social meaning and its moral and political implications.

Credits: 3

ENG 3427: Adventures in 18th Century Lit

Analyzing realist novels, witty comedies, original tales, and mock epic-poems, we will explore the techniques and styles of authors fascinated by adventure and committed to the power of human reason to discover novel truths about nature, politics, and the rise of a modern commercial economy.

Credits: 3

ENG 3428: Brit Novel in Romantic Period

Tracing the expansion in the scope and popularity of the novel as a literary form, we will consider how the major political developments of the Romantic period including the French Revolution and the abolition of the slave trade, shaped its central themes of transgression, violence, and the precariousness of social order.

Credits: 3

ENG 3430: Restor & 18th cent Drama

Dramatists from Dryden to Sheridan.

Credits: 3

ENG 3440: Harlots, Rakes, & Libertines

Discover the Libertine authors of the seventeenth and eighteenth century, whose witty, scandalous works promoted a freethinking philosophy of sexual pleasure and individual freedom, and provoked critics who blamed them for modern social problems such as prostitution, poverty, and crime.

Credits: 3

ENG 3450: Dryden Swift & Pope

The study of the principal works of the major Neo-Classical writers.

Credits: 3

ENG 3490/3491: 18th c. Brit/Ir Lit. & Culture

Specific topics vary each semester.

Credits: 3

ENG 3500: Foundational Lit. in English 2

Influential British and Irish literature since about 1800 (covering the period after ENG 3001), exploring key ideas, power relations, and genres that still shape literature in English today. Topics include political change, gender, artist and audience, and the environment.

Credits: 3

ENG 3501: Early Romantic Writers

Wordsworth, Coleridge and other writers of the first half of the Romantic period.

Credits: 3

ENG 3502: Later Romantic Writers

Byron, Shelley, Keats and other writers of the second half of the Romantic period.

Credits: 3

ENG 3504: 19th Cent Brit Women Writers

Writings by important nineteenth-century British women novelists and poets, including Mary Shelley, Charlotte Bronte, Christina Rossetti, Elizabeth Barrett Browning, and others.

Credits: 3

ENG 3505: Poetry & Prose 1830-1865

The poetry and prose of Carlyle, Tennyson, Browning, Newman, Arnold, and other writers of the era.

Credits: 3

ENG 3506: Poetry & Prose 1865-1900

The poetry and prose of Ruskin, Rossetti, Swinburne, Hopkins, Pater, Hardy, and others.

Credits: 3

ENG 3507: Strange Cases: ImagHealth&Illness

Explore literary responses to pivotal developments in medical science and practice from the eighteenth century to the present. Study works that engage with the new ideas about illness, treatment, and disability that arose alongside changing understandings of the human body.

Credits: 3

ENG 3520: 19th Cent British Novel

Selected novelists from Jane Austen to Thomas Hardy.

Credits: 3

ENG 3525: Dickens

Selected novels by Charles Dickens.

Credits: 3

ENG 3530: Victorian Doubles

Investigate how Victorian literature represents doubles - self and other, women and men, past and present, public and private - and study changing constructions of gender, industrialization, and imperial expansion in nineteenth-century Britain.

Credits: 3

ENG 3535: Gender, Authorship & Anonymity

This class studies how and why women writers used pseudonyms and forged collective authorial identities to grapple with gendered expectations. It considers the knotty politics of authorship, biography, and autobiography in nineteenth-century Britain and the twenty-first century.

Credits: 3

ENG 3540: Institutional Fictions

This course examines the intriguing relationship between literature and institutions, including governments, schools and prisons. Reading nineteenth-century literature in relation to our contemporary moment, we focus especially on universities, interrogating students' experiences of universities and institutional narratives about universities.

Credits: 3

ENG 3580: Topics in 19th C Irish Lit&Cul

Special topic in 19th century Irish literature and culture. For access to the full course description, go to this course number in the Villanova Master Schedule and click on the "syllabus available" link.

Credits: 3

ENG 3590/3591: 19th c. Brit/Ir Lit. & Culture

Specific topics vary each semester.

Credits: 3

ENG 3610: Modern British Poetry

British poetry from 1900 to the present, with emphasis on Hopkins, Hardy, Yeats, Eliot, Auden, Muir, Edith Sitwell, K3 Dylan Thomas, and Philip Larkin.

Credits: 3

ENG 3615: James Joyce

A study of the novels and short stories of James Joyce, with concentration on Ulysses.

Credits: 3

ENG 3616: Irish American Drama & Film

Depictions of the American Irish in popular drams and films from colonial times to the present. Popular Irish-American actors and their appeal, the Irish-American musical stage tradition, and the cross-over from popular drama to popular films such as John Ford's *The Quiet Man* and *The Informer*.

Credits: 3

ENG 3617: Irish Revivalism

Study of Irish Revival of the late-nineteenth and early-twentieth century; focus on revivalism, gender, and colonial politics, reading multiple literary genres, beginning with Jane Wilde and William Butler Yeats.

Credits: 3

ENG 3618: Intro to African Lit I

Chronological study of forms of cultural and literary production in Africa. Begins from oral epic traditions up to late 20th century written literatures. Examines postcolonial theory and the issues of language and "authenticity" in representations of African societies.

Credits: 3

ENG 3619: Intro to African Lit II

Continuation of study of the various literary practices in Africa, from the late 20th-century writing to 21st-century artists. In addition to postcolonial representation, examines African feminism, Afropolitanism, and Africa and Diaspora intersections in age of globalization.

Credits: 3

ENG 3620: Modern British Novel

Modernism exploded onto the literary scene when writers, exhausted by Victorian strictures, explored experimental forms, taboo language, and new ideas about empire, sexuality, race, and technology. We will read 20th-century British novels from 1900 through World War II.

Credits: 3

ENG 3621: Contemp British Novel

This course explores British fiction written after the second World War until today. What stories do novelists tell about the meaning of "Britishness" after the British empire? We investigate themes of nostalgia, xenophobia, feminism, and class warfare in stylistically varied novels.

Credits: 3

ENG 3622: Virginia Woolf

Virginia Woolf, novelist, essayist, and diarist, is one of the most influential 20th-Century Writers. Woolf explores the self, modernity, depression, and the joy of an ardent feminist life. We will read Woolf's novels and contemporary debates about form, gender, and sexuality.

Credits: 3

ENG 3630: Modern British Drama

British drama from the 1890s to the Theatre of the Absurd.

Credits: 3

ENG 3640: Irish Drama

Irish plays and performances including Abbey Theatre plays by William Butler Yeats, Augusta Gregory, John Millington Synge, and Teresa Deevy, followed by works by Samuel Beckett, Brian Friel, Marina Carr and new Irish theatre.

Credits: 3

ENG 3650: African Drama

Examination of the aesthetics, politics, and practices of the theatre and drama in Africa. Focused on written plays, course explores drama performances on stage, television, and movies. Introduces students to role-playing and small-scale adaptation of texts to American contexts.

Credits: 3

ENG 3660: Contemp. Lit & Film of India

India produces some of the most innovative and engrossing literature in the world, while also releasing more films than any other nation. Through both forms, we'll explore debates in contemporary India concerning border tensions, caste, gender, fantasy, and imperial histories.

Credits: 3

ENG 3661: Black British Literature& Film

Focusing on notions of "blackness" and emigration, this course examines major British literature and film by persons of African descent and immigrants from former colonies in Asia and Africa. Writers include Zadie Smith, Sam Selvon, Hanif Kureishi, Bernardine Evaristo, Buchi Emecheta.

Credits: 3

ENG 3680: Top: 20th-21st C Irish Lit&Cul

Special topic in 20th-21st century Irish literature and culture. For access to the full course description, go to this course number on the Villanova Master Schedule and click on "syllabus available" link.

Credits: 3

ENG 3682: Contemporary Irish Literature

Readings of Irish poets and prose writers of the last fifty years, starting with Seamus Heaney and Edna O'Brien, and including contemporary works by visiting Irish Heimbold Chairs.

Credits: 3

ENG 3690/3691: Br/Ir Lit. & Cult. after 1945

Specific topics vary each semester.

Credits: 3

ENG 3691: Br/Ir Lit. & Cult. after 1900

Specific topics vary each semester.

Credits: 3

ENG 4000: American Literary Trad 1

By studying Black, Latinx, Native, and white writers from the 1600s through 1945, this course introduces the literary history of what we now call the United States, inviting students to learn from stories and voices typically left out of more official "American" history.

Credits: 3

ENG 4001: Major American Writers I

This course offers a focused examination of a handful of key American writers from early influential voices to major figures publishing to 1945. Significant time will be given to each writer, and a range of genres and themes will be considered.

Credits: 3

ENG 4003: African-American Lit Trad 1

Black people helped craft the narrative of their lived experiences from their arrival in the New World. Students read the earliest African American literary offerings through the first decade of the twentieth century, including political treatise, autobiography, poetry and novels.

Credits: 3

ENG 4010: Early American Textual Bodies

This course asks: how can we read about early American bodies, and how are bodies legible? We will chart how Indigenous, Black, and settler persons used developing forms and genres to navigate identity in texts from sixteenth- through nineteenth- century America.

Credits: 3

ENG 4040: American Short Story

Development of the short story in America from Washington Irving to the present.

Credits: 3

ENG 4500: American Slave Narrative

Slavery as a central paradox of American history and literature with emphasis on race and gender. Readings by Douglass, Brent, Stowe, Morrison, and others.

Credits: 3

ENG 4501: Amer Transcendentalism

An intensive analysis of Emerson, Thoreau, and other Transcendentalists.

Credits: 3

ENG 4502: The Black Atlantic

This interdisciplinary course looks at the history and literature of the transatlantic slave trade, which fundamentally altered Europe, Africa, and the Americas during the early modern era. It also considers the diasporic Black culture that emerged during and after slavery.

Credits: 3

ENG 4503: Indigenous Lit of the Americas

How have Indigenous peoples of the Americas created their own literary traditions? This course introduces students to a wide range of Indigenous literatures produced before 1900, examining how Native writers navigated varying forms that challenge conventional understandings of "literature".

Credits: 3

ENG 4505: Concord Writers

The major works of and interactions between Concord's most celebrated writers: Ralph Waldo Emerson, Henry David Thoreau, Nathaniel Hawthorne, Bronson and Louisa May Alcott.

Credits: 3

ENG 4510: Early American Poetry

We will immerse ourselves in four transformative poets -- Anne Bradstreet, Phillis Wheatly Peters, Walt Whitman, and Emily Dickinson -- while also considering how their lives and work have inspired contemporary culture from prestige television to Taylor Swift.

Credits: 3

ENG 4515: American Gothic

The nature and evolution of horror writing in America from the eighteenth-century to today.

Credits: 3

ENG 4520: American Novel to 1945

The genesis of the American novel.

Credits: 3

ENG 4530: The American Renaissance

Pre-Civil War text, primarily from 1850-1855.

Credits: 3

ENG 4540: The American Revolutionary Era

Lives and writings of the American Revolutionary Era Founders.

Credits: 3

ENG 4545: Early American Novel

This course survey's groundbreaking U.S. novels from the American Revolution to the Civil War. We'll focus on literary aesthetics as well as how novels affirm or resist prevailing politics, paying particular attention to racism, settler colonialism, capitalism, and patriarchy.

Credits: 3

ENG 4590/4591/4592: Am. Lit. & Cult. before 1945

Specific topics vary each semester.

Credits: 3

ENG 4591: Am. Lit. & Cult. before 1945

Specific topics vary each semester.

Credits: 3

ENG 4600: Amer Literary Trad 2

A survey of American literature from 1945 to the present, meant to give students familiarity with a wide range of authors and genres who have contributed significantly to American writing in the 20th century and beyond.

Credits: 3

ENG 4601: Major American Writers II

This course offers a focused examination of a selection of the most influential American writers writing from 1945 to the present. Significant time will be given to each writer, and a range of genres and themes will be considered.

Credits: 3

ENG 4602: African American Lit Trad 2

Contemporary African American literature narrates exciting social, political and aesthetic changes in the US. Students will read a variety of literature, including essays, short stories, poetry, novels and plays, beginning with the Harlem Renaissance to today.

Credits: 3

ENG 4603: African American Short Story

African American short fiction has taken on a number of forms throughout the 20th and 21st century. Students will read works by writers diverse as Charles Chesnutt, Zora Neale Hurston, James Baldwin, Alice Walker, Toni Morrison, Octavia Butler and Edwidge Danticat.

Credits: 3

ENG 4605: Amer Poetry: 1900-1950

American poets of the first half of the twentieth Century, including Robinson, Frost, Stevens, Cummings, Williams, Millay, Pound, Eliot, and others.

Credits: 3

ENG 4606: Alone Together-Social Dist Lit

How can we feel connected even when alone? This course explores how the activities of reading and writing produce the strange and sustaining feeling of being alone together. We'll examine examples of this paradoxical condition in recent fiction and poetry.

Credits: 3

ENG 4610: African American Poetry

The exquisite poetry of 18th, 19th, 20th and 21st century African American writers, like Wheatley, Dunbar, Johnson, Hughes, Brooks, Sanchez, Giovanni, Angelou, Dove, Rankine and Mullen introduces students to a range of experience and the power of language.

Credits: 3

ENG 4615: Amer Poetry since 1950

American poets since 1950, including Lowell, Plath, Sexton, Snodgrass, Ginsberg, Rich, Snyder, Baraka, and others.

Credits: 3

ENG 4618: Harlem Renaissance

F. Scott Fitzgerald called the years between the wars the "Jazz Age." Folks uptown recognized that a Renaissance was happening in Harlem. Students will study major works by African Americans written during the 1920s and 1930s.

Credits: 3

ENG 4619: The Works of Edith Wharton

The Works of Edith Wharton in context.

Credits: 3

ENG 4620: American Novel 1895-1950

Representative novelists from Crane to Steinbeck.

Credits: 3

ENG 4621: Amer Novel since 1950

Novels of the late Modern Period and of the early Post-modern period.

Credits: 3

ENG 4622: African American Women Writers

From Phyllis Wheatley to Zora Neale Hurston, Lorraine Hansberry to Alice Walker, Toni Morrison to Chimamanda Adichie, black women writers have helped shape and complicate the contours of the American literary canon. Students read an exciting range of genres.

Credits: 3

ENG 4623: African American Novel

From American slavery to Afrofuturism, writers of the African American novel have explored the lived experience of black people in America and throughout the African Diaspora.

Credits: 3

ENG 4624: Crime Fiction and Gender

This course studies crime and detective fiction as an intellectually rich phenomenon preoccupied by gender and sexuality. It examines how crime narratives from the nineteenth century to the present critique socioeconomic realities and address fundamental questions about the nature of knowledge.

Credits: 3

ENG 4630: American Drama to 1960

Major plays of the period.

Credits: 3

ENG 4631: Amer Drama since 1960

Major plays of the period.

Credits: 3

ENG 4632: African American Drama

The play's the thing to capture the conscience of not only a king but a nation. Students will read plays written by African Americans including Lorraine Hansberry, Amiri Baraka, August Wilson, Anna Deavere Smith, and Suzan Lori Parks.

Credits: 3

ENG 4636: Contemp Amer Women's Poetry

The work of American women poets from the last forty years.

Credits: 3

ENG 4640: Contemp Amer Women's Lit

Writings by women from WW II to the present. Works by Ann Petry, Maxine Hong Kingston, Toni Morrison, Joyce Carol Oates, Kathy Acker, Bobby Ann Mason, and others.

Credits: 3

ENG 4641: American Immigrant Narratives

This course examines the fierce, vibrant strain of writing by immigrants who have pushed beyond boundaries of genre and nation to tell their stories. It focuses on fiction and creative nonfiction published in the U.S. after 1900.

Credits: 3

ENG 4645: Post Modern Amer Fiction

Experimental narratives by American writers of the last four decades. Works by Vladimir Nabokov, Thomas Pynchon, Ishmael Reed, Don DeLillo, Joanna Russ, and others.

Credits: 3

ENG 4646: Race & Ethnicity: Amer Novel

Canonical texts that treat questions of race and ethnicity. Focus on the critical role of language and literature in constructing and deconstructing racial categories.

Credits: 3

ENG 4647: Gender & Sexuality in US Lit

This course examines a fascinating range of contemporary US literary texts to explore the ways that gender and sexuality intersect with race, class and other categories of identity to form our experiences of selfhood, community, national belonging, and power.

Credits: 3

ENG 4648: U.S. Empire & Cont. Am. Lit.

Examines American literature in the context of U.S. empire, including histories and effects of settler colonialism, overseas expansion, and war. Focuses on authors of color from 1945 to the present.

Credits: 3

ENG 4649: Intro to Asian American Lit

Examines literature, film art, and other cultural productions by Asian Americans and explores Asian American histories from the early 20th century to the present.

Credits: 3

ENG 4651: Lives of the Undocumented

What does it mean to be "undocumented?" In this course, we will learn about belonging and citizenship from critical essays and memoirs written by "undocumented Americans."

Credits: 3

ENG 4652: Letters, Texts, & Twitter

How does writing bring together distant lovers, friends, family? We'll read letters, the digital forms (social media, instant messaging) that have replaced them, and their representation in novels, poems, and essays to explore how intimacy forms across distance.

Credits: 3

ENG 4653: Work/Play in Cont. Latinx Lit

Through fiction, nonfiction, poetry, and genre-bending texts and performances by Latina/o/x/writers, this course will ask: How has Latinx cultural production inscribed and sometimes joyously subverted language, border and immigration politics from the 1960's to the present?

Credits: 3

ENG 4690/ 4691/ 4692: Amer. Lit. & Cult. after 1945

Specific topics vary each semester.

Credits: 3

ENG 4691: Amer. Lit. & Cult. after 1945

Specific topics vary each semester.

Credits: 3

ENG 4700: Caribbean Literature

Explores representations of the culture and history of the Caribbean in the literary and performance traditions of creative artists from the region. Examines postcolonial discourse and folklore aesthetics across genres and in cultural forms such as carnival and Caribbean music.

Credits: 3

ENG 4702: Authors On & Off the Page

Do you love to write? Dream of visiting with authors to discuss their work and the publishing world? This course combines creative writing workshops with literary analysis and the chance to hob-nob with prestigious authors during the Villanova Literary Festival.

Credits: 3

ENG 4703: 21st C. American Apocalypse

This course surveys major contemporary novels depicting American disasters and their aftermath. We'll consider the varieties of apocalypse that are imagined -- including economic collapse, pandemic, "zombie apocalypse," and climate disruption -- in relation to gender, race, and literary form.

Credits: 3

ENG 5000: Senior Seminar

Capstone experience combining immersion in primary and secondary materials with an intensive writing experience.

Credits: 3

Entrepreneurship

ENTR 1000: The Basics of Entrepreneurship

This course introduces students to the concept of "entrepreneurship" and gives them an academic framework to understand and analyze the theory and practices of entrepreneurial endeavors. This course draws from many different disciplines and includes topics such as the motivation for entrepreneurship (individual, organizational, social/community), processes of entrepreneurship, and "soft skills" to help cultivate an entrepreneurial mindset such as persuasion, collaboration, and communication.

Credits: 3

ENTR 3400: Entrepreneurship Practicum

The European Innovation Academy (EIA) Entrepreneurship & Innovation Summer School is the world's largest entrepreneurial summer program, with a special focus on digital innovations. The accelerated program turns an idea into a startup in just 15 days! The goal of this course is to give students a hands-on, real-life experience creating a startup with students from around the world. The course challenges participants to innovate, overcome obstacles, and grow rapidly; with the goal of creating a business valued at 100M EUR or more. The course is led by the top tech speakers, mentors, and investors from around the world who leverage the skills, mindset, and knowledge necessary to coach and inspire participants to achieve set goals. The course is taught in a real-life context, where students form teams of five and acquire the skills and know-how to develop their business idea from the conceptual stage to the marketplace. They are guided in building a scalable business model via real-life experiments and tests in a live marketplace with genuine customer feedback and building up real life customer traction. The challenge unfolds in a learning environment that corresponds to current and future workplace requirements including cross-functional and virtual teams with crowdsourced work tasks, a multicultural workforce, and extremely demanding organization, planning and communication skills. CPS Only, Permission of Director Required.

Credits: 3

ENTR 5000: Entrepreneurship Capstone

This capstone course is the culminating experience for the Entrepreneurship major where students will have the opportunity to integrate and apply the concepts and skills learned throughout the major. Students will work on projects to build innovative businesses, social enterprises, or non-profit ventures starting with ideation, validation, testing, building, pitching, through launch. This course will feature guest lectures from successful entrepreneurs and Villanova alumni.

Credits: 3

Prerequisites:

ENTR 1000

Entrepreneurship

ENT 2020: Intro to Entrepreneurship

Process of starting new business including business models and plans, legal and HR issues, product design, supplier relationships, business growth.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 or VSB 2030 and VSB 2040) or (ECO 1001 or SBI 2005) and ECO 1002 and ACC 1101 and FIN 1113 and MGT 1102 and MKT 1137)

ENT 2021: Entrepreneurship Mkt

Marketing strategies for new ventures including target markets, research, sales strategy, guerilla marketing, promotion, distribution, pricing.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 or VSB 2030 and VSB 2040) or (ECO 1001 or SBI 2005) and ECO 1002 and ACC 1101 and FIN 1113 and MGT 1102 and MKT 1137)

ENT 2022: Entrepreneurship Fin

Funding strategies and accounting for new ventures including cash management, forecasting, account procedures, inventory models and management, pro forma financial statements, credit policies, taxation, exit options.

Credits: 3

ENT 2023: Entrepreneurship Practicum

Develop a business plan, plan for, finance and start an actual business; end business and analyze experience; profits donated to charity of choice.

Credits: 3

ENTR Practicum: Practicum in Entrepreneurship

The practicum in entrepreneurship counts as 2 courses.

Credits: 6

Ethics

ETH 2050: The Good Life:Eth & Cont Prob

Major Western ethical traditions as they apply to selected contemporary ethical problems, with special consideration to Jewish and Christian perspectives.

Credits: 3

ETH 3010: Topics in Ethics

Addresses a special topic in ethics of current interest to faculty & students.

Credits: 3

ETH 3210: The Ethics of Disability

Explores the nature and definition of disability, impact of disability on well-being, technological advances and disability, embodiment, and intersectional justice.

Credits: 3

ETH 4000: Integrating Seminar

A capstone course which integrates academic work and service pursued for concentration, topics determined by professor and research projects of students.

Credits: 3

ETH 4975: Independent Study in Ethics

Topic in Ethics chosen by the student and approved by the professor and the Director of the Ethics Program.

Credits: 3

Finance

FIN 1113: Principles of Finance

The theory and techniques of financial management. Time value of money; risk and return; financial analysis and planning; working capital management; capital budgeting; cost of capital; strategic long term financing decisions.

Credits: 3

Prerequisites:

ACC 1101 and (ECO 1001 or SBI 2005) and ECO 1002 and VSB 2006 and (MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430)

FIN 2114: Intermediate Corp Finance

Risk and return relationships; valuation models; cost of capital; capital structure; capital budgeting; dividend policy; international financial transactions; financial statement analysis and forecasting; working capital management. Emphasis on computer applications and case studies.

Credits: 3

Prerequisites:

(VSB 2020 (or concurrently) and VSB 2009 or VSB 2010 or VSB 2030 and VSB 2040) or FIN 1113

FIN 2121: Special Topics in Finance

Special finance topics offered in lecture/seminar format. Permission of Department Chair or Instructor.

Credits: 1

FIN 2227: Fixed Inc Markets & Valuation

Overview of fixed income markets and securities traded within those markets; bond valuation; duration and convexity of fixed income securities; asset backed security markets and valuation; credit risk analysis interest rate determination and models; interest rate risk management.

Credits: 3

Prerequisites:

(VSB 2020 (or concurrently) and VSB 2009 or VSB 2010 or VSB 2030 and VSB 2040) or FIN 1113

FIN 2230: Risk Mgmt of Fin Institutions

The structure, operation, management, and regulation of commercial banks, savings and loan associations, mutual savings banks, credit unions, insurance companies, finance companies, pension funds, investment companies, and international financial institutions; structure and operation of the Federal Reserve system; measurement and management of the risks of financial institutions.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 2323: Equity Markets and Valuation

Risk and return; market efficiency; structure of equity markets; equity trading strategies; financial statement analysis and ratio analysis; financial forecasting; valuation of common stocks using fundamental, relative, and technical analysis; convertible securities, warrants, equity options, and risk management applications.

Credits: 3

Prerequisites:

(VSB 2020 (or concurrently) and VSB 2009 or VSB 2010 or VSB 2030 and VSB 2040) or FIN 1113

FIN 2324: Portfolio Management

Advanced investment management with an emphasis on portfolio management; forecasting economic conditions; risk-return characteristics of securities; asset allocation (optimization) techniques; selecting investment goals; evaluating portfolio performance; international diversification; portfolio management with options and futures; computer applications in investment management.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 2325: Introduction to Derivatives

Overview of financial and non-financial derivatives including options, forwards, futures and swaps; derivatives valuation; trading strategies; application of derivatives for managing financial risks. Prerequisite senior standing.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 2326: Mkt.Struct., Trading&Liquidity

Liquidity, market structure, and trading in financial markets; alternative market structures and their economic and operational underpinnings; tactical trading decisions within different market structures using simulation software and real-time data services.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 2327: Alternative Investments

Hedge Funds; Private Equity; Shadow Banking; Cryptocurrency, Benchmarking; Trading Strategies; Statistical Methods for Finance. Emphasis on data work and computer applications.

Credits: 3

Prerequisites:

FIN 2114 and FIN 2227 and FIN 2323

FIN 2330: Corporate Restructuring

Acquisition process and other methods of corporate restructuring. Advantages of internal and external expansion; types of combinations; requisite financial analysis; negotiation strategies; tax options; the role of government. Benefits and limitations of IPOs, leveraged buyouts, employee stock ownership plans and bankruptcy.

Credits: 3

Prerequisites:

FIN 2227 and FIN 2323 and FIN 2114

FIN 2333: Financial Modeling & Valuation

Financial modeling; valuation methods; investment banking process; discounted cash flow models; comparable firms; precedent transactions; leveraged buyout model; mergers & acquisitions; restructurings. Emphasis on computer applications.

Credits: 3

Prerequisites:

(FIN 2323 and FIN 2227 and FIN 2114)

FIN 2335: Intl Financial Management

Foreign exchange markets, foreign derivatives markets, external currency market and their instruments, international parity conditions, foreign exchange risk management, foreign investment analysis, political risk assessment, financing foreign trade, managing the multinational financial system.

Credits: 3

Prerequisites:

(ECO 3108 and VSB 2020 (or concurrently) and VSB 2009 or VSB 2010 or VSB 2030 and VSB 2040) or (FIN 1113 and ECO 3108)

FIN 2340: Contemporary Topics in Finance

Contemporary issues and topics in Financial Management, Financial Markets, Investments, or International Finance.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 2342: Student-Managed Funds I

Management of real-dollar portfolios using various investment styles; business cycle analysis; industry analysis; investment objective screening; security analysis; portfolio analysis, compliance; portfolio reporting. Approval of Finance Department Chair and instructor required.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323) and (FIN 2114 (or concurrently))

FIN 2343: Student-Managed Funds II

Continuation of FIN 2342.

Credits: 3

Prerequisites:

FIN 2342

FIN 2350: Real Estate Capital Markets

Public real estate debt and equity markets. Mortgage Backed Securities, Commercial Mortgage Backed securities, Collateralized Mortgage Obligations, Prepayment Modeling, Real Estate Equity Valuation.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323 and FIN 2114)

FIN 3350: Finance Internship

Employment with an approved firm in the area of Finance where experience is gained with appropriate training, instruction, and supervision. Course does not fulfill the requirements for major.

Prerequisites: junior or senior standing, a minimum GPA of 2.5, approval of department chair.

Credits: 3

FIN 3360: Independent Study - Finance

Independent study under a faculty member's guidance in an area of special interest to the student. The area of interest must be discussed with the faculty member prior to registration. Course does not fulfill the requirements for major. Prerequisites: Finance major with senior standing, and written permission of chairperson required.

Credits: 3

Prerequisites:

(FIN 2227 and FIN 2323) and (FIN 2114 (or concurrently))

FIN 3470: Finance Co-Op

Full-time employment with an approved firm in the area of Finance where experience is gained through appropriate training, instruction, and supervision. Course does not fulfill the requirements of the major. Prerequisite: Finance major with junior status; minimum gpa requirements will vary; approval of department chair.

Credits: 6

French and Francophone Studies

FFS 1111: Introductory French I

Groundwork in French, including oral proficiency, aural comprehension and reading; for students with no prior knowledge of French.

Supplementary language laboratory work and oral drills.

Credits: 4

FFS 1112: Introductory French II

Groundwork in French, including oral proficiency, aural comprehension and reading; for students with one year of high school French.

Supplementary language laboratory work and oral drills. Students should have completed FFS 1111 or equivalent.

Credits: 4

FFS 1121: Intermediate French I

Review of grammar, composition, reading and conversation. Students should have completed FFS 1112 or equivalent.

Credits: 3

FFS 1122: Intermediate French II

Review of grammar, composition, reading and conversation. Students should have completed FFS 1121 or equivalent.

Credits: 3

FFS 1130: Intensive French Language

Regular practice in conversation and composition with review of grammar and continuing work on language skills in French. Offered in Lille through the Villanova-in-Lille program and Intensive Language and Culture Summer Program in Lille and Paris.

Credits: 3

FFS 1131: Conversation and Composition I

Regular practice in conversation and composition with review of grammar and continuing work on language skills in French. Students should have completed FFS 1122 or the equivalent.

Credits: 3

FFS 1132: Conversation & Composition II

Regular practice in conversation and composition with review of grammar and continuing work on language skills in French. Students should have completed FFS 1131 or the equivalent.

Credits: 3

FFS 1134: Business French

An introduction to French business terminology and discourse related to economic, finance, and management.

Credits: 3

Prerequisites:

FFS 1122 or FRE 1122

FFS 1138: Advanced Grammar

Intensive practice of spoken and written French.

Credits: 3

Prerequisites:

FFS 1132 or FRE 1132

FFS 1139: Intercultural Comm in French

Offered in Lille through the Villanova-in-Lille program, this course aims to develop students' intercultural sensitivity and competence by helping them to reflect on their experiences as they occur.

Credits: 3

FFS 1140: Writing & Stylistics in French

Intensive practice in written expression and textual analysis. Compositions are modeled on selected French texts.

Credits: 3

Prerequisites:

FFS 1132 or FRE 1132

FFS 1151: Intro to Translation of French

Introduction to the principles of translation from French to English and from English to French. Prerequisite: FFS 1132 or approval from the FFS coordinator.

Credits: 3

Prerequisites:

FFS 1132 or FRE 1132

FFS 2075: Introduction to French Cinema

Introduction to major works of French cinema from the silent era to the 2000s. Prerequisite: FFS 1132 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 1132

FFS 2076: Intro To Francophone Cinema

Introduction to major films from various Francophone traditions (Maghreb, Sub-Saharan Africa, Caribbean, Quebec). Prerequisite: FFS 1132 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 1132

FFS 2220: Lit and Culture of France

Significant developments in the arts, society, and literature in France from the Middle Ages to the French Revolution. Pre-requisite: FFS 1132 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 1132

FFS 2221: Lit/Cult Francophone World

Significant developments in the literatures of the French-speaking world from the 20th century to the present.

Credits: 3

Prerequisites:

FFS 1132

FFS 2285: Intro to Comics of French Expr

An overview of the voices, forms and innovations of the comics traditions of France and the French-speaking world. Works studied may include Tintin, Asterix et Obelix, Persepolis, Lapinot, Gaston Lagaffe.

Credits: 3

Prerequisites:

FFS 1132

FFS 2993: Service Learning Internship

Translation of documents as part of the CRS Partnership, working on water supply, sanitation, and environmental health issues, within the historical and cultural context of the region. Prerequisites: FFS 1132 or approval from instructor.

Credits: 3

Prerequisites:

FFS 1132

FFS 3025: Reading 20th-C Francophone Lit

Regions may include North Africa, the Caribbean Islands and Canada. Pre-requisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3046: Readings 20th C French Lit

Analysis of specific trends of 20th-century French literature. Topics may include Surrealism, the New Novel, or Existentialism, among others. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3075: Themes in French Cinema

Analysis of films that deal with this topic. Prerequisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3076: Selected Works French Cinema

Analysis of major works of French cinema. The course may be organized around a single director (Renoir, Clouzot, Truffaut, Resnais, Malle etc.) It may also explore a specific movement (poetic realism, the New Wave, or the so-called "cinema du look"). Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3145: The Extreme Contemporary

Analytical readings of major texts published within the past ten years.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3225: Readings In Maghrebi Lit

Analytical readings of major texts of the French-speaking North-African traditions. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3226: Readings in Caribbean Lit

Analytical readings of major texts of the French-speaking Caribbean traditions. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3227: Readings Sub-Saharan Afr Lit

Analytical Readings of major texts of the French-speaking Sub-Saharan traditions.

Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3255: Themes in Poetr of Frch Expres

An overview of the voices, forms and innovations of the poetic traditions of France and the French-speaking world through the themes of love; subjectivity and objectivity; masculinities and femininities; collective identity formation and affirmation and others. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3285: Fr Popular Music, 1950-pres

Survey of popular music, 1950 to the present, considering literary influences and trends in music and in the industry. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3287: Cult Studies: France & Maghreb

Exploration of the rich intercultural connections between France and its former North-African colonies. Prerequisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3412: Special Topics

Advanced study of topics of special interest in French literary and/or cultural studies. May be repeated for credit if topic changes. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3625: Readings in Medieval&Renai Lit

Analytical readings from the Medieval and Renaissance periods. Works studied may include La Chanson de Roland, Tristan et Iseult, fabliaux, Montaigne, Rabelais, Ronsard, Marguerite de Navarre. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3725: Readings in 17th C Literature

Analytical readings of major texts. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3765: French Classical Theatre

Classical dramaturgy and modern interpretations of Corneille, Moliere and Racine. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3845: Utopia in 18th-C Fr Lit

Emphasis on real and fictional travel accounts as well as works in which homesteading on islands or in isolated natural settings plays an important role. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3846: The Epistolary Novel

Study of 18th-century literary works in the form of letters. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3925: Paris, Capital of the 19th-C

Literary, artistic, political, and social overview of France's capital city following the French revolution. Pre-requisites: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3945: Readings in 19th C Prose

Analytical readings of major novels from the 19th century. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from Instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3956: Modernism in French Poetry

Study of the birth of modernism as seen through French poetry set in its historical and cultural context. Prerequisite: FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285 or authorization from instructor.

Credits: 3

Prerequisites:

FFS 2220 or FFS 2221 or FFS 2075 or FFS 2285

FFS 3970: Research Seminar

Principles and techniques of literary research. Overview of major French and Francophone authors and representative works. Students should have completed FFS 1132 or the equivalent.

Credits: 3

Prerequisites:

FFS 1132 or FRE 1132

FFS 3971: Directed Research in FFS

Directed semester-long research project that satisfies the College research requirement, taken in conjunction with another upper-level FFS content course. Pre-requisite: FFS 2220, FFS 2221 or FFS 2075, or approval from the FFS coordinator.

Credits: 1

Prerequisites:

FFS 2220 or FRE 2220 or FFS 2221 or FRE 2221 or FFS 2075 or FRE 2075

FFS 5900: Independent Study

Credits: 3

Prerequisites:

FFS 1132 :D- or FRE 1132 :D-

Gender and Women's Studies

GWS 2010: Special Topics

An intensive examination of selected topics within gender and women's studies.

Credits: 3

GWS 2050: Introduction to Gender Studies

The history and evolution of feminist analysis as a force of history, theory, art, and culture. Critical distinctions between the biology of sex and the social construction of gender. Basic principles of feminist thought, from its origins in the Women's Movement of the late 1700s and 1800s, through modern manifestations, including today's diverse narratives. Multi-disciplinary and writing enriched.

Credits: 3

GWS 2060: Introduction to LGBTQ Studies

Introduces LGBTQ histories, cultures, and theoretical perspectives in the context of race, class, gender, sexuality, age, religion, ability and nation. Topics include literary and artistic expression, health matters, policy and politics, community life, and other issues relevant to studying LGBTQ+life.

Credits: 3

GWS 2993: GWS Internship

Internship.

Credits: 3

Prerequisites:

GWS 2050

GWS 3000: Independent Study

Approval of Gender and Women's Studies Director required.

Credits: 3

GWS 5000: Integrating Seminar

An interdisciplinary course that focuses on a topic through methodology that requires Gender and Women's Studies minors to provide input from the research areas of their majors. Approval of Director of Gender and Women's Studies required.

Credits: 3

Prerequisites:

GWS 2050

Geography and the Environment

GEV 1002: Geo. of a Globalizing World

The human and physical realms of Geography. Focus on current geographic problems facing specific regions of the world.

Credits: 3

GEV 1003: Geo. of Earth's Environments

World climates, water, landforms, soil, and vegetation form the basis of this global environmental approach.

Credits: 3

GEV 1004: Climate Change

Spatial patterns of global and regional climate systems. Natural and anthropogenic factors that cause climate change. Understanding human-climate system interaction.

Credits: 3

GEV 1005: Geospatial Analysis & Society

Use of geospatial technologies to analyze, solve, and understand modern social and environmental issues involving population, development, and urbanization trends around the world.

Credits: 3

GEV 1050: Environmental Science I

Multidisciplinary foundation in Environmental Science; first of two semester course. Science course linking environmental biology, chemistry, earth sciences, and climate change. Collection of data from lab experiments and field-based observations.

Credits: 4

GEV 1051: Environmental Science II

Second of two course sequence. Multidisciplinary foundation in Environmental Science: natural resources, pollution, & energy, with related field trips & laboratory sessions.

Credits: 4

Prerequisites:

ENV 1050 :D- or GEV 1050 :D-

GEV 1052: Environmental Studies

Free elective course to provide Advanced Placement credit for Environmental Science. Prerequisite: Score of 4 or 5 on AP Environmental Science Test.

Credits: 3

GEV 1053: Environmental Studies II

Overview of fundamental environmental topics, including themes in energy, pollution, and resources.

Credits: 3

GEV 1750: Geo-Techniques

Principles and applications of geographic technologies and field techniques with emphasis on: field surveys, cartography, global positioning systems, aerial photography, satellite imagery & remote sensing, computer-aided cartography, digital elevation models & geographic information systems.

Credits: 4

GEV 1903: Internship Elective

Credits: 3

GEV 1906: Internship Elective

Credits: 6

GEV 1909: Internship Elective

Credits: 9

GEV 2001: Prof Dev in Geo and Env

Professional development in the fields of geography, environmental studies, and environmental science.

Credits: 1

GEV 2310: Environmental Chemistry

Interdisciplinary approach to chemical and biochemical phenomena. Sources, reactions, transport, effects, and fates of chemical species in the air, soil, and water environments, and their effect on human activity.

Credits: 4

Prerequisites:

GEV 1050 and (CHM 1151 or CHM 1131) and CHM 1103

GEV 2500: Global Change in Local Places

Geographic research methods to address spatial implications of current local issues. Relationships between global environmental & societal processes & local landscapes. Collection, evaluation, analysis & presentation of qualitative & quantitative geographic data.

Credits: 3

GEV 2525: Population Geography

Geographic dimensions of global population trends, emphasizing global demographic divides. Considers population processes (mortality, fertility, migration), population structures (age, gender, ethnicity), and population policy. Special topics may include population and the environment, food supply, and HIV-AIDS.

Credits: 3

GEV 2893: Independent Study

Independent study under the direction of faculty member of selected topics in geography, environmental studies, and environmental science.

Instructor Permission Required

Credits: 3

GEV 2993: Internship

Credits: 3

GEV 2996: Internship

Credits: 6

GEV 3000: Special Topics

Contemporary topics in Geography and Environmental Science. Topics will be announced on a semester-by-semester basis. Specific information will be available on the department's web page.

Credits: 3

GEV 3001: Intro to Sustainability Study

Development that meets the needs of the present without compromising the needs of future generations. Social, engineering, and economic dimensions, which make up the sustainability model.

Credits: 3

GEV 3002: Ecosystem Services

Four major categories of ecosystem services: provisioning services, regulating services, cultural, and supporting services.

Credits: 3

GEV 3003: Environmental Geology

Application of the principles of geology in the solving of environmental problems.

Credits: 3

GEV 3004: Geographies of Environmental Justice

Patterns of environmental inequality that affect health and quality of life. Relationship between environmental harms and benefits and different groups in society. Case studies explore fundamental aspects of environmental justice.

Credits: 3

GEV 3300: Stats. in Environmental Sci.

Statistical methods and application. An introduction to statistical concepts, techniques, and applications to data analysis and to problems in the design, analysis, and interpretation of experiments in the environmental sciences.

Credits: 3

GEV 3301: Fisheries

Current practices and the environmental, political and social implications of this global industry.

Credits: 3

GEV 3302: Agricultural Science

Environmental implications of agriculture, incl. a scientific analysis of soil, pesticides, fertilizer, and biodiversity.

Credits: 3

GEV 3303: Soil Science

Soil, soil properties, and biota in various ecosystems with a focus on human impacts to soil mesocosm.

Credits: 3

GEV 3304: Air Pollution

Analysis of natural and human-caused environmental impacts to the atmosphere.

Credits: 3

GEV 3305: Energy Systems

Assessment of current methods for supplying energy, incl. fossil fuels, nuclear energy, and renewable energy.

Credits: 3

GEV 3306: Alternative Energy

Analysis of emerging and established alternative energies, incl. wind, solar, biofuel, and hydropower.

Credits: 3

GEV 3308: Environmental Health

Health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries.

Credits: 3

GEV 3309: Coral Reefs

Overview of the science, policy, and management issues for coral reef ecosystems in a changing world.

Credits: 3

GEV 3310: Special Topics in Geology

Topical approach to geology to include the terroir of wines, to the geology behind current events.

Credits: 3

Prerequisites:

GEV 3003

GEV 3500: Geography of North America

Physical and human geography of North America from a regional perspective. Key geographic concepts of site, situation, and the interaction between society and the environment for each region.

Credits: 3

GEV 3501: Geomorphic Environments

Landform processes and development. Geomorphic processes, dynamics, and equilibrium systems. Data collection, statistical analysis, and interpretation of landform development models.

Credits: 3

GEV 3503: Earth's Weather Systems

Sciences of the atmosphere: meteorology and climatology. Atmospheric composition and structure, clouds, precipitation, atmospheric motion and winds, organized weather systems, air masses, fronts, tropical storms, and severe weather.

Credits: 3

GEV 3515: Geography of Africa

Major geographic problems facing contemporary Africa, with a special emphasis on spatial planning within a number of national contexts.

Credits: 3

GEV 3521: GIS for Urban Sustainability

Review and analyze sustainability issues faced by cities. Learn GIS applications related to urban sustainability.

Credits: 3

GEV 3522: Geography of the Middle East

Survey of the region's geography including its physical geography, environmental issues, urban-economic development, cultural geography, historical evolution, and the spatial patterns of its human landscapes. Special emphasis placed on its strategic importance in a globalizing world and understanding the historical background to current geopolitical conflicts.

Credits: 3

GEV 3550: Natural Hazards

Processes determining physical risk, societal vulnerability, and response to major hazards including: blizzards, tornadoes, hurricanes, drought, flooding, earthquakes, volcanoes, landslides, avalanches, and wildfires.

Credits: 3

GEV 3570: Land Use Planning & Mgmt

Land use planning and management with focus on land-law interfaces between the physical, cultural, and legal realms. Survey of natural and political systems as the basis for land use controls at the federal and regional levels. The environmental, economic, and ethical impacts of land management.

Credits: 3

GEV 3580: Natural Res and Conservation

Assessment of natural resource and conservation issues in the U.S. and around the world. Distribution and use patterns of air, water, mineral, energy, and biologic resources. Examination of exploitation, conservation, and preservation management strategies.

Credits: 3

GEV 3590: Topical Research Problems

Individual projects or studies in geography and the environment.

Credits: 3

GEV 3750: Remote Sensing

Data collection and analysis with high-technology platforms such as conventional and color infrared photography, multi-spectral scanners, satellite imagery, thermal infrared, LIDAR, and radar. Application of remotely sensed data to solve complex, human, environmental, and engineering problems.

Credits: 3

GEV 3790: Global Positioning Systems

Principles, techniques, and applications of Global Positioning Systems (GPS). Laboratory employs data collection, mapping, and analyses with state-of-the-art GPS equipment and software.

Credits: 4

Prerequisites:

GEV 1750

GEV 4001: Advanced Sustainability Study

Second in a two-course sequence. An in-depth exploration of the social, engineering, and economic dimensions of sustainability through field trips, guest lectures, and service learning.

Credits: 4

Prerequisites:

GEV 3001

GEV 4300: Selected Topics

Selected topics of interest in environmental science and geography. Offered on three or four Saturday mornings or on weekday evenings. Topics will be announced on a semester-by-semester basis.

Credits: 1

GEV 4310: Environmental Issues Seminar

Interdisciplinary coverage of current global environmental issues, emphasizing their complexity, analyses, and solutions.

Credits: 3

Prerequisites:

GEV 1050 and GEV 1051

GEV 4320: Spec. Topics in Env Lab Sci

Advanced laboratory science topics in the Environment presented by senior faculty. Specific subject matter will vary with the expertise of the professor.

Credits: 4

GEV 4321: Microbial Processes

Examination of Earth's dynamic systems and the environmental consequences of environmental processes.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4322: Ocean Environments

Investigation of the biological, geological, chemical, and physical characteristics of the ocean.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4323: Watershed Biogeochemistry

Biogeochemical and physical characteristics of watersheds and the threats they currently face.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4324: Wetland Science and Management

Wetland flora and fauna, hydrology, soils and ecology.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4325: Environmental Ecology

Principles of ecology and their implications for analyzing environmental problems. Understanding processes controlling the dynamics of populations, communities, and ecosystems.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4326: Environmental Geology

Geologic processes, formation of fossil fuel and ore deposits, and the environmental impact of their extraction.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4327: Process Geomorphology

Processes that shape landforms. Major components of geomorphology, including fluvial, glacial, periglacial, aeolian, slope, and weathering process.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4328: Climatology

Approaches to understand and identify recent and long-term climate behavior in different parts of the world. Basic meteorological factors that influence climate. General climate classification schemes, theories of climate cycles and climate change.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4329: Global Change Research

Advanced field and laboratory research focused on contemporary issues in environmental science.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4330: Spec Topics in Environm Policy

Advanced topics in environmental policy and management presented by senior and visiting faculty. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course. Course may be taken under multiple titles.

Credits: 3

GEV 4331: Env. Policy & Management

National and international debates of key environmental issues from policy and management perspectives.

Credits: 3

GEV 4332: Water Resources Planning

Management and planning of natural and constructed water systems.

Credits: 3

GEV 4333: Politics and the Env.

Analysis of current affairs related to the environment.

Credits: 3

GEV 4334: Environmental Law

Legal analysis of the environment, incl. seminal national and international laws.

Credits: 3

GEV 4335: Energy Policy

Policies pertaining to the extraction, supply, distribution, and use of energy.

Credits: 3

GEV 4336: Environmental Economics

Application of economic principles to study environmental issues, such as evaluating the monetary value of ecosystems, the effectiveness of environmental policies, and comparing costs and benefits of different policy options. Contemporary environmental economic topics are explored.

Credits: 3

GEV 4340: Spec Topics in Environm Issues

Advanced topics in environmental social science and humanities presented by senior and visiting faculty. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course.

Credits: 3

GEV 4350: Spec Topics in Environm Sci

Advanced topics in environmental science presented by senior and visiting faculty. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course. Course may be taken under multiple titles.

Credits: 3

GEV 4351: Oceanography

Biology, geology, chemistry, and physical environment of the ocean.

Credits: 3

GEV 4352: Physical Geology

Earth's dynamic systems and the environmental consequences of geologic processes.

Credits: 3

Prerequisites:

GEV 3003

GEV 4353: Green Science

Application of eco-friendly thinking to scientific disciplines. Scientific solutions to global warming, pollution and other impacts on nature and the planet.

Credits: 3

GEV 4354: Biomimicry

Design and production of materials, structures, and systems that are modeled on biological entities and processes.

Credits: 3

GEV 4355: Tropical Ecology

Environmental issues unique to tropical latitudes and ecosystems.

Credits: 3

GEV 4356: Global Change Science

Advanced exploration and discussion focused on contemporary issues in environmental science.

Credits: 3

Prerequisites:

GEV 1050 and GEV 1051

GEV 4360: Field Methods in Env Science

Environmental field research focusing on a specific environmental issue including an extensive field trip.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4361: Field Research

Design and conduct environmental research during a 1-2 week field trip to various locations; Lectures will incl. natural history, ecology, and geology of the location.

Credits: 4

Prerequisites:

GEV 1050 and GEV 1051

GEV 4510: Special Topics in Geography

Advanced topics in Geography presented by senior and visiting faculty. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course. Course may be taken under multiple titles.

Credits: 3

GEV 4511: Climate Variability

Seasonal, interannual, and decadal variations in climate variables. Atmospheric circulation patterns, teleconnections, and their impacts on the environment and society.

Credits: 3

Prerequisites:

GEV 1003

GEV 4512: Medical Geography

Spatial patterns and epidemiology of disease. Characteristics of epidemics and pandemics from a geographic perspective. Case studies, spatial/statistical analyses, and transmission processes.

Credits: 3

GEV 4513: Geography of National Security

Geography of the national security landscape and the nexus of geography and conflict. Modern trends in national security, historical case studies, and geospatial analysis.

Credits: 3

GEV 4514: Geomorphology

Processes that shape the natural landscape. Descriptive and quantitative techniques to examine balance between tectonic activity and subsequent modification of landforms by weathering, erosion and deposition.

Credits: 3

GEV 4515: Terrestrial Ecosystems

Spatial distribution of species, biomes, and ecosystems at local, regional, and global scales. Ecological and historical processes responsible for geographic patterns of biodiversity

Credits: 3

Prerequisites:

GEV 1003 or GEV 1050

GEV 4516: Environmental Security

Broad range of security issues triggered by demographic and environmental factors such as competition for resources, population growth/displacement, disease, natural disasters, environmental change, and non-sustainable practices.

Credits: 3

GEV 4517: Sustainable Development

Environmental, economic, and justice issues facing developing countries. Historical review of post-colonial experiences and the impact of modern global economic and environmental changes on the political, economic, and demographic experiences of Latin America, Africa, and southern Asia.

Credits: 3

GEV 4518: COVID-19 Pandemic

Overview of the COVID-19 pandemic including issues around global health, disease diffusion, health disparities, vulnerable populations, social determinants of disease, and economic and political implications.

Credits: 3

GEV 4700: Geographic Information Systems

Principles, techniques, and applications of Geographic Information Systems (GIS). Laboratory employs analyses with state-of-the-art GIS software.

Credits: 4

GEV 4710: Adv. Geographic Info Sys

Spatial problem solving by focusing on theoretical/conceptual and practical aspects of GIS modeling and spatial analysis.

Credits: 4

Prerequisites:

GEV 1750 and GEV 4700

GEV 6005: Senior Research Seminar

Scheduled group meetings with other research students in the department, focusing on general and specific aspects of the senior research project/thesis. Requires permission of instructor.

Credits: 1

Co-Requisites:

GEV 6200

GEV 6006: Research Colloquium

Presentations by speakers including faculty, students, and guests from the academic, public, and private sectors. Lectures feature new creative and scholarly work that encompasses the disciplines and areas of interest of the department.

Credits: 0

GEV 6200: Independent Study

Individual projects or studies in geography & the environment.

Credits: 3

GEV 6210: Senior Thesis Research I

Research with faculty member selected by student. Part 1 of two-semester sequence. Continues as Thesis Research II, which culminates in a written thesis. Requires permission of the faculty mentor.

Credits: 3

GEV 6220: Senior Thesis Research II

Second phase of senior thesis sequence. Research with faculty mentor selected by student. Culminates in a written senior thesis. Requires permission of the faculty mentor.

Credits: 3

Global Interdisciplinary Studies

The Department of Global Interdisciplinary Studies (GIS) provides students with a tripartite of skills, knowledge, and values that foster critical thinking, problem solving, and preparation for responsible global citizenship. Students gain an understanding of global studies, acquiring the know-how in global and digital literacy, cultural diversity and intercultural competences, interdisciplinary research, and a passion for social justice, nurtured in experiential learning.

All students must choose one specialization from the sections listed below.

The Department of Global Interdisciplinary Studies also offers minors in the following programs: Arabic Language and Cultural Studies, Chinese Language and Cultural Studies, Japanese Language and Cultural Studies, Russian Language and Cultural Studies. Visit these individual pages to view requirements.

GIS 1100: Special Studies

Studies in Critical Languages not included among the languages and cultural studies typically offered in GIS, in related areas, usually through Study Abroad, such as: Korean, Hindi, Thai, Yoruba, Hebrew, Luo; readings, discussions, drills.

Credits: 3

GIS 2000: Intro to Global Interd Studies

Gateway course to Global Interdisciplinary Studies, preparing for area studies specializations and GIS interdisciplinary programs. Focuses critical thinking skills through the comparative lens of both global and interdisciplinary analyses. Mandatory preparatory course for advanced study in GIS major.

Credits: 3

GIS 2993: Global Studies Internship

Permission of Chairperson required.

Credits: 3

GIS 2996: Global Studies Internship

Permission of Chairperson required.

Credits: 6

GIS 3000: Special Topics Study Abroad

Special topics in global and interdisciplinary studies taken while studying abroad.

Credits: 3

GIS 3992: Global Topics Abroad

Co-requisite 1-credit course designed to provide an embedded study-abroad experience to complement a requisite GIS course.

Credits: 1

Co-Requisites:

GIS 5011

GIS 4100: Topics in GIS

Specific topics in global interdisciplinary studies that vary each semester.

Credits: 3

GIS 4281: The Tale of Shanghai and Tokyo

Struggling with their identity while being nurtured by their traditional culture for more than a century, today's Shanghai and Tokyo eventually emerged from a feudal society as modern, sophisticated, and diversified metropolises on the global stage. Explore how the two Asian cities encountered the West, as well as how they were forced to change through revolutions and reforms in the realms of culture, sociology, literature, history, ideology, and philosophy of life.

Credits: 3

GIS 4282: Race & Social Structure: Brazil

Interdisciplinary, team taught course which will explore the race and social structure of Brazil in through a comparative perspective.

Credits: 3

GIS 4283: Global Tea Culture

Interdisciplinary, team taught course which will explore the history and influence of tea in various cultures of the world through a comparative perspective.

Credits: 3

GIS 4284: Glob. Racial Images Film & Lit

An examination of the globalization of racial images through a comparative study of film and literature, using historical inquiry and literacy criticism. Topics include institutional and intellectual racism, imperialism and segregation, racial violence, miscegenation and sexuality, and resistance to stereotypes.

Credits: 3

GIS 4285: GIS Special Topics

Interdisciplinary study of topics of special interest in Global Interdisciplinary Studies related to course(s) taken through the International Studies Program. May be repeated for credit if topic changes.

Credits: 3

GIS 4286: Bridging Global Cult Conflict

Interdisciplinary, team taught course which will explore culturally global based conflicts with social, political, economic elements through a comparative perspective. This is a team taught course and will be capped at maximum student enrollment of 17 students.

Credits: 3

GIS 4290: African & Caribbean Pol & Lit

Interdisciplinary exploration of diverse literary traditions of Africa and its large diaspora in the Caribbean through political science and development economics theories. Examines political dysfunctions that follow postcolonialism; offers theoretical and aesthetic tools to appreciate interface between politics and culture.

Credits: 3

GIS 4675: East Asian Comparative Lit

Team-taught interdisciplinary seminar. Examination of Modern East Asian Literature with Japanese and Chinese Components.

Credits: 3

GIS 5000: Special Topics

Intensive seminar taught by distinguished visiting faculty on a topic of global and interdisciplinary significance.

Credits: 1

Prerequisites:

GIS 2000 (or concurrently)

GIS 5011: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 5012: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 5021: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 5022: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 5031: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 5032: GIS Select

Interdisciplinary team-taught courses offered by GIS to fulfill requirements for the Junior Research Seminar and additional GIS Select course. May be taken by GIS majors in any of the specializations, including Gender and Women's Studies and Peace and Justice Education, to fulfill requirements in their specialization if the specific GIS Select topic carries the attribute of their specialization.

Credits: 3

GIS 6000: Independent Study

Individual students with specific interests will work on a supervised project.

Credits: 3

GIS 6500: Capstone I: Research

Team-taught, interdisciplinary seminar. Integration of work for GIS major, leading to the research & writing of the major thesis, topic determined by faculty of record. Senior standing.

Credits: 3
Prerequisites:
 GIS 2000

GIS 6600: Capstone 2: Thesis

Directed research seminar focusing on the writing of the major thesis. Senior standing.

Credits: 3

Greek

GRK 111: Introductory Ancient Greek I

The basic forms, syntax and vocabulary of Ancient Attic Greek; selected prose in second semester.

Credits: 4

GRK 112: Introductory Ancient Greek II

The basic forms, syntax and vocabulary of Ancient Attic Greek, selected prose in second semester.

Credits: 4

GRK 121: Intermediate Ancient Greek I

Having reviewed the primary grammar and syntax of Attic Greek, this course will examine selections from several principal prose authors of the classical period (e.g. Herodotus, Plato, Thucydides, et al).

Credits: 3

Prerequisites:

GRK 111 and GRK 112

GRK 122: Intermediate Ancient Greek II

Credits: 3

Prerequisites:

GRK 111 and GRK 112 and GRK 1121

GRK 2001: Readings in Ancient Greek

Selected readings in ancient Greek with a focus on building and strengthening translation skills.

Credits: 1

Prerequisites:

GRK 111 and GRK 112

GRK 3001: Readings in Authors

Selected readings from a variety of Greek authors. Fulfills advanced literature requirements.

Credits: 3

GRK 5900: Greek: Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

History

HIS 1002: The United States to 1877

For AP and transfer credit only. Does not fulfill Arts and Sciences core history requirement.

Credits: 3

HIS 1050: Themes in Modern World History

Investigation of history of diverse nations and regions since 1500. Political, technological, and economic revolutions; modern state formation; cross-cultural conflict and exchange; social movements; environmental transformation; rise of global economy.

Credits: 3

HIS 1060: Topics in Religion & Society

Selected core courses exploring religion in different eras with emphasis on cross cultural interaction.

Credits: 3

HIS 1065: Topics Nature, Environ & Tech

Selected core courses exploring relationship between environmental and technological change in different eras and societies.

Credits: 3

HIS 1070: Topics Empire and Imperialism

Selected core courses on empire and practice of imperialism in different eras.

Credits: 3

HIS 1075: Topics in Race & Gender

Selected core courses exploring issues of race and/or gender in different eras.

Credits: 3

HIS 1150: Topics in Atlantic World

Selected core courses on political, social, and cultural interaction in the Atlantic basin beginning in the 15th century.

Credits: 3

HIS 1155: Topics in America & the World

Selected core courses offering transnational perspectives on the development of American society.

Credits: 3

HIS 1160: Topics in Asia & Pacific

Selected core courses on political, social, and cultural interaction among different societies in Asia and Pacific basin.

Credits: 3

HIS 1165: Topics Global Perspectives

Selected core courses that take a global or comparative approach to major issues.

Credits: 3

HIS 1250: Top in Ancient Civilizations

Selected core courses on different aspects of ancient societies.

Credits: 3

HIS 1903: Internship Elective

Credits: 3

HIS 1906: Internship Elective

Credits: 6

HIS 1909: Internship Elective

Credits: 9

HIS 2000: Investigating U.S. History I

In-depth study of American history from the pre-Columbian period to the Civil War and Reconstruction, with a particular emphasis on engaging historical problems as a process of inquiry and interpretation. Designed especially for history majors and future teachers, but open to all students.

Credits: 3

HIS 2001: Investigating US History II

In-depth study of American history from the end of Reconstruction to the present, with a particular emphasis on engaging historical problems as a process of inquiry and interpretation. Designed especially for history majors and future teachers, but open to all students.

Credits: 3

HIS 2151: Colonial America

The political, economic, social, and intellectual life of the American colonies and the clash of racial and ethnic groups in America to 1763.

Credits: 3

HIS 2161: Revolutionary & Fed Amer

The colonial resistance to Great Britain; the making of the Constitution; and the continuing struggle, to 1810, to define the meaning of the Revolution.

Credits: 3

HIS 2171: Building a Nation 1800-50

The development of the Republic from the presidency of Jefferson through the Mexican War; revolutions in transportation and commerce, struggles of nationalism and sectionalism; issues of race and gender and the ferment of reform.

Credits: 3

HIS 2181: Civil War & Reconstruct

A study of the causes of a war in which Americans fought Americans; the war's evolving nature and eventual outcome; the fight over the meaning and the extent of reconstruction; and the long term political, economic, and social consequences of the war and the end of slavery.

Credits: 3

HIS 2191: Pursuits of Power, 1876-1920

Causes and results of industrialization and urbanization; responses to economic and social change, including popular protest movements; nationalism following the Civil War; U.S. imperial ambitions.

Credits: 3

HIS 2201: United States 1914-1945

Major problems and domestic developments in the United States in World War I, the 1920s, the Great Depression and World War II.

Credits: 3

HIS 2202: United States since 1945

Major problems and domestic developments in the United States since 1945: reconversion, Cold War, the "Good Society" of the 1950s, turmoil of the 1960s, Vietnam War and its aftermath, contemporary challenges and problems.

Credits: 3

HIS 2252: U.S. For Rel 1914 - Present

Diplomatic history from World War I to the present, including involvement in European and Asian struggles, cooperation in international organizations.

Credits: 3

HIS 2265: American Military History

The wars of America from their European antecedents to 1900; relations between the military and society; role of the military in national development.

Credits: 3

HIS 2272: History of Amer Capitalism

American economic growth from the colonial era to the present and its impact on political, social present and cultural life, including American industrialization; rise of the corporation; military-industrial complex; capital-labor relations; globalization of American capitalism.

Credits: 3

HIS 2274: History of American Medicine

The evolution of American Medicine from the colonial period to the present day. Topics include the rise and fall of heroic medicine, the demise of scientific medicine, the growth of modern surgery, the evolution of medical practice.

Credits: 3

HIS 2276: American Environmental Hist

Social, cultural and economic forces that reshaped the American landscape from the colonial era to the present; the place of nature in American thought and society; and the evolution of environmental politics in the 20th century.

Credits: 3

HIS 2278: Native American History

Study of American Indians from pre-Columbian times to the present, including land use practices, social customs, gender relations, U.S. government removal and assimilation policies, post-colonial political economy, and contemporary issues of cultural identity and sovereignty.

Credits: 3

HIS 2286: Irish-American Saga

Pre-famine Irish emigration to North America; the famine; post-famine movement; Irish-American labor, politics, urban and suburban developments.

Credits: 3

HIS 2291: African Amer His during Slaver

The forced migrations of Africans to the New World, the institution of slavery, and the struggle of Afro-Americans to gain equality in American society.

Credits: 3

HIS 2292: African Amer His since Emancip

Themes of resistance and creativity with the development of the African-American communities in the era following the Civil War. Reconstruction, Northern migration, Jim Crow and segregation, and protest thought and Civil Rights.

Credits: 3

HIS 2294: His of Childhood in US

The experience of childhood in America, including topics such as the invention of adolescence; child abuse and protection; child labor; compulsory schooling and immigrant assimilation; juvenile delinquency; age of consent; dating; children in the movies; children as consumers; and youth culture and rebellion.

Credits: 3

HIS 2296: History of American Women

The study of the influence of region, race, and ethnicity on gender definitions in America; and the impact of those ideas in shaping women's lives, sexuality, housework and wage labor, and access to power and politics, from the colonial period to the present.

Credits: 3

HIS 2303: History of Philadelphia

An investigation of the city's past and present through reading historical accounts and exploring today's city. Changes and continuity in politics, economy, and social composition from 1682 to today, with particular attention to social structures and the changing physical environment of the city.

Credits: 3

HIS 2309: Artifacts in History

Cultural history as revealed through artifacts, including everyday objects, decorative arts, and architecture; issues and controversies related to museum exhibits; the role of the Internet in material culture studies.

Credits: 3

HIS 2993: Hist Internship

An internship in a local historical archive, museum, park, or library.

Credits: 3

HIS 2996: Hist Internship

A more extensive internship in a local historical archive, museum, park, or library.

Credits: 6

HIS 2998: Topics in American History

Selected topics in American history of interest to faculty and students.

Credits: 3

HIS 3006: Medieval Europe 500-1500

The evolution of the European West from its classical origins. The influence of Christianity upon the development of European institutions and culture. Relations and mutual influences of the European West with its neighbors, the new world of Islam in the Near East and North Africa, and the Christian Byzantine East of Europe and Russia.

Credits: 3

HIS 3011: Greek Civilization

The rise of Greek civilization from Mycenaean times to the Macedonian conquest of Greece by the father of Alexander the Great: Homer, the emergence of the polis, the Persian and Peloponnesian wars, and the flowering of Greek culture at Athens during the 5th and 4th centuries.

Credits: 3

HIS 3014: Medit Wrld Alexander to Caesar

The interaction of cultural forces between the conquests of Alexander the Great and the consolidation of Roman rule under Caesar; Hellenistic civilization, the rise of Rome in Italy, Rome and the Greek world, and the fall of the Roman Republic.

Credits: 3

HIS 3017: The Roman Empire

The achievement of the Pax Romana from the reforms of Augustus to the break-up of the western Empire in the fifth century A.D. Topics treated include life in the provinces, the romanization of indigenous peoples, the legions and society, culture and decadence in the capital, and the rise of Christianity.

Credits: 3

HIS 3019: The Fall of Rome

The end of the ancient world -- ancient sources and modern theories. A multi-faceted analysis of Mediterranean society from AD 200 - 750: politics, economy, religion, urban life, art, social relations, literature.

Credits: 3

HIS 3095: Topics in Ancient History

Selected topics in Ancient history of interest to faculty and students.

Credits: 3

HIS 3121: The Renaissance

The decline of society in the Late Middle Ages and the emergence of commercial capitalism; the disintegration of the Holy Roman Empire and the evolution of city-states and new monarchies in the fifteenth century; the crisis of the Papacy and the emergence of humanism; the Italian universities in the Late Middle Ages and the development of new tastes in literature, art, and architecture.

Credits: 3

HIS 3126: Hist of Italian Cities

Credits: 3

HIS 3142: The Enlightenment

The cultural transition of traditional Western Christendom to modernity in the 18th Century, including its clash with religion; emphasis on scepticism and empiricism; rehabilitation of natural desires and emotion; efforts to re-engineer human society; new perceptions of economics, crime and punishment, and aesthetics; creation of a reading public; role in the American founding; impact upon issues of gender and race.

Credits: 3

HIS 3161: 20th Century Europe

Social, political, and cultural history of Europe from the fin de siècle to European unification; world wars and revolution, East-West divide, consumer society and popular protest.

Credits: 3

HIS 3171: Europe since 1945

Europe from the end of World War II to the European Union; postwar reconstruction; Cold War; the growth of consumer society; the collapse of the Soviet Empire; changing conceptions of European identity.

Credits: 3

HIS 3200: Medieval Britain and Ireland

The debts England owes to the Celtic, particularly the Irish, world; changed relations, from fruitful cultural exchange to antagonism, after the Norman Conquest of England. Irish missionary and educational importance; relations between Celtic peoples; why monarchy developed in England and Scotland, but not in Wales and Ireland.

Credits: 3

HIS 3202: Britain 1660-1815

Emergence of Britain as the preeminent global capitalist economy and political power from the glittering court of Charles II to Britain's loss of its American colonies and its victory over revolutionary France. Connections between political-economic developments and social and cultural change including industrialization; war, economic growth and state formation; smuggling, gin, and criminality; empire; domesticity, women and the novel, high and low art in London.

Credits: 3

HIS 3216: Ireland since 1800

The social and political history of the Irish state in the 19th and 20th centuries.

Credits: 3

HIS 3218: Topics in Irish History

Exploration of emerging topics in field of Irish History, including but not limited to the Act of Union, the impact of the Protestant Ascendancy, and the cultural, social and political history of the modern Irish state.

Credits: 3

HIS 3221: French Rev and Napoleon

Causes, nature and course of the French Revolution, including a study of its historical interpretation, and the Napoleonic aftermath of the Revolution.

Credits: 3

HIS 3233: Hitler and Nazi Germany

Germany from the rise of Hitler to the end of the Second World War.

Credits: 3

HIS 3241: Revolutionary Russia 1861-1939

Major political, economic and social changes in the Russian Empire from the war against Napoleon to World War I; reform from above and revolution from below; Russia's industrial revolution; social and cultural modernization; the institution of monarchy under the last Romanov tsars; Russia's expansion in the East.

Credits: 3

HIS 3242: Russia from Stalin to Putin

Russia from the 1917 Revolution to the present; the radical transformation of a state, economy and society in revolution and civil war, the Stalin dictatorship, the trial of World War II, and the patterns of reform and continuity in the post-Stalin and post-Soviet eras.

Credits: 3

HIS 3360: Women in the Pre-Modern West

Roles of women from ancient world to revolutionary France, including analysis of the status of women in Biblical, Greek, Roman, medieval, early modern and Enlightenment cultures and times. Themes of motherhood, women's work, women in literature and women's ways of exerting control over their lives.

Credits: 3

HIS 3361: Women in Modern Eur Soc

The changing roles of women in society and politics in Europe from the 18th to 20th centuries. Topics include women and the household economy; women and revolution; feminism and feminist movements; the rise of female professions; women's literature and feminist critical theory.

Credits: 3

HIS 3995: Topics in European History

Selected topics in European history of interest to faculty and students.

Credits: 3

HIS 4041: Hist Modern Middle East

The political, economic and social history of the Middle East with emphasis on the passing of imperial institutions and emergence of republics, trade and commerce, colonialism, and revolutionary movements.

Credits: 3

HIS 4076: Jewish History

The relation of the Jews to the historical process; the Jews in relation to the larger civilizations in which they have lived; Jewish intellectual and moral contributions; Jewish history in the Christian world; the Holocaust; formation of a Jewish homeland, Israel.

Credits: 3

HIS 4090: Women in the Middle East

Roles of Middle Eastern women from the seventh century to the present era. Women's lives and experiences, with emphasis on their influence and contribution to the economy, politics, literature and the arts. Attention to the effects of regional, ethnic, class, and religious differences on women's status and activities.

Credits: 3

HIS 4095: Top Middle Eastern Hist

Selected topics in Middle Eastern history of interest to faculty and students.

Credits: 3

HIS 4120: Emergence Modern Africa

The impact of 19th century European colonialism on Africa; the division of Africa into European dependencies; change and continuity in African culture; the emergence of independent African nation states after World War II; their difficulties and opportunities.

Credits: 3

HIS 4195: Topics African History

Selected topics in African history of interest to faculty and students.

Credits: 3

HIS 4210: Byzantine Civilization

The history and culture of the eastern Roman Empire from the founding of Constantinople in 330 by Constantine to its capture by the Ottoman Turks in 1453. The emperor and his court, Byzantine art and architecture, monasticism, Byzantine women, the rise of Islam, the Latin west and the Crusades.

Credits: 3

HIS 4322: History of Modern East Asia I

East Asia region (China, Japan, Korea, Taiwan, Hong Kong), late 19th century to mid-20th century. Topics include Sino-Japanese War (1894-1895), revolution in China, colonialism in Korea, Taiwan, and Hong Kong, rise and fall Japan's empire, and Korean War.

Credits: 3

HIS 4324: Modern East Asia II

East Asia region (China, Japan, Korea, Taiwan and Hong Kong), mid-20th century to present. Topics include communist revolutions in China and Korea, occupation Japan, economic "miracles" in Japan, Taiwan, South Korea, Hong Kong, and rise of China in 21st Century.

Credits: 3

HIS 4325: Modern China I, 1644-1912

Survey of Chinese history, 1644 to 1912, covering demise of last Chinese empire: the Qing empire. Topics include emergence of commercial society; Opium Wars, Imperialism, engagement with European world, and demise of the Empire and birth of modern Chinese nation.

Credits: 3

HIS 4330: Modern China II, 1912-Present

China during its republican and Communist periods.

Credits: 3

HIS 4335: Modern Japan

The social and political history of modern Japan (1868-Present); its dramatic rise to world power status, the long road to WW II, the impact of Allied Occupation; themes of cooperation and conflict in state-society relations.

Credits: 3

HIS 4340: Cult. of East Asian Capitalism

This course is a thematic historical survey focusing on the relationship between economic and non-economic processes -- social, cultural, and intellectual -- around the world the last three centuries. Readings are global in scope but will emphasize the historical experiences of East Asia, and in particular modern China and Japan.

Credits: 3

HIS 4365: Modern India and Pakistan

Modern history of the Indian subcontinent from late Mughal Empire to the present. Themes include: expansion of British power, anti-colonial nationalism, birth of India and Pakistan, and contemporary politics, economics, and culture in the region.

Credits: 3

HIS 4395: Topics in Asian History

Selected topics in Asian history of interest to faculty and students.

Credits: 3

HIS 4410: Colonial Latin America

Establishment and maintenance of a Hapsburg colonial state; indigenous responses to religious and secular colonization; the creation of a multicultural society from African, indigenous, and Iberian peoples from the 1580s the 1780s.

Credits: 3

HIS 4415: Revolutionary Latin America

Latin America's revolutionary century from the beginnings of political revolt in the 1780s to the beginning of economic modernization in the 1880s. Social and economic impact of the Bourbon Reforms; indigenous revolts and slave rebellions; liberal revolutionary movements culminating in the political independence but economic dependence of Spanish America; slavery and abolition.

Credits: 3

HIS 4495: Topics Latin Amer Hist

Selected topics in Latin American history of interest to faculty and students.

Credits: 3

HIS 4499: Topics in World History

Selected topics in world or non-western history of interest to faculty and students.

Credits: 3

HIS 4526: Mod Science Art Invention

Interactions among science, technology and art that have shaped modern culture since the industrial revolution of the late 18th century. Special attention to the sources, styles, and contexts of creativity in various fields.

Credits: 3

HIS 4527: Frankenstein to Artificial Life

The origins of artificial life forms by modern science, the perspective of involved scientists, literary observers, politicians and businessmen, and society as a whole. Topics include cloning, transplantation, artificial organs, genetic engineering, and artificial intelligence.

Credits: 3

HIS 4528: Women in Mod Sci & Tech

Women in the development of modern (since 1600) science and technology, including gender issues shaping theories and research, the impact of innovation on women's lives, and women as professionals and as creative workers.

Credits: 3

HIS 4620: 20th Cent Military Hist

The major wars of the 20th century: World War I, World War II, Korea and Vietnam. Cold War, wars of liberation.

Credits: 3

HIS 4996: Topics History of Gender

Selected themes in the history of gender examined in depth.

Credits: 3

HIS 4997: Topics in the History of Race

Selected themes in the history of race examined in depth.

Credits: 3

HIS 4998: Topics in Public History

Selected themes in public history examined in depth.

Credits: 3

HIS 5001: Junior Research Seminar

The junior research seminar introduces majors to research methods, sources, and historiography -- how historians have reconstructed, interpreted, and written about the past. By examining diverse interpretations and historical controversies, the seminars help students develop their abilities to critique historical arguments and develop their own arguments. The course prepares history majors for their Senior Research Methods course, HIS 5501.

Credits: 3

HIS 5501: Sem in Historical Methodology

Student research and reports. Seminar format. Written permission of chair required.

Credits: 3

HIS 5515: Independent Research

An intensive research project under individual direction. Written permission of chair required.

Credits: 3

Honors

HON 1000: Interdisc Humanities I: PHI

Major works and ideas from the classical Graeco-Roman and Christian traditions. Emphasis on philosophical ideas.

Extensive reading and writing requirements. Team-taught.

Credits: 3

HON 1001: Interdisc Humanities I: LIT

Major works and ideas from the classical Graeco-Roman and Christian traditions. Emphasis on literature and drama.

Extensive reading and writing requirements. Team-taught.

Credits: 3

HON 1003: Interdisc Humanities I: THL

Major works and ideas from the Graeco-Roman and Christian traditions. Emphasis on religious thought and development. Extensive reading and writing requirements. Team-taught.

Credits: 3

HON 1005: Interdisc Humanities I

Honors seminar on major works and ideas from the classical Graeco-Roman world. Emphasis on literature, drama, and performance.

Credits: 1

Co-Requisites:

HON 1000

HON 1003

HON 1006: Interdisc Humanities II

Honors seminar on major works and ideas from the medieval, Renaissance, and early modern periods. Emphasis on literature, drama, and performance.

Credits: 1

Co-Requisites:

HON 1051

HON 1053

HON 1007: Interdisc Humanities III

Honors seminar on major works and ideas from the modern and contemporary periods. Emphasis on literature, drama, and performance.

Credits: 1

Co-Requisites:

HON 2002

HON 2005

**HON 1051: Interdisc
Humanities II:LIT**

Major works and ideas from the Medieval period to the French Revolution. Emphasis on the evolution in literature from medieval to modern. Extensive reading and writing requirements. Team Taught. (3 cr) Sem 2. Two coreq: HON 1050, 1052, 1053, 1054.

Credits: 3

**HON 1053: Interdisc
Humanities II:THL**

Major works and ideas from the Medieval period to the French Revolution. Emphasis on the evolution in religious thought and institutions from medieval to modern.

Credits: 3

**HON 2002: Interdisc
Humanities III: HIS**

Major works and ideas of the 19th and 20th centuries, with emphasis on historical developments. Extensive reading and writing requirements. Team-taught.

Credits: 3

**HON 2003: Interdisc
Humanities III: THL**

Major works and ideas of the 19th and 20th Centuries, with emphasis on religious thought. Extensive reading and writing requirements. Team taught.

Credits: 3

**HON 2005: Interdisc
Humanities III: ETH**

Major works and ideas of the 19th and 20th Centuries, with emphasis on ethical thought. Extensive reading and writing requirements. Team taught.

Credits: 3

**HON 2550: Humanities
Seminar**

Interdisciplinary study of distinctiveness of humanistic knowledge, humanist perspectives on the social and natural sciences, hermeneutics and interpretation, objectivism and relativism.

Credits: 3

**HON 2560: Social Science
Seminar**

Methodology of empirical and statistical analysis in the social sciences. Computer applications to data analysis, model designs and theory testing.

Credits: 3

**HON 2570: Natural Science
Seminar**

Methods and issues related to scientific research, including representation and evaluation of data, value questions, and the nature of scientific certainty.

Credits: 3

HON 3100: Classics

Credits: 3

HON 3450: Communication

Credits: 3

HON 3600/3601: Literature

Credits: 3

HON 3601: Literature

Credits: 3

HON 3850: Geography

Credits: 3

HON 4000/4001: History

Credits: 3

HON 4075: Humanities

Honors Seminar. Topics will vary.

Credits: 3

HON 4090: Humanities

Honors Seminar. Topics will vary.

Credits: 3

HON 4100: Mathematics

Credits: 3

**HON 4200: Topic:
Criminology**

Topics addressing special or emerging interests, chosen for their current importance and the specific expertise of an instructor.

Credits: 3

HON 4201: Topic: Criminology

An evidence-based analysis of what works, what does not work, and what is promising for programs and policies designed to prevent crime and delinquency. An overview of criminological theories, in-depth coverage of school-based delinquency prevention, and analysis of prevention strategies in other settings such as families, communities, places, and labor markets.

Credits: 3

HON 4300/4301: Philosophy

Credits: 3

HON 4301: Philosophy

Credits: 3

**HON 4400: Justice Seminar
Abroad**

Two week intensive course abroad examining social justice efforts in another country.

Lectures by local experts and site visits.

Credits: 3

HON 4500: Political Science

Credits: 3

HON 4700: Psychology

Credits: 3

HON 4701: Psychology

Credits: 3

**HON 4800/4801: Theology &
Religious Studies**

Credits: 3

HON 4801: Theology & Religious Studies**Credits:** 3**HON 4900/4950: Sociology****Credits:** 3**HON 5001: Shaping A College Life**

Shaping a College Life aims at helping Honors students navigate successfully the transition of high school to college by inviting them into a co-curricular one-credit experience focused around several themes. This is a graded course that can be bundled with 2 other approved 1 credit courses for Honors credit.

Credits: 1**HON 5002: Shaping A College Life II**

Shaping a College Life II continues the themes of Shaping a College Life, and invites students to have a reflective experience that provides the opportunity to gain a deeper understanding of yourself, your peer group, and Villanova. This is a graded course that can be bundled with 2 other approved 1 credit courses for Honors credit.

Credits: 1**Prerequisites:**

HON 5001

HON 5003: Shaping a Work Life

Professional development seminar focusing on the meaning of work and developing and achieving career goals. Course will combine in-class and out-of-class activities engaging students to explore career and calling.

Credits: 1**HON 5100: Theatre Theory and Performance**

Topics, genres, and practice in production, performance, and critical vocabulary with which to analyze and discuss what is seen and read; texts which engage critically with performance. Staging challenges and performance possibilities offered by stage scripts.

Credits: 3**HON 5300: Enrichment: Topics**

Intensive experiential courses providing enrichment opportunities. Individual and group participation directed toward enhancing intellect and delight.

Credits: 1**HON 5305: Colloquium**

Colloquium is a one-credit seminar for Honors students that is capable of being bundled into a 3-credit course. Course meets once a week. Discussion of books and readings selected by instructor. May be repeated.

Credits: 1**HON 5400: Performing Arts: Dance**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5410: Performing Arts: Instrument**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5420: Performing Arts: Theatre**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5440: Literary Arts: Poetry**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5450: Literary Arts: Prose**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5460: Plastic Arts: Painting**

Intensive experiential courses in performance, literary, and plastic arts. Individual and group participation directed toward reflexive understanding of one's self as engaged in the process of creativity.

Credits: 1**HON 5490: Culture Leadership Workshop**

Civic engagement skill set development in global events; cultural trends; intercultural communication; and discourse across academic disciplines.

Credits: 1

HON 5500: Ind Study & Research

Independent Study and Research

Credits: 3

HON 5501: Ind Study & Research

Independent Study and Research

Credits: 3

HON 5506: Ind Study & Res Science

Independent Study and Research in Science

Credits: 3

HON 5507: Ind Study & Res Science

Independent Study and Research in Science

Credits: 3

HON 5598: Teaching Practicum

Teaching Practicum.

Credits: 1

HON 5599: Teaching Practicum

Intern teaching under supervision of Practicum Coordinator.

Credits: 3

HON 5600: Seminar for Visiting Professor

Seminar topic to be determined by visiting professor.

Credits: 3

HON 5700: Colloquia

Credits: 3

HON 5702: Colloquia

Credits: 3

HON 5750: Colloquia

Credits: 3

HON 6000: Senior Thesis I

Major independent research project under the direction of a thesis advisor. The first semester includes a comprehensive proposal and bibliography, research design, detailed outline, and substantive writing sample.

Credits: 3

HON 6002: Senior Thesis II

Major independent research project under the direction of a thesis advisor. In addition to completing the thesis, students must participate in the Senior Research Conference and thesis defense.

Credits: 3

HON 6003: Integrative Capstone

Course will prepare students pursuing the Honors Degree through the non-thesis track for their oral examination.

Credits: 1

Human Resource Management

HRMG 2000: Introduction to Human Resource

This course will focus on the organizational context for human resources and provide students with a broad overview of the major functional areas of HR including staffing, performance management, employee and labor relations, U.S. employment law, workplace health and safety, compensation, and benefits. This course is a prerequisite course for each of the new courses being designed for this major: HRM 2010, HRM 2020, HRM 2030, and HRM 5000.

Credits: 3

HRMG 2010: Employment Law

This course will provide an overview of current employment laws in the United States. Major legislation that impacts the workplace will be discussed. This course will help students gain an understanding of both the business and ethical environment associated issues like employee rights, safety and healthy, and discrimination in the work place.

Credits: 3

HRMG 2020: Talent Acquisition&Employee Dev

This course will focus on HR's role in talent acquisition and talent management throughout the employee life cycle. Students will discuss a broad range of talent and performance management challenges including employment branding, recruiting, selection, employee engagement, and training and development. Students will gain an understanding of job analysis, job descriptions, onboarding, the ADDIE model, needs assessment, and realistic job preview throughout this course.

Credits: 3

Prerequisites:

HRMG 2000

HRMG 2030: Managing Compensation&Benefit

This course will focus on managing employee compensation and benefits. Students will evaluate compensation models used in organizations like base pay, merit pay, profit sharing, pay-for-performance, and lead/lag/match market-based strategies. Students will gain an understanding of major employee benefits offered by organizations.

Credits: 3**Prerequisites:**

HRMG 2000

HRMG 5000: HR Management Research Practicum

HR Management Research
Capstone

Credits: 3**Prerequisites:**

HRMG 2000 and HRMG 2010 and HRMG 2020 (or concurrently) and HRMG 2030 (or concurrently)

Human Services

HS 2000: Intro:Prin & Survey Prac

Course is Writing Enriched.

Credits: 3**HS 2100: Assessment and Referral****Credits:** 3**HS 3000: Lab Communication Skills****Credits:** 3**HS 3500: Gerontology****Credits:** 3**HS 3600: Life Skills Planning**

Determination of personal and professional life goals from the perspective of one's own strengths and weaknesses. Helping others in the process of selecting career paths and developing self and peer helping skills. Recommended for undergraduate students interested in the decision-making factors in career selections.

Credits: 3**HS 3700: Human Service Systems**

Organizational structures, trends and influences that impact Human Services Systems. Special emphasis upon managed care and case management as well as Human Resource Development.

Credits: 3**HS 3900: Human Services Ind. Study**

Supervised research or field experience project and paper. Students may only register for this class once, and it cannot take the place of any Human Service course requirements.

Credits: 3**HS 4000: Seminar Human Services**

Integration of the theoretical and practical aspects of the student's program.

Credits: 3**Prerequisites:**

HS 2000 :D- and HS 2100 :D- and HS 3000 :D- and HS 3100 :D-

HS 4100: Pract Human Services

Application of human service skills gained in the program through volunteer service in a community organization and structured peer counseling. The on-campus seminar will focus on tapes and case study material.

Credits: 6

Humanities

HUM 1903: Internship**Credits:** 3**HUM 1906: Internship****Credits:** 3**HUM 1975: Epiphanies of Beauty**

Exploration of literary arts as illuminating human condition and mystery of creation through several genres: novel, novella, drama, poetry, short story. T.S. Eliot, Claudel, G.M. Hopkins, J. Joyce, Flannery O'Connor, R.L. Stevenson, O. Wilde.

Credits: 3**HUM 2001: THL:God**

What is religion, anyway? Do we need it anymore? What is the place of religion in the contemporary world? How revelation might illuminate God and creation in a way that transforms the world? Fulfills an upper level Theology in the Core Curriculum.

Credits: 3

HUM 2002: Human Person

What is human nature, human destiny? How does one become more deeply human? What does it mean to act for the human good? How can we discover meaning in primordial human experiences such as love, mortality, finitude, and suffering?

Credits: 3

HUM 2003: PHI:World

Modern science is a dominant way of interpreting the world, and so human life. How does modern science interpret the world? What are the effects of this interpretation on the way we view human beings? Fulfills an upper level Philosophy in the Core Curriculum.

Credits: 3

HUM 2004: PSC:Society

Political, economic, and family life dominate our concerns and yet we seem cynical about possibly finding meaning in them. How is our dependent, rational nature developed through marriage, family, work, markets, and government? Fulfills an upper level Political Science in the Core Curriculum.

Credits: 3

HUM 2100: HIS:The Goods & the Good Life

Explore issues in economic life through texts in theology, philosophy, history, anthropology, literature, and arts. Why do we work, what is the difference between work and toil? What does the production and consumption of things tell about the human person, world, and God?

Credits: 3

HUM 2900: Topics

Specific topics vary each semester.

Credits: 3

HUM 2950: Vocation and Purpose

Reflection on Villanova college experience in guided seminar discussion and workshops designed to envision and shape post-graduate career and life paths. Restriction: Instructor Permission

Credits: 1

HUM 2993: Internship

Credits: 3

HUM 2996: Internship

Humanities majors must satisfy all requirements set by the Internship Office. Students must submit a 10-15 page essay to the Humanities Chair copying the Internship Office. See department web page for particulars.

Credits: 6

HUM 3001: ENG:Lewis Tolkien & Inklings

Explores the fictional, theological, and philosophic writing of C.S. Lewis, J.R.R. Tolkien, and the Inklings (Charles Williams, Dorothy L. Sayers, G.K. Chesterton, George MacDonald). Investigates the relationship between fantastic "otherworldly" fiction and human "wordly" experience. Fulfills an upper level Literature in the Core Curriculum.

Credits: 3

HUM 3050: The Poetry of Meditation

Study of philosophical and religious poetry: Dante, Herbert, Hopkins, Eliot, Pinkerton, and Hill.

Credits: 3

HUM 3200: PSC: Politics & Human Nature

Our conception of human nature arises in part from our practice of politics and vice versa. What is the relationship between the way we think about the nature and meaning of human life and the practice of politics? Fulfills an upper level Political Science in the Core Curriculum.

Credits: 3

HUM 3400: Nature, Technology, America

How has America reconciled its reverence for nature with its exceptional claims of technological prowess? Explores the intersection of nature and technology using Leo Marx's idea of "the machine in the garden" in American cultural, social, and art history.

Credits: 3

HUM 3600: Amer Architecture since 1865

Survey of architecture and town planning in the United States from 1865 to present. Themes of American exceptionalism, emergence of modern design, and continuity of traditional architecture. Major figures include Frank Lloyd Wright, Mies van der Rohe, Frank Gehry.

Credits: 3

HUM 4000: Jews, Christians, Muslims: Dialog

An overview of the context of radical pluralism within which contemporary discourse occurs. An examination of the challenges of this situation, an observation of Aquinas' interaction with other thinkers, and a proposal for this medieval model for inter-religious inquiry.

Credits: 3

HUM 4200: Forgiveness: Pers & Pol

This seminar mimes recent discussions that address these crucial questions: Does forgiveness abrogate justice? What is the place of anger and hate? May we forgive persons who will not repent? Is forgiveness a duty? Can forgiveness resolve political disputes and racial tensions?

Credits: 3

HUM 4350: PHI: Problem of Love

Reading a broad survey of philosophical discussions of love, from Plato to Derrida, we will address a variety of questions concerning the nature of love, the relationship between self-interest, self-love, and love of other, whether Christianity makes a difference to the meaning of love, and related issues. Fulfills an upper level Philosophy in the Core Curriculum.

Credits: 3

HUM 5150: Literature & Politics

Exploration of the relationship between literature and politics through novels, poetry, theater, and journalism. Authors: Orwell, Conrad, Zola, Wilde, Silone, Baldwin, and others.

Credits: 3

HUM 5900: HUM - International Context

Course integrates both academic and practical approaches exploring issues in service projects and voluntary organizations.

Credits: 3

HUM 5950: Citizenship & Globalization

Examination of the sweep of British History since 1327, with special attention to four periods: Medieval England; Early-Modern London and Reformation, Renaissance, and Revolution; Eighteenth and Nineteenth Century Britain and the growth of Empire; and Post-Colonial United Kingdom and the European Union.

Consideration given to English Music, Art and Architecture, Literature, and Political Theory. To take place partly in London.

Credits: 3

HUM 5975: Pellegrinaggio: Augustine

Learn more about the life and works of St. Augustine of Hippo. Examination of the life and writings of St. Augustine in preparation for the pilgrimage to Italy, and on-site exploration of Augustine's historical context and legacy.

Credits: 3

HUM 6000: Great Thought Seminar

Focused engagement with great text, great thinker, great idea in the intellectual tradition. Examples include: Brothers Karamazov, Plato's Republic, Wordsworth, Frank Lloyd Wright, John Ruskin, Thomas Aquinas. Course explores basic human questions as illuminated by the thinker or text.

Restriction: Must have completed 2 Gateway courses.

Credits: 3

Prerequisites:

HUM 2001 or HUM 2002 or HUM 2003 or HUM 2004

HUM 6500: Senior Seminar

The department's capstone is a seminar, meeting once a week, in which students read contemporary texts on issues they have engaged in their study of the humanities.

Credits: 3

HUM 6950: Ind Study & Research

Credits: 3

Information Systems and Technology

ISYT 1000: Intro to Info Sys & Tech

An overview of key ideas, principles, and theories related to information systems and technology. Develops a combination of technical and business skills.

Credits: 3

ISYT 1100: Data and Information Mgmt

An overview of data and information management for professionals.

Credits: 3

ISYT 5000: Information Systems Capstone

Student driven project providing experience on the investigation or implementation of an Information System solution that includes management of a project through the full system lifecycle. A cumulative experience intended to complete a student's portfolio of expertise in Information System.

Credits: 3

ISYT 5993: Info System&Tech Indp Study

Reading research and/or projects in a selected area of information systems & technology under the direction of a member of the staff. May be repeated for credit Director's Approval; CPS.
Credits: 3

Italian

ITA 1111: Introductory Italian I

Groundwork in Italian, including oral proficiency, aural comprehension and reading for students with no prior knowledge of Italian. Supplementary language laboratory work and oral drills.
Credits: 4

ITA 1112: Introductory Italian II

Groundwork in Italian, including oral proficiency, aural comprehension and reading for students. Supplementary language laboratory work and oral drills.
Credits: 4

ITA 1121: Intermediate Italian I

Review of grammar, composition, reading and conversation. Students should have completed ITA 1111 and 1112 or the equivalent.
Credits: 3

ITA 1122: Intermediate Italian II

Review of grammar, composition, reading and conversation. Students should have completed ITA 1121 or the equivalent.
Credits: 3

ITA 1131: Conversation & Composition I

Intensive practice in conversation and composition with emphasis on developing advanced language skills in Italian.

Credits: 3

ITA 1132: Conversation & Composition II

Further practice in conversation and composition with focus on advanced proficiency in Italian. Students should have completed ITA 1131 or the equivalent.

Credits: 3

ITA 1138: Advanced Grammar

Intensive practice of spoken and written Italian.

Credits: 3

Prerequisites:

ITA 1131 :D-

ITA 1140: Writing & Stylistics in Ita.

Intensive practice in written expression and textual analysis. Compositions are modeled on selected Italian texts.

Credits: 3

ITA 1141: Italy in Business

An overview of contemporary Italy from the perspective of business (leading brands, productive sectors, marketing strategies, financial trends, law and politics).

Credits: 3

Prerequisites:

ITA 1131

ITA 1143: Readings in Italian Literature

Readings in fiction, verse and drama representing various literary currents and personalities from the Renaissance to modern times.

Credits: 3

Prerequisites:

ITA 1131

ITA 2220: Italian Lit and Culture I

Introduction to Italian literature and culture from the Middle Ages to the Renaissance. A required course for majors. Pre-requisite: ITA 1131 or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 2221: Italian Lit. and Culture II

Introduction to Italian literature and culture from the Baroque to the 20th century. A required course for majors. Pre-requisite: ITA 1131 or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 2222: Italians and America

Introduction to the cinematographic and literary images of Italians and Italian-Americans, from the discovery of the new world to the present.

Credits: 3

Prerequisites:

ITA 1131

ITA 2225: Italian Music

The interaction of musical performance and poetry (from opera to contemporary songwriting) and the role of music in Italian society. Pre-requisite: ITA 1131 or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 2314: Italian Poetry

A selection of masterpieces of Italian poetry from the origins to the present. Pre-requisite: ITA 1131 or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 2324: Diversity, Gender, Race

The course addresses issues of identity related to diversity mainly gender, but also race in modern Italy. Pre-requisite: ITA 1131 or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 2993: Italian Internship Project

Students may receive up to 3 credits for an internship experience in an Italian business, non-profit, government agency, museum, or an Italian cultural association. Approval of the Italian Coordinator is required. Pre-requisite: ITA 1131 or authorization of instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3064: Performing Comedy

Reading and staging of a theatrical piece in Italian. The course includes grammar review, critical interpretation and production of the text. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3074: Intro to Italian Cinema

A critical introduction to the masterpieces of the Italian cinema from DeSica and Fellini to Tornatore and Sorrentino. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3075: Visual History of Italy

A study of Italian history and culture with an emphasis on film, painting, and architecture. In Italian. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

ITA 3285: Italy and Europe

The contribution and role of Italy in the European politics, economy, and culture, from its making as a nation to the present. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3365: The Italian Theatre

A selection of masterpieces of Italian theatre, from the Renaissance to modern times. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3366: Italian Opera

Introduction to Italian opera from Monteverdi to Verdi and Puccini. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3412: Special Topics

Advanced study of topics of special interest in Italian literary and/or cultural studies. May be repeated for credit if topic changes. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3413: Topics on Italy and Beauty

Advanced study of expressions of beauty as manifested in Italian Culture (Literature, Art, Philosophy, Design, and Commerce). Offered in Italian. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

ITA 3455: Dante's Divine Comedy

Selected readings in Italian from Dante's masterpiece. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3545: Petrarca and Boccaccio

The major works of Francesco Petrarca and Giovanni Boccaccio. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3625: The Italian Renaissance

Writers, artists, intellectuals of the Humanistic age and of the Renaissance. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

Any ITA course at the 2000 level or authorization from instructor.

ITA 3725: The Italian Baroque

An introduction to the poetics and the main artists of the Italian Baroque. Caravaggio, Bernini, Galileo, Marino, Vico, commedia dell'arte, opera. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3824: Classics and Romantics

An overview of Italy's culture in the 18th and 19th centuries: neo-Classicism, Romanticism (Foscolo, Leopardi, Manzoni) and Risorgimento. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3925: Italian Modernism

Literature and art of the 20th century. Futurism, avant-gardes, Pirandello, De Chirico, Calvino and postmodernism. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3970: Research Seminar

Concentrated study on one aspect of Italian literature chosen by the instructor. Immersion in primary and secondary materials and introduction to principles and techniques of literary research and bibliography ultimately leading to the writing of the research paper. Required for majors. Open to all advanced students. Pre-requisite: Any ITA course at the 2000 level or authorization from instructor.

Credits: 3

Prerequisites:

ITA 1131

ITA 3971: Directed Research in Italian

Directed semester-long research project that satisfies the College research requirement, taken in conjunction with another upper-level ITA content course. Pre-requisite: ITA 2220, ITA 2221 or approval from the ITA coordinator.

Credits: 1

Prerequisites:

ITA 2220 and ITA 2221

ITA 5900: Independent Study

Credits: 3

Prerequisites:

ITA 1131

Japanese Language

JPN 1111: Introductory Japanese I

Functional use of Japanese for students with no prior knowledge of Japanese. Communication skills (speaking and listening), reading and writing skills. Supplementary practice with computer. JPN 1111 or equivalent or permission of instructor.

Credits: 6

JPN 1112: Introductory Japanese II

Functional use of Japanese for students with no prior knowledge of Japanese. Communication skills (speaking and listening), reading and writing skills. Supplementary practice with computer. JPN 1112 or equivalent or permission of instructor.

Credits: 6

JPN 1121: Intermediate Japanese I

Further practice of communication skills (speaking and listening), reading and writing skills. Supplementary practice with computer.

Credits: 5

JPN 1122: Intermediate Japanese II

Further practice of communication skills (speaking and listening), reading and writing skills. Supplementary practice with computer. JPN 1121 or equivalent or permission of instructor.

Credits: 5

JPN 1131: Advanced Japanese I

Advanced practice of communication skills - oral, speech and discussion skills, reading and writing skills. Supplementary practice with computer. JPN 1122 or equivalent or permission of instructor.

Credits: 3

JPN 1132: Advanced Japanese II

Advanced practice of communication skills - oral, speech and discussion skills, reading and writing skills. Supplementary practice with computer. JPN 1131 or equivalent or permission of instructor.

Credits: 3

JPN 1133: Advanced Japanese III

Advanced practice of communication skills including reading, discussing topics on current events and speech. Supplementary practice with computer. JPN 1132 or equivalent or permission of instructor.

Credits: 3

Prerequisites:

JPN 1132

JPN 1134: Advanced Japanese IV

Advanced practice of communication skills including reading, discussing topics on current events and speech. Supplementary practice with computer. JPN 1133 or equivalent or permission of instructor.

Credits: 3

Prerequisites:

JPN 1133

JPN 2100: Japanese Lit Eng Trans

The masterpieces of Japanese literature with a component on women writers. Conducted in English.

Credits: 3

JPN 2102: Japanese Film

Introduction to Japanese film to those who are interested in but not necessarily exposed to Asian culture and language. Fulfills requirements for minor in Japanese.

Credits: 3

JPN 2143: Japanese Animation

Explores how anime is a reflection of Japanese society, art & culture. Introduction to rich & varied world of Japanese animated films by considering anime as medium, art, culture, & industry. Introduction to history, theory, aesthetics & cultural aspects of anime, with emphasis on 'the art of communication' with the medium. Fulfills requirement for Japanese minor.

Credits: 3

JPN 2144: Japanese Culinary Culture

General introduction to Japanese culinary culture, relationship to Japanese society & culture in general, & historical & cultural reasons it has developed as it has. Familiarizes students with historical & modern Japanese cuisine. Discusses historical, geographical & religious background as well as foreign influences. Fulfills requirement for Japanese minor.

Credits: 3

JPN 3412: Special Topics

Advanced study of topics of special interest in Japanese literary and/or cultural studies. May be repeated for credit if topic changes. Fulfills requirements for Japanese minor and concentration in East Asian Studies. Taught in English.

Credits: 3

JPN 5900: JPN:Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Latin

LAT 1111: Introductory Latin I

Basic forms, syntax and vocabulary; selected Latin prose in second semester.

Credits: 3

LAT 1112: Introductory Latin II

Basic forms, syntax and vocabulary; selected Latin prose in second semester.

Credits: 3

LAT 1121: Intermediate Latin I

Review of Latin syntax; selected readings from prose and poetry.

Credits: 3

LAT 1122: Intermediate Latin II

Review of Latin syntax; selected readings from prose.

Credits: 3

LAT 3001: Readings in Authors

Selected readings from a variety of Latin authors.

Credits: 3

LAT 5350: Ovid

Ovid as an epic poet of the Augustan age.

Credits: 3

LAT 5900: Latin: Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Latin American Studies

LAS 3412: Special Topics

Study of topics of special interest in Latin American Studies. Topics to be arranged.

Credits: 3

LAS 3950: Latin American Studies Seminar**Credits:** 3**LAS 5000: Internship**

Global, cross-cultural experience. Six weeks of summer practicum at a major economic, political, or cultural institution in Chile.

Credits: 3**LAS 6000: Independent Study & Research**

Independent research on a topic relevant to Latin America. Cross-disciplinary. Required integration of theory and data.

Credits: 3

Leadership

LDR 2000: Foundations of Leadership

Introduction to the concepts of and approaches to leadership. Historical and contemporary leadership theories.

Credits: 3**LDR 2010: Strategic Planning for Leaders**

The strategic planning process in organizations. Mission, values, goals, alignment and accountability in the development and execution of a strategic plan.

Credits: 3**LDR 2020: Leadership & Community**

Leadership in the public sector. A study of leaders in politics, civil rights, academics/research and corporations. Evaluation of effective/ineffective leadership styles.

Credits: 3**LDR 2030: Leading with a Digital Mindset**

Analysis of the implications of technology on leadership. The strategic role of technology in organizations. Define and analyze attitudes and behaviors of a "digital mindset".

Credits: 3**Prerequisites:**

LDR 2000

LDR 2040: Ethics & Leadership

The nature of ethical leadership. How the leader's values and beliefs affect decision making. The concepts of organizational and social responsibility.

Credits: 3**LDR 2050: History of Leadership**

This course evaluates the history of leadership and leaders from both the theoretical and practical perspective. Historical aspects examined will include war, peace, severe economic conditions, technology advances, societal changes, and the evolution of organizations. Students will develop a leadership philosophy and approach, and examine this approach and its place in the grander context of the history of leadership.

Credits: 3**Prerequisites:**

LDR 2000

LDR 2060: Global Strategic Leadership

Global leadership dynamics and strategy. Cross-cultural awareness; ethics and social responsibility and international and global contexts

Credits: 3**Prerequisites:**

LDR 2000

LDR 2070: Strategy Driven Talent Mgmt

Develop a personal talent management philosophy and plan. Improve ability to reflectively lead talent management efforts. Develop the capacity to analyze and assess talent management practices. Sharpen decision making and problem solving techniques. Research, develop and present a talent management project.

Credits: 3**LDR 2080: Leadership Communication**

Explore strategies and tactics for engaging and inspiring your team, clients, and partners. Includes topics such as communicating your vision, social media strategy, storytelling, and crisis communication.

Credits: 3**Prerequisites:**

LDR 2000

LDR 3400: Leadership Internship Practicum

Approved semester project involving supervised practical application of previously learned knowledge. Supervision by faculty member and staff. Permission of Dean required

Credits: 3**LDR 5000: Leadership Capstone Course**

Utilizes integration and analysis of leadership principles. Case studies and team-based project covering major topics in the leadership curriculum.

Credits: 3**Prerequisites:**

LDR 2000

LDR 5940: Leadership Topics

Presentation of selected topics in leadership. May be repeated for credit if topics are different. Pre-requisites may be imposed depending on the topics.

Credits: 3

LDR 5950: Special Topics in Leadership

Intensive workshops or seminars in selected areas of leadership that focus on professional development and applied knowledge. May be repeated for credit if topics are different. Pre-requisites may be imposed depending on the topics.

Credits: 1

LDR 5993: Leadership Topics

Reading, research and/or projects in a selected area of leadership under the direction of a member of the staff. May be repeated for credit.

Credits: 3

Liberal Arts

CLA 6001: Senior Classics Capstone

A reading, research, and conference course on selected topics of classical culture and history; introduction to research in classical studies.

Credits: 3

LA 1903: Internship Elective

Permission of Program Director required. Rising sophomore standing (minimum 30 credits completed) with a 3.0 overall GPA for fall or spring internship; 2.7 overall GPA for summer internship.

Credits: 3

LA 1904: Global Internship

Global internship course. Must secure approval of Office for Undergraduate Students (OUS) Internship Office.

Credits: 3

LA 1906: Internship Elective

Permission of Program Director. Rising sophomore standing (minimum 30 credits completed) with a 3.0 overall GPA for fall or spring internship; 2.7 overall GPA for summer internship

Credits: 6

LA 1909: Internship Elective

Permission of Program Director. Rising sophomore standing (minimum 30 credits completed) with a 3.0 overall GPA for fall or spring internship. 2.7 overall GPA for summer internship.

Credits: 9

LA 2993: Internship

Credits may be applied to requirements for the major in Liberal Arts in the required Liberal Arts elective slots. Permission of Program Director. Rising sophomore standing (minimum 30 credits completed) with a 3.0 overall GPA for fall or spring internship; 2.7 overall GPA for summer internship.

Credits: 3

LA 2996: Internship

Credits may be applied to requirements for the major in Liberal Arts in the required Liberal Arts elective slots. Permission of Program director. Rising sophomore standing (minimum 30 credits completed) with a 3.0 overall GPA for fall or spring internship; 2.7 overall GPA for summer internship.

Credits: 6

Management

MGT 1102: Management Essentials

Introduction to organizational structures and functions; management processes and behavior of individuals and groups in organizations.

Credits: 3

Prerequisites:

(ECO 1001 or SBI 2005) and ECO 1002 and ACC 1101

MGT 2153: Intro Human Resources

Role of Human Resources Management in corporate strategy and success. Staffing, compensation, work design, performance measurement, individual and career development, safety, health, and separation. Focus on HR as critical success factor in organizations. Junior or senior standing, or permission of instructor.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2155: Organizational Behavior

Human behavior in organizations; research and theoretical writing on organizational behavior; case discussions. Junior or senior standing.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2206: Management Practice

Application of management theory to problem identification and solutions. Motivation, leadership, discipline and shaping organizational cultures. Junior or senior standing.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2208: International Topics

Examination of a specific international management topic, which may vary from semester to semester, as reflected in the course title (e.g., Internatl Top: Mgt in Europe). Can be used toward the elective course requirement for the VSB IB Co-Major and IB Minor and as an management elective. Junior or senior standing.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2212: Leadership

Focuses on the behavioral dimension of managerial action and decision-making with emphasis on the underlying theory and ethical components of effective leadership. Individual self awareness of motivating values and effective participation on team projects emphasized.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2250: Global Corp Responsibility

Explores globalization and its implications for corporate social responsibility. Drawing from multiple disciplines and perspectives, students examine stakeholder claims and issues related to the environment, labor, and human rights, and analyze corporations' response to these pressures using specific cases and examples.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2350: Global Business Management

An elective topic dealing with the cross-cultural aspects of management. Student cases will address how politics, religion, social customs, and history shape and influence management practices. Junior or senior standing.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2352: Business in Emerging Markets

Focuses on management and strategy in "big emerging markets," like Argentina, Brazil, China, India, Malaysia, Mexico, Poland, South Africa, Taiwan, and Turkey. Examines social, political, economic, cultural, and financial conditions challenging businesses exporting to or investing in these countries.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2360: Global Leadership

Help students gain insights about the nature of culture, the nature of leadership, and their intersection. Provide students with an increased understanding of, (1) existing theory and research on different leadership and culture topics and, (2) themselves with respect to leadership development and cultural intelligence.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2370: Global Business Ethics

Interactive study of business ethics within a global economy. Alternative ethical theories across and within different cultures are presented. Both Western and non-Western traditions are explored to develop a framework useful to address ethical challenges as they arise globally.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 2400: Mgt of Creativity & Innovation

Develops students' awareness and confidence to innovate. Value of creativity tools and techniques for individual and group innovation. Students develop their own preferred creativity process and apply to individual and group challenges. Study innovation processes at organizational system level.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3070: Solving Complex Bus Problems

Explores solving complex business problems. Focus is on developing tools, techniques, and methodologies used in the consulting industry.

Credits: 3

Prerequisites:

VSB 2009 and VSB 2020

MGT 3080: Management Consulting Practicu

Focuses on application of consulting practices through a hands-on, practical consulting experience working with an organization/live client.

Credits: 3

Prerequisites:

MGT 3070

MGT 3160: Business Decision Making

Integration of behavioral science and quantitative approaches to decision-making; descriptive and prescriptive models in individual, group and organizational settings, expected value, utility theory, the analytic hierarchy process, risk analysis, and computer simulation of business problems especially in business technology management.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3170: Data Mining

The process of exploring and modeling large amounts of data to uncover previously unknown patterns. Using data mining techniques, managers can exploit large databases, identifying useful patterns to help make business decisions. Applications to marketing, finance and other business disciplines. VSB 2005 Business Statistics or equivalent or instructor permission.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2008 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3300: Business Analytics Internship

Employment with approved business firm where business analytics experience is gained through appropriate training, instruction, and supervision. Department chair approval required.

Credits: 3

MGT 3305: International Study Practicum

Class work, enrichment activities, and projects at a selected international academic institution, including visits to businesses in the surrounding region. Three-week requirements include a comprehensive research paper worthy of publication.

Credits: 3

MGT 3310: B.A. Internship

Employment with approved business firms where various meaningful assignments are performed with appropriate training, instruction, and supervision. Department chair approval required.

Credits: 3

MGT 3320: Ind Study - Management

Study with faculty member's guidance and approval in area of special interest to student. Department chair approval required.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3340: Ind Study-Internat'l Busn

Study with faculty member's guidance and approval in area of special interest to student. Department chair approval required.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3350: Ind Study Small Business

This independent study will help students understand the environment and significance of small business in the economy. Problems in starting a small business and factors that contribute to success or failures. Department chair approval required.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 3600: Sports Analytics

Integration of analytics into decision making for sports organizations; use data to perform team and player evaluations, analyze in-game decisions, automate scouting reports, and other analysis; R programming utilized.

Credits: 3

Prerequisites:

VSB 2008 and VSB 2020

MGT 4132: Seminar in Management

Study of selected topics in Management including discussion and lecture materials prepared and presented by individual students. Topics to be announced each semester, when seminar is offered.

Credits: 3

Prerequisites:

(VSB 2020 and VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently)) or MGT 1102

MGT 4170: Advanced Analytics

Covers how managers use advanced business analytics tools to support tactical and strategic business decisions. Covers applications of advanced business analytics techniques that support cross-functional decision making using software packages (for example: @Risk, Extend, Tableau, Hadoop, and aText) to help support the analytics process.

Credits: 3

Prerequisites:

MGT 3170 (or concurrently)

Management Information Systems

MIS 2020: Prog for Adaptive Prob Solving

Explores a problem solving methodology that employs programming. Emphasis upon identifying capabilities and limitations of the programming approach. Learn skills and techniques to define business problems, design solution processes, develop program specifications, code, debug, and document and defend solutions.

Credits: 3

Prerequisites:

VSB 2006 and VSB 2020 (or concurrently) and (VSB 2009 (or concurrently) or VSB 2010 (or concurrently) or VSB 2030 (or concurrently) and VSB 2040 (or concurrently))

MIS 2030: Database Management

Theoretic and practical issues related to the management of a data base in a business environment including: the role of databases and database applications in contemporary organizations; data modeling using entity-relationship models; fundamentals of the relational data model and its implementation with SQL; characteristics of distributed databases and Client/Server data base technologies.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020 (or concurrently) and (VSU 2009 (or concurrently) or VSU 2010 or VSU 2030 (or concurrently) and VSU 2040 (or concurrently))

MIS 2040: Systems Analysis & Design

Concepts, tools and techniques in the analysis and design of computer-based information systems; major issues and decision making in each phase of the development life cycle, application of creativity and innovation to the practice of systems analysis and design, skills necessary for modeling the data and processing requirements of an information system using an automated development tool, a systems development team project approach.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020 (or concurrently) and (VSU 2009 (or concurrently) or VSU 2010 or VSU 2030 (or concurrently) and VSU 2040 (or concurrently))

MIS 3010: Business Data Communications

Introduction of the fundamental concepts and terminology of data communications and networking with respect to technical and managerial aspects including: the fundamentals of telecommunication media and services, topologies and protocols in local area networks (LAN) and wide area networks (WAN), the Internet technologies (IP addressing and subnetting), Intranet/extranet applications (VPN and other encryption technologies), new trends and enabling technologies in data communications industry.

Credits: 3

Prerequisites:

MIS 2020 or MIS 2030 or MIS 2040

MIS 3020: Enterprise Systems & Appl

Management and development enterprise computing concepts and applications in today's organization; integration of information systems in real time for support of internal functions; integration of different E-Commerce front ends with the Enterprise Resource Planning (ERP) system for extension of their functionality.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020 and (VSU 2009 or VSU 2010 or VSU 2030 and VSU 2040)

MIS 3030: Enabling Tech in E-Business

Introduces theory, techniques, and tools needed to build successful E-business applications. It includes a survey of business web applications and their underlining technologies. Students learn to use client-side and server-side techniques, such as JavaScript, CGI, and Active Server Page, to building web applications. As a part of the course, students will be required to construct a functional database-driven web application by utilizing the technologies covered in class.

Credits: 3

Prerequisites:

MIS 2020 or MIS 2030 or MIS 2040

MIS 3040: MIS Seminar

Examination of the tactical, operational and strategic relationships between information technology and business models and processes and the impact on business effectiveness, MIS organization and MIS careers; considerations of integration of technology with business for a more efficient and profitable organization; connection of the pieces and processes of MIS such as communication, data application, system analysis and design, decision science.

Credits: 3

Prerequisites:

MIS 2020 or MIS 2030 or MIS 2040

MIS 3050: CRM and Data Analytics

Fundamental issues associated with Customer Relationship Management (CRM) and Data Analytics, theoretical and practical, such as designing and building a data warehouse, building and populating info-cubes, report generation with SAP BW, data mining, business intelligence technologies, and extension of CRM to the Internet.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020 and (VSU 2009 or VSU 2010 or VSU 2030 and VSU 2040)

MIS 3060: Bus Intelligence and Perf Mgmt

Examines concepts, processes, and tools related to business intelligence and performance management; learn systematic approaches for identifying business metrics and key performance indicators (KPI); apply data visualization techniques to develop interactive business intelligence applications that transform data into information and insights.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020 and (VSU 2009 or VSU 2010 or VSU 2030 and VSU 2040)

MIS 3070: Emerging Business Technologies

This course focuses on the emerging and disruptive business technologies - like augmented reality, intelligent systems, Internet-of-Things and location-based services - likely to impact current and future business models and processes the most.

Credits: 3

Prerequisites:

VSU 2006

MIS 3080: Applied Machine Learning

Covers use of machine learning algorithms in business decision making and ethical challenges. Involves data preparation & pre-processing, coding and implementation of ML models including regression, forests, nearest neighbor dimensionality reduction along with deeper learning models such as neural networks.

Credits: 3

Prerequisites:

VSU 2006 and VSU 2020

MIS 3090: Special Topics in MIS

Study of selected topics in MIS. Topics to be announced each semester when the special topics course is offered.

Credits: 3

MIS 3300: AI & Machine Learning for Bus

This course will examine how AI/ML applications in areas such as natural language processing, expert systems, deep learning, vision, speech, planning, and robotics, among others will impact business functions. Will also cover predominant AI/ML platforms and issues surrounding "ethical AI".

Credits: 3

Prerequisites:

VSU 2006

MIS 3310: MIS Internship

Employment with approved business firms where various meaningful assignments are performed with appropriate training, instruction, and supervision.

Credits: 3

MIS 3331: MIS Independent Study

Study with faculty member's guidance in area of special interest to student.

Credits: 3

MIS 3500: MIS Co-Op

Full-time employment with an approved firm in the area of MIS where experience is gained through appropriate training, instruction, and supervision. Course does not fulfill the requirements of the major. Prerequisite: MIS major with junior status; minimum gpa requirements will vary; approval of DIT Department Chair and Director of Center for Student Advising and Professional Development required.

Credits: 6

Marketing

MKT 1137: Principles of Marketing

Description and evaluation of the ways in which goods and services are developed to meet customer and consumer needs and distributed for domestic and international consumption; economic, government, social, and other environmental forces in relation to the marketing function. **Not open to VSU students; 5 seats for CPS students.

Credits: 3

Prerequisites:

ECO 1001 or SBI 2005

MKT 2120: Buyer Behavior

Development and attainment of organizational goals within the framework of human behavior and its relationship to marketing. Theory from psychology, sociology, and social psychology, with emphasis on application to marketing problems in consumer and industrial environments.

Credits: 3

Prerequisites:

VSU 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2197: Marketing Research

The principal internal and external procedures used in collecting, processing, and evaluating both quantitative and qualitative data; research design; management of information for decision making.

Credits: 3

Prerequisites:

(VSB 2020 or MKT 1137 or SBI 3006 or SBI 3040) and (MAT 1235 (or concurrently) or MAT 1430 (or concurrently) or STAT 1235 (or concurrently) or STAT 1430 (or concurrently))

MKT 2220: Integrated Marketing Communica

Management of marketing communications within organizations; role of marketing communication for branding; understanding environments for marketing communications; development of messaging and media channels; assessment of the impact of the integrated marketing communications on consumer behavior and society as a whole.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006

MKT 2224: Professional Selling

Stresses skills and professionalism required in intensely competitive selling environments in global markets. This courses concentrates on complex consultative selling processes required in business-to-business relationships.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2225: Business Development Ldrship

Policies and procedures for managing a business development organization; the role and characteristics of the business development function; techniques for selecting, training, supervising, and evaluating business development personnel including ethical and legal considerations.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2230: Marketing of Services

Application of marketing principles to service organizations; differences between goods and services marketing and how these differences influence marketing strategy and the tactical design of the marketing mix variables.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006

MKT 2235: Sports Marketing

Essentials of effective, innovative sports marketing practices, activities, techniques. Lectures, readings, guest speakers, trade publications, field experience.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006

MKT 2240: Marketing Analytics

Covers analytics skills necessary for marketing decision making; adds experience with SAS JMP, Google Analytics and Adwords (certifications earned in course), advanced Excel functionality, and other analytical techniques to reflect marketplace changes. Maximum of 5 VSB minors.

Credits: 3

Prerequisites:

(VSB 2020 or SBI 3006 or SBI 3040) and VSB 2006 and VSB 2008

MKT 2280: Global Marketing

The world market and its implications for global marketing; the relationships of imports and exports to policies; impacts of major national cultures on foreign marketing communications and business development programs will be researched through multiple sources.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2285: Social Media Marketing

Understand social media interactions, examine the various social media channels available to marketers, learn how to build social marketing strategies, and practice how to track their effectiveness.

Credits: 3

Prerequisites:

VSB 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2290: Digital Marketing

Covers digital marketing skills: search engine optimization (SEO), search engine marketing (SEM), e-mail, Social Media, and Mobile marketing. Uses on-line simulation to develop SEM skills.

Credits: 3

Prerequisites:

VSU 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2349: Special Topics in Marketing

Contemporary issues and topics which affect a firm's marketing strategies. Maximum of 5 VSU minors.

Credits: 3

Prerequisites:

VSU 2020 or MKT 1137 or SBI 3006 or SBI 3040

MKT 2375: Marketing Management

Analytic procedures to understand and integrate effective policies applied to demand, product research, channel selection and development, promotion, and pricing on both domestic and international levels; concentration on decision making. No VSU Minors allowed.

Credits: 3

Prerequisites:

VSU 2008 and VSU 2020 and VSU 3006

MKT 3350: Independent Study - Marketing

Independent study under faculty guidance in an area of student's special interest.

Credits: 3

Prerequisites:

(VSU 2008 and VSU 3006 and VSU 2020)

MKT 3450: Internship Marketing

Employment with approved firm where varied Marketing experience is gained with appropriate training, instruction and supervision. Students cannot self-enroll in this class. Permission of O'Donnell Center for Professional Development Required.

Credits: 3

MKT 3470: Marketing Co-Op

Full-time employment with an approved firm in the area of marketing, where experience is gained through appropriate training, instruction, and supervision. Does not fulfill requirement for major. Students cannot self-enroll in this class. Permission of O'Donnell Center for Professional Development Required.

Credits: 6

MKT 4132: Seminar in Marketing

Study of elected topics in Marketing including discussion and lecture materials prepared and presented by individual students. Topics to be announced each semester, when seminar is offered.

Credits: 3

Prerequisites:

VSU 2020 or MKT 1137 or SBI 3006

Master of Science in Finance

MSF 1000: Corp Fin Boot Camp

Corp Finance Book Camp

Mathematics and Statistics

MAT 1000: Math and Stat Communities

Understanding the role of creative thinking, problem solving, and collaboration in mathematics and statistics; exploration of research and careers in the mathematical and statistical sciences; building community with fellow mathematics and statistics majors.

Credits: 1

MAT 1220: Discrete Math Social Sci

Discrete mathematics for the Liberal Arts student: voting methods, weighted voting, fair division, apportionment, circuits, network, trees, directed graphs, planning and scheduling, linear programming, growth and symmetry. Not open to students who have completed MAT 1505.

Credits: 3

MAT 1280: Mathematics of Fairness

Examining fairness in our personal lives and in society: Voting systems and power indices, strategic political positioning spatial models, fair division, congressional district apportionment, game theory, the GINI index of economic inequality, gerrymandering.

Credits: 3

MAT 1290: Topics in Core Mathematics

Course in an area of pure or applied mathematics or statistics. May be repeated for credit if areas of topical focus are different. Designed specifically to satisfy the core requirement in mathematics and statistics, for students in the humanities and social sciences.

Credits: 3

MAT 1312: Biocalculus

Discrete and continuous dynamics of biological systems: discrete dynamical systems, sequences, functions, discrete and continuous limits, the derivative, the integral, methods and applications of differentiation and integration, Taylor polynomials, modeling with differential equations, Euler's method, applications to Biology.

Credits: 4

MAT 1314: Modeling for the Life Sciences

Mathematical and statistical modeling in the Life Sciences. Topics selected from: dynamical systems, diffusion, Markov, Bayesian, connectionist, and information theory models, applied to epidemiology, ecology, neuroscience and neuron signaling, cell and molecular biology, genetics, physiology, psychology, and other areas. Pre-requisites MAT 1312 or Equivalent

Credits: 3

Prerequisites:

MAT 1310 or MAT 1312 or MAT 1320 or MAT 1400 or MAT 1500

MAT 1320: Calculus I for Liberal Arts

Calculus for Liberal Arts students: polynomial, rational and transcendental functions, the derivative, numerical and graphical introduction to integration.

Credits: 3

MAT 1325: Calculus II for Liberal Arts

Techniques of differentiation and integration, applications and further developments of calculus.

Credits: 3

Prerequisites:

(MAT 1320 :D- or MAT 1500 :D-)

MAT 1400: Business Calculus

Functions, limits, and basic definitions of differential and integral calculus. Techniques of differentiation and integration. The Fundamental Theorem of Calculus. Applications in various areas of business and economics.

Credits: 4

MAT 1500: Calculus I

Limits, transcendental functions (logarithms, exponential functions, inverse trigonometric functions), differentiation (definition, tangent lines, rates of change, techniques, implicit differentiation, related rates), applications of differentiation (graphing, optimization), indeterminate forms and L'Hopital's Rule. Use of a computer algebra system, eg. MAPLE.

Credits: 4

MAT 1505: Calculus II

Integration (indefinite, definite), applications of integration (area, volume, applications to physics and economics, etc.), methods of integration, approximate integration (trapezoidal and Simpson's rules), improper integrals, differential equations, infinite sequences and series. Continued use of a computer algebra system.

Credits: 4

Prerequisites:

MAT 1312 or MAT 1320 or MAT 1400 or MAT 1500

MAT 1903: Internship Elective

Internship Elective

Credits: 3

MAT 1906: Internship Elective

Internship Elective

Credits: 6

MAT 2400: Linear Algebra for Computing

Vectors, matrices, and matrix algebra; systems of linear equations; matrix inverses; least squares problems; eigenvalues and eigenvectors; using Python for computational linear algebra; applications from areas such as data science, computer graphics, graph algorithms, and web search.

Credits: 4

Prerequisites:

MAT 1500

MAT 2500: Calculus III

Parametric equations; polar, cylindrical, and spherical coordinates; vectors and the geometry of space; vector functions (derivatives, integrals, curvature, etc.); partial derivatives; optimization; multiple integration and its applications; vector calculus (line integrals, vector analysis). Continued use of a computer algebra system.

Credits: 4**Prerequisites:**

MAT 1505 :D-

MAT 2600: Foundation of Math I

Topics selected from natural numbers, mathematical induction, irrational and transcendental real numbers, complex numbers, Fundamental Theorem of Algebra, infinite cardinals, symbolic logic, functions and relations, iterated functions, mathematical chaos.

Credits: 3**Prerequisites:**

MAT 1500 :D-

MAT 2705: Diff Equation with Linear Alg

First order and linear second order differential equations, matrices and linear equation systems, eigenvalues and eigenvectors, and linear systems of differential equations.

Credits: 4**Prerequisites:**

MAT 1505 :D-

MAT 2993: Internship

Internship

Credits: 3**MAT 2996: Internship**

Internship

Credits: 6**MAT 3001: Topics in Mathematics & Stats**

Lecture course in an area of mathematics or statistics. May be repeated for credit if topics are different.

Credits: 1**MAT 3011: Problem Solving Seminar**

Explore techniques for solving mathematical problems, including problems typical of the Putman Mathematical Competition. Students solve and present solutions to problems posed.

Credits: 1**Prerequisites:**

MAT 1500

MAT 3100: Applied Linear Algebra

Vectors, matrices, transpose and inverse of a matrix, systems of linear equations, the four fundamental subspaces, eigenvalues and eigenvectors, symmetric matrices, matrix factorizations, applications such as information retrieval, ranking web pages, graphs and networks, least squares, and data compression.

Credits: 3**Prerequisites:**

MAT 1312 or MAT 1320 or MAT 1400 or MAT 1500

MAT 3300: Advanced Calculus

Real numbers, sequences, convergence, supremum and infimum, completeness of the reals, continuous functions, Intermediate Value Theorem, differentiable functions, Mean Value Theorem, Riemann integral, Fundamental Theorem of Calculus, Taylor's Theorem.

Credits: 3**Prerequisites:**

MAT 2500 :D- and (MAT 2600 :D- or HON 4151 :D-)

MAT 3305: Topics in Analysis

Advanced topics selected from real analysis, complex analysis, or higher analysis.

Credits: 3**Prerequisites:**

MAT 3300 :D-

MAT 3400: Linear Algebra

Vector spaces, linear transformations, basis and dimension, orthogonal transformations, least squares, eigenvalues and eigenvectors, similarity, diagonalization, symmetric, applications.

Credits: 3**Prerequisites:**

MAT 2705 :D-

MAT 3500: Modern Algebra I

Topics selected from groups and subgroups, cyclic groups, permutation groups, isomorphisms, direct products, cosets and Lagrange's Theorem, normal subgroups and factor groups, group homomorphisms, the Fundamental Theorem of Finite Abelian Groups, rings, fields.

Credits: 3**Prerequisites:**

MAT 2600 :D- and MAT 2705 :D-

MAT 3930: History of Mathematics

Development of mathematics from ancient times to the birth of calculus in the seventeenth century.

Credits: 3**Prerequisites:**

MAT 1505 :D- and MAT 2600 :D-

MAT 4110: Combinatorics

Induction, permutations and combinations, general counting methods, generating functions, recurrence relations, principle of inclusion-exclusion, graph theory, trees, planarity, crossing numbers, Hamiltonian cycles, Eulerian tours.

Credits: 3

Prerequisites:

MAT 1505 :D-

MAT 4270: Numerical Analysis

Numerical and computational aspects of root-finding methods, interpolation and polynomial approximation, numerical differentiation and integration, approximation theory.

Credits: 3

Prerequisites:

MAT 1505 :D-

MAT 4500: Mathematics of Games

Study of popular games, toys, and puzzles using recursions, counting techniques, graph theory, group theory, probability, Markov chains, and other mathematical tools.

Credits: 3

Prerequisites:

MAT 2600 and (STAT 1230 or STAT 1250 or STAT 1313 or STAT 1430 or STAT 4310)

MAT 4550: Math of Financial Derivatives

Basic tools of financial markets; options; asset price random walks; estimation of parameters; arbitrage put-call parity; Black-Scholes Model; implied volatility; portfolio-optimization; hedging.

Credits: 3

Prerequisites:

MAT 2705 :D-

MAT 4600: Deterministic Operations

Deterministic methods: mathematical optimization, linear programming, formulation and solution techniques, duality, integer linear programming, transportation problem, assignment problem, network flows, dynamic programming.

Credits: 3

Prerequisites:

MAT 2500 :D- and (MAT 2705 or MAT 3100 or MAT 3400)

MAT 5110: Topics in Geometry

Topics selected from affine, hyperbolic, spherical, elliptic, Euclidean or projective geometry.

Credits: 3

Prerequisites:

MAT 2600 :D-

MAT 5200: Theory of Numbers

Congruences, quadratic reciprocity, Diophantine equations; applications.

Credits: 3

Prerequisites:

MAT 2600 :D-

MAT 5400: Complex Analysis

Algebra of complex numbers, analytic functions, Cauchy-Riemann equation, Laplace equations, conformal mapping, integrals of complex functions, Cauchy's theorem, power series, Taylor's theorem, Laurent's theorem, residues, entire functions.

Credits: 3

Prerequisites:

(MAT 2500 :D- and MAT 2600 :D-)

MAT 5500: Topology

Topological equivalence, connectedness, compactness, topology of subsets of \mathbb{R}^n , manifolds, topological embeddings, topological spaces.

Credits: 3

Prerequisites:

MAT 3300 (or concurrently)

MAT 5600: Differential Geometry

Geometry of curves and surfaces, curvature, first and second fundamental forms, minimal surfaces, use of MAPLE.

Credits: 3

Prerequisites:

MAT 2500 :D-

MAT 5900: Seminar in Mathematics

Supervised study of selected topics or problems in mathematics, student presentations. May be repeated for credit if content is different.

Credits: 3

Prerequisites:

MAT 3300 :D- or MAT 3500 :D-

MAT 5920: Topics in Applied Mathematics

Lecture course in an area of applied mathematics. May be repeated for credit if topics are different.

Credits: 3

MAT 5930: Topics in Pure Mathematics

Lecture course in an area of pure mathematics. May be repeated for credit if topics are different.

Credits: 3

MAT 5991: Independent Study

Reading in a selected branch of mathematics under the direction of a member of the staff. May be repeated for credit.

Credits: 1

Prerequisites:

MAT 1505 :D-

MAT 5992: Independent Study

Reading in a selected branch of mathematics under the direction of a member of the staff. May be repeated for credit.

Credits: 2

Prerequisites:

MAT 1505 :D-

MAT 5993: Independent Study

Reading in a selected branch of mathematics under the direction of a member of the staff. May be repeated for credit.

Credits: 3

Prerequisites:

MAT 1505 :D-

STAT 1230: Intro Statistics I

Displaying and summarizing data, basic probability concepts, normal distributions, sampling distributions, estimation for a single population parameter, regression and correlation. Not open to students who have completed MAT 1505.

Credits: 3

STAT 1235: Intro Statistics II

Probability concepts, hypothesis testing, inferences about means, variances and proportions, contingency tables, analysis of variance. Not open to students who have completed MAT 1505.

Credits: 3

Prerequisites:

MAT 1230 or STAT 1230

STAT 1250: Stats in Health Care Research

Descriptive and inferential statistics: graphical displays, estimation, & hypothesis testing. Restricted to nursing students; others by special permission only.

Credits: 3

STAT 1260: Elementary Statistics

Introduction to statistics including topics such as study design, graphical and numerical descriptive statistics, bivariate data analysis, probability, sampling distributions, confidence intervals, hypothesis testing, goodness of fit tests, analysis of variance; resampling and simulation using statistical software; interpreting output from and understanding selected algorithms used in statistical packages.

Credits: 3

STAT 1313: Statistics for Life Sciences

Statistical concepts and methods with applications in biological and life sciences; data visualization, descriptive statistics, probability distributions, interval estimation and hypothesis testing for one and two variables, statistical software.

Credits: 3

STAT 1430: Business Statistics

Statistical concepts and methods useful in analyzing problems in all areas of business. Descriptive statistics, probability, sampling distributions, confidence intervals, hypothesis testing, regression analysis, and time series. Applications in various areas of business and economics.

Credits: 4

STAT 3021: Topics in Statistics

Lecture course on a topic from Statistics. May be repeated for credit if topics are different.

Credits: 1

STAT 4210: Bayesian Statistical Analysis

Application of Bayesian statistical procedures. Implementation using the programming language R. Bayes's Theorem. Bayesian statistical inference. Various types of prior distributions. Computer-intensive methods. Assessing the prior. Robustness analysis. Writing Bayesian statistical reports.

Credits: 3

Prerequisites:

MAT 4310 or STAT 4310

STAT 4310: Stat Methods

Data displays and summarization, probability distributions, point and interval estimation, hypothesis testing, categorical data analysis, regression and correlation.

Credits: 3

Prerequisites:

MAT 1505 (or concurrently)

STAT 4315: Applied Statistical Models

Simple and multiple linear regression, including prediction, correlation, model building, multicollinearity, influential observations, and model fit; ANOVA for designed experiments, including completely randomized, randomized block and factorial designs; Time Series including linear time series models, moving averages, autoregressive and ARIMA models, estimation and forecasting.

Credits: 3

Prerequisites:

MAT 1505 and (MAT 1430 or STAT 1430 or MAT 4310 or STAT 4310)

STAT 4380: Data Science

Combining and summarizing real-world data to inform decision-making and predictions; data wrangling, visualization, text mining, ethics; uses R programming language. Some programming experience recommended.

Credits: 3

Prerequisites:

MAT 1230 or STAT 1230 or MAT 1250 or STAT 1250 or MAT 1313 or STAT 1313 or MAT 1430 or STAT 1430 or MAT 4310 or STAT 4310

STAT 4416: Design of Experiments

Completely randomized, randomized block, and Latin square designs; full and fractional factorial designs; nested and split plot designs; response surface methodology.

Credits: 3

Prerequisites:

MAT 4310 or STAT 4310

STAT 4450: Regression for Biostatistics

Regression methods for analyzing medical and biological data, including multiple regression, logistic regression, survival modeling, and longitudinal mixed modeling.

Credits: 3

Prerequisites:

MAT 4310 or STAT 4310

STAT 4452: Nonparametric Statistics

One-sample, two-sample, and multi-sample rank tests; nonparametric confidence intervals; permutation tests; nonparametric regression and correlation; the bootstrap.

Credits: 3

Prerequisites:

MAT 4310 or STAT 4310

STAT 4480: Data Mining

Supervised and unsupervised data mining techniques, including clustering, classification, and association rule learning.

Credits: 3

Prerequisites:

MAT 4310 or STAT 4310

STAT 5700: Math Statistics I

Probability, random variables, joint distributions, expected values, limit theorems, distributions derived from the normal distribution.

Credits: 3

Prerequisites:

MAT 2500

STAT 5705: Math Statistics II

Survey sampling, parameter estimation, hypothesis testing, two sample tests, analysis of variance, analysis of categorical data, linear least squares.

Credits: 3

Prerequisites:

MAT 2500 and (MAT 5700 or STAT 5700)

STAT 5905: Seminar in Statistics

Supervised study of selected topics or problems in statistics, with student presentations and papers. May be repeated for credit if content is different.

Credits: 3

Prerequisites:

(MAT 4315 or STAT 4315) and (MAT 5700 or STAT 5700)

STAT 5910: Topics in Statistics

Lecture course in an area of statistics. May be repeated for credit if topics are different. Prerequisites: Dependent on Topic.

Credits: 3

Mechanical Engineering

ME 1201: Intro to Comp Aid Design&Draft

Fundamentals of 3D visualization; using CAD software for design development of parts & assemblies, including materials; and preparing standard engineering drawings with dimensions and fits to communicate mechanical designs.

Credits: 1

ME 1205: Computer Program for Mech Engr

Introduction to programming for Mechanical Engineers using MATLAB, data analysis and visualization, algorithm development, linear algebra, numerical methods.

Credits: 3

ME 2100: Statics

Vector analysis of force systems on particles and rigid bodies with particular emphasis on mathematical and physical formulation of principles underlying the solution of engineering problems; vector algebra; friction; centroids and moments of inertia.

Credits: 3

Prerequisites:

MAT 1505 :D- and PHY 2400 :D-

ME 2101: Dynamic Systems I

Kinematics, velocity, and acceleration of particles in Cartesian, cylindrical, and spherical reference frames, projectile motion, dynamics of particles, momentum principles, systems of particles, rigid body kinematics and dynamics.

Credits: 3

Prerequisites:

(ME 2100 :D- or CEE 2105 :D-) and (MAT 2705 (or concurrently) :D-)

ME 2103: Mechanics of Materials

Definition of stress and strain mechanical behavior of material under axial, shear, torsion, bending, and combined loads; stress and strain transformations; deflection of beams; buckling.

Credits: 3

Prerequisites:

ME 2100 or CEE 2100 or CEE 2105

ME 2505: M.E. Analysis & Design

Introduction to the design process as a foundation for future mechanical engineering courses. The role that engineering design plays in contemporary society; the creativity and innovation inherent in mechanical engineering design; and development of the ability to function as part of a design team.

Credits: 4

Prerequisites:

MAT 1505 :D- and PHY 2400 :D-

ME 2900: ME Laboratory I

Basic experiments related to instrumentation used in the field of Mechanical Engineering; includes data collection and design of experiments.

Credits: 1

ME 3100: Thermodynamics

Elements of thermodynamics theory, system and control volumes, properties of pure substance, ideal gas, heat and work interactions, first and second laws, entropy.

Credits: 3

ME 3102: Dynamic Systems II

Free and forced vibration of one degree-of-freedom mechanical systems, response to harmonic excitation, general excitation, transient response, transfer function analysis, higher order systems including two degree-of-freedom systems and DC motors.

Credits: 3

Prerequisites:

MAT 2705 and ME 2101

ME 3103: Dynamic Systems III

Modeling of mechanical and electrical systems, feedback control systems with PID, analysis and design of transient and steady state response, stability analysis, root-locus technique, frequency domain analysis and design, state space methods.

Credits: 3

Prerequisites:

ME 3102 :D- and ECE 2030 (or concurrently) :D-

ME 3300: Materials Science I

Introduction to crystal structures, imperfections in solids, diffusion, mechanical properties of materials, dislocations and strengthening mechanisms, phase diagrams, structure and properties of ceramics and polymers, electrical properties.

Credits: 3

Prerequisites:

CHM 1151 and CEE 2103 (or concurrently) or ME 2103 (or concurrently)

ME 3333: Manufacturing Engineering

Fundamentals of manufacturing including the relation among materials, structures, properties, and manufacturing processes, manufacturing economics, traditional manufacturing processes, and the new trend of advanced manufacturing such as 3D printing and nanomanufacturing.

Credits: 3

Prerequisites:

CHM 1151 and CEE 2103 (or concurrently) or ME 2103 (or concurrently)

ME 3402: Solid Mechanics & Design I

Stress, strain, stress-strain relations, strain gauges; stress analysis; static failure; fatigue failure; design projects.

Credits: 3

Prerequisites:

CEE 2103 or ME 2103 :D-

ME 3403: Solid Mechanics & Design II

Design and analysis of machine elements; wear; torsion of noncircular sections; computer aided engineering; design projects.

Credits: 3

Prerequisites:

ME 3402

ME 3600: Fluid Mechanics

Fluid properties, fluid statics; kinematics of flow; conservation of mass, energy, momentum; dynamic similarity; fluid resistance, boundary layer theory; flow in conduits; lift and drag; potential flow; compressible flow.

Credits: 3

Prerequisites:

MAT 2705 and (ME 2100 or CEE 2105)

ME 3900: ME Laboratory II

Test of engineering materials, experiments related to basic stress analysis, thermodynamics and materials science.

Credits: 1

ME 3950: Heat Transfer I

Steady state, unsteady state conduction in one & two dimensions; numerical methods of solution; forced & free convection in internal & external flow; heat exchangers; multi-mode heat transfer.

Credits: 3

Prerequisites:

ME 3100 and MAT 2705

ME 4001: Dynamic Systems Lab

Laboratory experiments in data acquisition, measurement and characterization of dynamic systems, vibration, smart actuators, and real-time control.

Credits: 1

Prerequisites:

ME 3102

ME 4002: Solid Mechanics Lab

Laboratory experiments in structure, properties and mechanics of materials.

Credits: 1

Prerequisites:

ME 3402

ME 4003: Thermal Fluids Lab

Laboratory experiments in thermodynamics, fluid mechanics, heat transfer, aerodynamics, engine performance, and energy conversion.

Credits: 1

Prerequisites:

ME 3950

ME 4850: Thermal-Fluid System Design

Integration of thermodynamics, fluid mechanics and heat transfer and application to thermal designs.

Characteristics of applied heat transfer problems: nature of problem specification, incompleteness of needed knowledge based and accuracy issues.

Credits: 3

Prerequisites:

(ME 3600 (or concurrently) or CEE 3500 (or concurrently)) and ME 3950

ME 5000: Selected Topics in ME

(Technical Elective) Individual study of a selected topic with an ME faculty; requires exams/homework/projects similar to a regular course. Consent of department chair required.

Credits: 3

ME 5001: ME Undergraduate Research I

(Technical Elective) Individual participation in modern computational, analytical or experimental research activities under faculty supervision; requires technical report and presentation at end of semester. Consent of department chair required.

Credits: 3

ME 5002: ME Undergraduate Research II

Individual participation in modern computational, analytical or experimental research activities under faculty supervision; requires technical report and presentation at end of semester. Consent of department chair required.

Credits: 3

ME 5005: Capstone Design I

Product design; durability, economic, safety, ethical and environmental considerations; robust and quality design; decision-making, planning, scheduling and estimating; design proposal.

Credits: 2

ME 5006: Capstone Design II

Continuation of ME 5005; product design; design review process; oral presentation of design projects; final written report. Must be taken the semester following ME 5005.

Credits: 2

Prerequisites:

ME 5005

ME 5101: Elements of Aerodynamics

The standard atmosphere, two-dimensional incompressible flow, Reynolds and Mach number, generation of lift based on airfoil and wing platform characteristics, drag force, propulsive force, overall airplane performance, static stability and control.

Credits: 3

Prerequisites:

(ME 3600 or CEE 3500) and ME 3100

ME 5102: Compressible Fluid Flow

Foundations of fluid dynamics, isentropic flow, normal shock waves, flow in constant-area ducts and friction, flow with heat exchange, unsteady flow.

Credits: 3

Prerequisites:

ME 3100 and (ME 3600 or CEE 3500)

ME 5130: Intro to Sustainable Energy

Technical aspects of sustainable energy technologies such as wind, solar, biomass, ocean waves/tides, geothermal, and hydropower. Issues related to storage, transportation, distribution, industrial usage, and buildings; progress, challenges, and opportunities for technical feasibility and economic viability.

Credits: 3

Prerequisites:

ME 3950 (or concurrently) and ECE 2030

ME 5140: Design of Gravity Water Ntwrks

Analysis and design of pipelines, tanks, valves, and other components in a gravity-driven water network; optimization of networks, hydroelectric power generation, and cultural and organizational issues.

Credits: 3

Prerequisites:

ME 3600 (or concurrently) or CEE 3107 (or concurrently) or CEE 3500 (or concurrently) or CHE 2232 (or concurrently)

ME 5155: Constructal Theory&Design

Basic principles of fluid mechanics, heat transfer and thermodynamics; internal spacing for natural and forced convection; tree networks for fluid flow; multiscale configurations for heat transfer, multi-objective configurations; vascularized materials: mechanical and flow structures; electrokinetic transfer.

Credits: 3

Prerequisites:

ME 3600 and ME 3950

ME 5201: Intro to Finite Elements

Basic concepts of finite-element method, method of weighted residuals, 1-D axial and beam elements, 2-D stress and thermal elements, design projects via commercial codes.

Credits: 3

Prerequisites:

(ME 2103 or CEE 2103) and ME 3950 (or concurrently)

ME 5205: Flight Dynamics

Static stability and control of aircraft; equations of unsteady motion; stability derivatives; uncontrolled longitudinal and lateral motion; open loop control mechanisms; closed loop control concepts.

Credits: 3

Prerequisites:

ME 2101 :D-

ME 5206: Aircraft Design

An integrated study of aerodynamics, propulsion, dynamics and control, structures, aeroelasticity, and performance with the purpose of a design of an aircraft that meets the desired specifications. Topics include weight estimates, sizing, configuration layout, airfoil and wing geometry, propulsion estimates, structural analysis, and stability of motion.

Credits: 3

Prerequisites:

ME 2101 and (ME 2103 or CEE 2103) and ME 3600

ME 5207: Orbital Mechanics

Study of two-body problems with applications to geocentric orbits and interplanetary transfers. Topics include central force motion, Kepler's Law, orbit determination and maneuvers, Hohmann transfer and interplanetary trajectories.

Credits: 3

Prerequisites:

ME 2101 and MAT 2705

ME 5301: Fracture and Fatigue

Failure, structure of materials, stress-strain equations, mechanical testing, yielding & fracture, fracture of cracked members, fatigue of materials, stress-based approach to fatigue, fatigue crack growth, creep.

Credits: 3

Prerequisites:

ME 3300 and ME 3402

ME 5411: Mechatronics

Introduction to mechatronics, mechatronics components, its working principle and governing models, digital and analog electronics, mechatronic actuators, micro-controllers, sensors, modeling mechatronic systems, and case study. Senior standing.

Credits: 3

Prerequisites:

ECE 2030 :D- and MAT 2705 :D-

ME 5421: Introduction to Robotics

Basic principles of robotics; kinematic and dynamic concepts; actuators, sensors and practical issues; forward and inverse kinematics and dynamics of simple robotic arms; kinematics and dynamics of wheeled robots; alternative locomotion for mobile robots.

Credits: 3

Prerequisites:

ME 2101 and MAT 2705

ME 5441: Advanced System Modeling

Lumped-parameter modeling of multiphysics dynamic systems, with examples from bioengineering and mechatronics; unified network thermodynamics approach using bond graph techniques to analyze interactions between mechanical, electrical, fluid, or thermal domains; computer simulation of system response.

Credits: 3

Prerequisites:

ME 3100 and ME 3102 and ME 3600 and ECE 2030

ME 5500: Biomechanics

An introductory survey of topics from the field of biomechanics, such as joint mechanics, cellular mechanics, biomaterials, and prosthetic devices.

Credits: 3

Prerequisites:

ME 2103 or CEE 2103 or (EGR 2020 and EGR 2021)

ME 5600: Engineering Economics

Concepts and analytical techniques of engineering economics: engineering costs, cost estimating, discounted cash flows, rate of return, cost/benefit analysis, risk analysis, and impacts of certain macroeconomics factors. Focus is on the economic viability of engineering projects.

Credits: 3

ME 7000: Advanced Engineering Analysis

Solutions of ordinary differential equations, series solutions, special functions, boundary-value problems, partial differential equations, vector calculus, calculus of variations, and engineering applications. Undergraduate students must obtain permission of the department chair.

Credits: 3

ME 7002: Continuum Mechanics

Tensor algebra and calculus; Lagrangian and Eulerian Kinematics of Deformation; Cauchy and Piola-Kirchhoff stresses; general principles including conservation of mass, conservation of linear and angular momentum and energy; constitutive theory, ideal fluids, Newtonian and non-Newtonian fluids, finite elasticity, and linear elasticity.

Credits: 3

ME 7030: Num Methods for Eng Simulation

Numerical methods for root finding, curve fitting, integration, differential equation solving, coupled systems of equations, and optimization; algorithm choice for stability and computational efficiency.

Credits: 3

ME 7038: Intro-Computational Fluid Mech

Discretization, boundary conditions, solution methods, heat transfer, flow with known pressure field, calculation of pressure field, applications program, special topics. Undergraduate students must obtain permission of the department chair.

Credits: 3

ME 7040: Intro to Fin Element Analysis

Introduction to the finite element method with a focus on stress analysis. Boundary value problems; weighted residuals; variational methods; finite element formulation and solution; hands-on experience using programs for solution of problems.

Credits: 3

**ME 7060: Multiphysics Sys
Modelng & Sim**

Modeling of dynamic systems that feature interactions between mechanical, electrical, magnetic, fluid, or other physical domains; unified analysis based on network theory and energy balance principles; derivation and solution of linear and nonlinear state equations; computer simulation of system response.

Credits: 3

**ME 7103: Advanced Engrg
Thermodynamics**

An advanced treatment of engineering thermodynamics involving reversible and irreversible macroscopic processes with emphasis on fundamentals and applications of the first and second laws, and the thermodynamics of equilibrium states of substances. Seniors must have a minimum GPA of 3.0

Credits: 3

**ME 7140: Thermal Energy
Storage**

Basic principles of solar energy and Thermal Energy Storage (TES), sensible TES, latent TES, thermochemical TES, cold TES, TES and enviornmental impact, TES and energy savings, Energy and Exergy analysis of TES, case studies.

Credits: 3

ME 7205: Advanced Dynamics

Particle dynamics, system of particles, impulse and momentum, energy concepts, Lagrange's equations, kinematics of rigid body motion, dynamics of a rigid body. Approval of instructor. Prerequisite may be waived with permission of the chair. Undergraduate students must obtain permission of the department chair.

Credits: 3

Prerequisites:

ME 7000 :C

**ME 7206: Dynamics of
Rotating Machinery**

Coordinate systems and kinematics of rotor motion, critical speeds and unbalance excitation, effect of asymmetry in rotor and stator, gyroscopic effect, stability and energy concepts, hydrodynamic bearings, finite element modeling, nonlinear phenomena in machinery. Undergraduate students must obtain permission of the department chair.

Credits: 3

**ME 7250: Nano/Microscale
Mater Behavior**

Atomic arrangements in crystalline solids, imperfections in crystalline solids, the relationship between nano-/micro-structure and materials properties, the synthesis and behavior of nanomaterials, and the characterization at the nano-/micro-scales; demonstration labs on materials behavior at the nano-/micro-scale using X-ray diffraction, atomic force microscope, bubble raft, and nanoindenter.

Credits: 3

**ME 7260: Mechanic Behavior
of Materials**

Mechanisms of linear and nonlinear elasticity, plasticity, viscoelastic-plasticity, creep, fatigue and fracture of materials. Atomistic and molecular fundamentals of mechanical behavior of crystalline and amorphous metallic materials, ceramics, and polymeric materials.

Credits: 3

ME 7270: Polymer Engineering

Advanced polymer processing-structure-property relationship. Polymer chain structures, polymer crystalline structures, glass transition, viscoelasticity, mechanical properties, electrical properties, polymer extrusion, and polymer injection as well as polymer composite processing.

Credits: 3

**ME 7501: Reinforced Comp
Materials**

Particulate, filamentary, short-fiber, and laminated composites; elastic, and thermal structure/property relationships; stress analysis and design of material systems; static and fatigue failure; destructive and NDE test techniques. Undergraduate students must obtain permission of the department chair.

Credits: 3

ME 7502: Fiber Composite Structures

Orthotropic stress-strain relations, hygrothermal effects, laminate analysis, manufacturing residual stresses, stress analysis, finite element analysis, composite structure failure, designing, joining, and repair.

Prerequisites: Matrix algebra and undergraduate solid mechanics. Undergraduate students must obtain permission of the department chair.

Credits: 3

ME 7550: Biomechanics of Hard Tissues

Mechanical properties and structure-property relationships of bone; analytical and computational models of mechanical behavior of bone including fracture mechanics, damage, and failure theories; composite models of bone; applications of bone mechanics. Restricted to ME Senior with 3.0 GPA or higher.

Credits: 3

ME 7560: Biomechanics of Soft Tissues

Mechanical properties and structure/function relationships of biological soft tissues, including: connective tissues, muscle brain tissue, vasculature, and the heart. Numerical and computational modeling of mechanics of these tissues under physiological and non-physiological loading conditions. Analysis of novel engineered tissues.

Credits: 3

ME 7600: Thermal Mgmt of Electronics

Fundamentals of thermal design issues associated with electronic equipment; including free and forced convection, liquid immersion, heat pipes, thermoelectrics, reliability, cold plates and numerical solution methods.

Credits: 3

ME 7700: Tran Phen in Bio Systems

This course provides an introduction to the modeling and interpretation of transport in living tissue and cells. Topics include momentum, heat and mass transfer in arteries, water and solute exchange in the microcirculation, mass transfer across cell membrane, renal physiology and gas exchange in the lung. Prerequisite: Undergraduate fluid mechanics or transport courses, or instructor's consent.

Credits: 3

ME 8000: Adv. Engineering Analysis II

Tensor calculus with applications to dynamics and elasticity, Calculus of Variations, Complex analysis, Conformal mapping, Perturbation theory, Asymptotic expansions.

Credits: 3

ME 8040: Adv Fin Element Analysis

Nonlinear applications of the finite element method. Emphasis on formulation, solution algorithms, and convergence. Hands-on experience using programs for solution of problems.

Credits: 3

Prerequisites:

ME 7040

ME 8100: Fund of Cond & Rad Heat Trans

Fundamental theory of steady and unsteady conduction with applications. Fundamental theory of diffuse radiation heat transfer with applications.

Credits: 3

ME 8103: Advanced Fluid Mechanics

Fundamentals of fluid mechanics, conservation of mass, momentum, and energy; incompressible inviscid and viscous flows; Navier-Stokes equations, laminar and turbulent boundary layers, high speed flows.

Credits: 3

ME 8120: Convection Heat Transfer

Fundamentals of convection; conservation of mass, momentum and energy in integral and differential forms; laminar and turbulent, forced, and natural convection in internal and external flows; introduction to mass transfer. Prerequisite or Corequisite ME 7000.

Credits: 3

Prerequisites:

ME 7000

ME 8150: Multiphase Flow & Heat Trans.

Elements of boiling heat transfer; pool boiling; bubble dynamics; convective boiling; boiling of mixtures; micro-channels boiling; condensation heat transfer.

Credits: 3

ME 8200: Elasticity & Stress Analysis

Stress analysis fundamentals and solution methods. Strain, stress, elastic constitutive relations, equilibrium, compatibility, boundary value problems, uniqueness, two-dimensional and axisymmetric problems, flexure, torsion; energy methods, applications to structures, pressure vessels, rotating machinery. Approval of instructor.

Credits: 3

Prerequisites:

ME 7000

ME 8204: Robotics:Analysis & Control

Forward and inverse kinematics of non-redundant and redundant robotic arms; kinematics and dynamics of wheeled robots; path planning and control of mobile robots; alternative locomotion mechanisms. Approval of instructor.

Credits: 3

Prerequisites:

ME 7000 :C

ME 8207: Vibration Analysis

Linearization and stability, multi-degree-of-freedom systems, eigenvalue problem, forced response, continuous systems, discretization techniques, finite element method for vibration analysis.

Credits: 3

ME 8250: Microscale Heat Transfer

Kinetic theory of ideal gases; introduction to statistical thermodynamics; phonon, electron, and photon transport in solids.

Credits: 3

ME 8350: Applied Fracture Mechanics

Analysis of stress field near a crack tip, concepts of stress intensity and strain energy release rate, fracture modes, brittle and ductile fractures, fracture toughness test, fracture mechanics design, fatigue and fatigue crack growth. Approval of instructor.

Credits: 3

Mendel Science Experience

MSE 2100: AST:Birth and Death of Stars

A study of the fundamental properties of the Sun and stars. The formation of stars, their energy generation, evolution, and death - leading to the formation of exotic new objects such as white dwarfs, neutron stars, and black holes.

Credits: 3

Co-Requisites:

MSE 2151

MSE 2101: AST:Life in the Universe

A study of the origin and evolution of life on Earth and the possibilities of life in the Solar System and among the stars. The conditions leading to planetary habitability and how life outside the Solar System might be detected.

Credits: 3

Co-Requisites:

MSE 2150

MSE 2102: AST:Planetary Skies/Landscapes

A study of our own and other Solar Systems, including formation and evolution. The physical properties which shape planetary interiors, surfaces, and atmospheres. The Earth is studied in the context of the other planets, and its unique properties are examined.

Credits: 3

Co-Requisites:

MSE 2150

MSE 2103: AST:How Old is the Universe

How we know the Universe is 13.7 billion years old? Includes evidence from the Solar System, the oldest stars seen in the Milky Way galaxy, and the observed expansion of the Universe itself. Evolution and fate of the Universe.

Credits: 3

Co-Requisites:

MSE 2151

MSE 2104: AST:Earth-Our Habitable World

Explores the Earth as our home and as a laboratory for understanding the scientific method. The characteristics, dynamics, and evolution of the Earth. Leads to the discovery and understanding of the fundamental scientific principles at work on our home world.

Credits: 3

Co-Requisites:

MSE 2152

MSE 2105: AST:Earth-A Cosmic Connection

Explores the Sun and the stars - our ultimate sources of energy and the chemical elements. Characteristics, dynamics, and evolution of the Sun and the stars. The discovery and understanding of the fundamental scientific principles at work throughout the universe.

Credits: 3

Co-Requisites:

MSE 2153

MSE 2150: AST:Astronomy Lab - Planets

1-cr laboratory course focusing on planetary astronomy. To be taken as a co-requisite with MSE 2101 "Life in the Universe" or MSE 2102 "Planetary Skies and Landscapes".

Credits: 1

Prerequisites:

MSE 2101 (or concurrently) or MSE 2102 (or concurrently)

MSE 2151: AST:Astronomy Lab - Stars

1-cr laboratory course focusing on stellar and galactic astronomy. To be taken as a co-requisite with MSE 2100 "Birth and Death of Stars" or MSE 2103 "How Old is the Universe?".

Credits: 1

Prerequisites:

MSE 2100 (or concurrently) or MSE 2103 (or concurrently)

MSE 2152: AST:Our Habitable World Lab

1-cr laboratory course to be taken as a co-requisite with MSE 2104 "Earth: Our Habitable World".

Credits: 1

Co-Requisites:

MSE 2104

MSE 2153: AST:A Cosmic Connection Lab

1-cr laboratory course to be taken as a co-requisite with MSE 2105 "Earth: The Cosmic Connection".

Credits: 1

Co-Requisites:

MSE 2105

MSE 2200: BIO:Behavioral Bio of Animals

Mechanisms, evolution, and consequences of animal behavior, including how genes and environment affect behavior, learning and animal consciousness, role of hormones, predator-prey interactions, visual and auditory communication, courtship/mate choice, and human social behavior. Includes lectures, experimental labs, and student project.

Credits: 4

MSE 2201: BIO:How Microbes Rule World

Overview of microbiology, illustrating the roles of bacteria, viruses, fungi, algae and protozoa in our food, environment, and health. Lectures and labs cover microbe classification, control of microbial growth, roles of microorganisms in agriculture, ecology and industry, and principles of disease and host defenses.

Credits: 4

MSE 2202: BIO:Biological and Politics

Examination of importance of science and technology in contemporary political issues such as alternative energy, global climate change and evolution. Scientific method and biological principles important in objective, evidence-based explanations examined through lectures, guest speakers, debates, and laboratory exercises.

Credits: 4

MSE 2203: BIO:Heredity & Human Affairs

Overview of genetic topics and their social/ethical impacts, including genetic engineering, assisted reproduction, artificial wombs, Human Genome Project, cloning, fetal stem cells, gene therapy, and chromosomal abnormalities and disorders. Includes lectures, field trips, labs, discussions and student presentations.

Credits: 4

MSE 2204: How The Body Works

Principles and mechanisms underlying how the human body functions, with emphasis on physical fitness. Includes lectures, discussions, and labs.

Credits: 4

MSE 2205: BIO:Biodiversity& Conservation

Examination of challenge of balancing needs of an ever-growing human population while maintaining a healthy environment. Covers importance of biodiversity to both humans and proper functioning of earth, and discusses methods of effective conservation. Includes lectures, discussion sessions, and lab/field exercises.

Credits: 4

MSE 2206: BIO:Biotechnology in Our Soc.

Overview of revolutionary role of biotechnology in our society, including manipulation and analysis of DNA, transfer of genetic information, and use of computers in bioinformatics. Lectures and laboratory include recombinant DNA technology, gel electrophoresis, forensic DNA typing, problem solving, and socio-political-ethical issues.

Credits: 4

MSE 2207: BIO:Organisms in Changing Envr

Exploration of effect of environmental factors (temperature, precipitation, ocean currents, humidity, wind) on physiology, distribution, and interactions of organisms in different ecosystems, as well as the longer term effects of climate change on biodiversity. Includes lectures, discussion sessions, labs, and a group project.

Credits: 4

MSE 2208: BIO:Cancer Chronicles

Overview of cancer, including its causes and how it is studied, evaluated, and treated. With one half of men and a third of women developing cancer, also covers importance of cancer in both socioeconomic and health terms. Includes lectures and labs.

Credits: 4

MSE 2209: BIO:Challenges in Inf Diseases

Course examines global contemporary issues in infectious diseases, including epidemiology, microbiology, treatment and prevention. The biological as well as social, political and economic implications of emerging and re-emerging pathogens will be examined, including outbreaks and potential biological agents, vaccine safety and compliance, food safety concepts, and the global as well as domestic implications. The course is integrative and multidisciplinary, incorporating contributions from a wide range of specialties, including geography, history, mathematics/computer sciences and sociology. Lessons will be timely and driven by current infectious disease events, e.g., Ebola virus disease, Middle East Respiratory Virus Syndrome, seasonal and pandemic influenza, pertusis and measles, meningococcal disease and antibiotic resistance. Resources will include print and electronic media, in addition to the medical literature.

Credits: 4

MSE 2210: Drugs:How they Work,Caution!

How drugs work and why they should be taken with caution. Topics include: drug treatment of major illnesses; causes of drug toxicities/addiction; the actions of performance enhancing drugs; and influence of drugs on society.

Credits: 4

MSE 2211: BIO:Vaccines&Public Perception

Overview of vaccine science and pathogens, including how the history of vaccines, anti-vaccine movements, and social contexts play integral roles in public perception. Laboratory topics include an inquiry-based progression through vaccine design and student-designed public outreach campaigns to promote vaccination.

Credits: 4

MSE 2212: Genealogy - All In Your Family

Methods for constructing family trees from DNA tests, including student's own, and vital records. Biological basis of heredity; applications in evolution, behavior, and conservation. Interdisciplinary consideration of contexts concerning ancestry.

Credits: 4

MSE 2300: CHM:Alchemy, Artisanhip& Chm

This course examines introductory chemistry topics in a modern and historical light including how the current knowledge of chemistry is owed to Greek philosophers, Islamic healers, Western artisans, monks, and the alchemists. The laboratory recreates chemistry-related activities of the past (e.g., soap and dye-making).

Credits: 4

MSE 2301: CHM: Water

The course explores the chemistry of water including its unique structure and properties, water pollution, water treatment, and its role in biochemistry, climate, renewable energy, and global economic and political policies. The laboratory introduces sampling methods and common quality measurements (e.g., dissolved oxygen and pH).

Credits: 4

MSE 2302: CHM: Criminalistics

This course explores the techniques used to preserve and analyze physical evidence and how the results are used in legal proceedings. Topics include crime scene response, ballistics, fingerprinting, drug detection, and DNA analysis. The laboratory provides experience with methods used in modern forensic science.

Credits: 4

MSE 2303: CHM: The Science of Art

This course provides an understanding of artistic media related to technological advances throughout the centuries. Creating, viewing, and understanding, authenticating, and conserving works of art will be explored. The laboratory provides practice and an appreciation of the advances in artistic media throughout history.

Credits: 4

MSE 2304: CHM: Our Energy Future

An introduction to the science of energy principles and issues. Lecture and Laboratory provide context and practice with modern examples.

Credits: 4

MSE 2305: Perspective on Plastic

Polymers surround our everyday existence from the clothes we wear to the plastic packaging we use to polymers in wood. Using an interdisciplinary approach, we will study polymer lifecycles to help inform and shape responsible plastic use.

Credits: 4

MSE 2400: CSC: Evolving Computing Robotics Agents

This course explores how software designers and artificial intelligence researchers draw inspiration from biology and learning theory to design programs and robotic agents that learn and adapt to changes in their environment. No prior programming experience is required.

Credits: 4

MSE 2500: GEV: Environmental Sustainability

Challenges and complexities involved in achieving a sustainable society. Interdisciplinary approach to investigating impacts of a growing human population on energy requirements, waste management, and natural resource use.

Credits: 4

MSE 2501: GEV: Our Warming Planet

Climate change, past and future climate, impacts of climate change on the natural world and human society, and adaptation strategies. Laboratory work focused on applying the scientific method to understanding causes and consequences of climate change.

Credits: 4

MSE 2502: GEV: Climate, Environment, & Society

Science of meteorology, climatology, and how variations in climate affect periodic ecological cycles. Focus on connections between them and overall trends in environmental change. Laboratory work focused on applying the scientific method to climate and environmental variations.

Credits: 4

MSE 2504: GEV: Beaches and Coasts

Half of the world's population lives within the coastal zone. Yet, our use of this environment is occurring in tandem with environmental change. Laboratories will emphasize field techniques and include visits to local coastal sites, requiring four weekend field trips.

Credits: 4

MSE 2505: GEV: Wetlands

Wetlands improve the environment in ways society is only beginning to understand. Today, scientists realize their importance in providing vital habitat. Examination of how they affect our daily lives, their value to society, and current regulations.

Credits: 4

MSE 2506: GEV:Energy Extraction from Env

Extraction and use of fossil fuels is linked to global economics and to multiple environmental issues. Newly developed techniques such as hydro-fracking have recently allowed for the production of natural gas from shale deposits in the U.S. Focus on the science behind natural gas extraction from Marcellus Shale, and potential benefits and risks of this technology for the environment and society.

Credits: 4

MSE 2507: GEV:Environmental Pollution

Scientific principles, concepts, measurements, and case studies with a focus on the science of environmental pollution (air, water, and land). Global climate change, environmental sustainability, environmental justice, and environmental policies.

Credits: 4

MSE 2602: PHY:40% Solution: Light/Sound

Reflection, Refraction, Mirrors, Lenses; Interference and Diffraction; Light and our Atmosphere; Electromagnetic Radiation; Light Waves and Photons; Waves and Sound; Standing Waves; Music and Harmonics; Doppler Effect.

Credits: 3

Co-Requisites:

MSE 2652

MSE 2603: PHY:Big Bang: Forces/Particles

The Creation; What is Science?; Heliocentric System; Gravity on Earth; Newton's Laws; Gravity in the Universe; The Atom and Nucleus; Electromagnetic Forces; Strong Nuclear Force; Radioactivity; Elementary Particles; Standard Model; Anthropic Principle.

Credits: 3

Co-Requisites:

MSE 2653

MSE 2604: PHY:The Physics of Sports

An examination of the underlying physical principles governing sports, with exploration of such questions as how curve balls curve, why golf balls have dimples, and why sailboats can sail almost directly into the wind.

Credits: 3

Co-Requisites:

MSE 2654

MSE 2652: PHY:40% Solution Lab

Experiments to accompany MSE 2602.

Credits: 1

Co-Requisites:

MSE 2602

MSE 2653: PHY: Big Bang Lab

Experiments to accompany MSE 2603.

Credits: 1

Co-Requisites:

MSE 2603

MSE 2654: PHY:The Physics of Sports Lab

Experiments to accompany MSE 2604.

Credits: 1

Co-Requisites:

MSE 2604

MSE 2701: PSY:The Sounds of Human Lang.

Sounds of spoken language and how they are perceived by human listeners including speech production and perception, phonetics, and language development and disorders. Laboratories include acoustic analysis, experimental design, hypothesis testing, and data analysis.

Credits: 4

MSE 2702: PSY:Neuroscience of Sleep

Neuroscience of Sleep.

Credits: 3

Co-Requisites:

MSE 2752

MSE 2752: PSY:Neuroscience of Sleep Lab

Neuroscience of Sleep Lab.

Credits: 1

Co-Requisites:

MSE 2702

MSE 2900: MSE: Topics

Credits: 4

Meteorology

MET 1221: Severe & Hazardous Weather

This introductory meteorology course covers the fundamentals of meteorology with emphasis on severe and hazardous weather and effects of these on human life, environment and the economy. Severe storms that include tropical cyclones (hurricanes), extratropical cyclones, "Nor-easters", thunderstorms, lightning, tornados, and blizzards are featured. Floods, droughts, cold waves and heat waves are covered and their effects on health, agriculture and commerce are discussed. Also included are causes and effects of climate change with emphasis on the recent global warming trends over the last century. The consequences of global warming on the global economy will be stressed.

Credits: 3

MET 1222: Climate Change: Past & Present

Earth's climate and climate changes. Past climates (Paleoclimatology), major Ice Ages over the last billion years, methods for reconstructing past climates, including radio isotopic techniques. Fossil, geological, sedimentary, flora and fauna and documentary records. Physical causes of climate changes, recent warming trends in global climate (both natural and anthropogenic), future global climate (short- and long- term) and climate models. Possible effects of global climate change on our environment and resulting economic and geopolitical consequences.

Credits: 3

Prerequisites:

MAT 1310 or MAT 1320 or MAT 1330 or MAT 1500 or MAT 1400

Military Science

MS 0301: Training Mgmt & Warfighting Func

Students study, practice, and apply the fundamentals of Army Leadership, Officership, Army Values and ethics, personal development, and small unit tactics at the team and squad level. At the conclusion of this course, students are capable of planning, coordinating, navigating, motivating and leading a team or squad in the execution of a tactical mission during a classroom PE, a Leadership Lab, or during a Situational Training Exercise (STX) in a field environment. Successful completion of this course will help prepare students for success at the ROTC Cadet Leader Course (CLC) which they attend in the summer at Fort Knox, KY. This course includes reading, homework, small group assignments and practical exercises, a mid-term exam, and a final exam. Students receive systematic and specific feedback on their leader attributes values and core leader competencies from their instructor and other ROTC cadre and MSL IV Cadets who will evaluate them using the ROTC Leader Development Program (LDP) model.

Credits: 3

**MS 0302: Applied Ldrshp
Small Unit Op**

Students study, practice, and apply the fundamentals of Army Leadership, Officership, Army Values and Ethics, Personal Development, and small unit tactics at the platoon level. At the conclusion of this course, students will be capable of planning, coordinating, navigating, motivating and leading a squad and platoon in the execution of a mission during a classroom PE, a Leadership Lab, or during a Leader Training Exercise (LTX). They will be required to write peer evaluations and receive feedback on their abilities as a leader and how to improve those leader skills that can further develop them into a successful officer. Includes reading, homework, small group assignments, briefings, case studies, and practical exercises, a mid-term exam, and a final exam. Students receive systematic and specific feedback on their leader attributes, values, and core leader competencies from their instructor, other ROTC cadre, and MSL IV Cadets who will evaluate them using the Cadet Officer Evaluation System (OES). Successful completion of this course will help prepare students for the ROTC Cadet Leader Course (CLC), which they will attend in the summer at Fort Knox, KY.

Credits: 3**MS 0401: Mission Command &
Army Prof.**

Students explore the dynamics of leading in the complex situations of current military operations. They examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. They also explore aspects of interacting with non-government organizations, civilians on the battlefield, the decision making processes and host nation support. The course places significant emphasis on preparing students for BOLC B and their first unit of assignment. It uses mission command case studies and scenarios to prepare them to face the complex ethical demands of serving as a commissioned officer in the United States Army. This semester, students: Explore military professional ethics, organizational ethics and ethical decision making processes; gain practical experience in Cadet battalion leadership roles and training management; begin their leadership self-development including civil military and media relations; prepare for the transition to a career as an Army Officer.

Credits: 3**MS 0402: Mission Comm. &
Co. Grade Offi**

Students explore the dynamics of leading in the complex situations during Unified Land Operations I, II, and III. They examine the Art of Command and how to properly communicate with their NCOs and Soldiers during Taking Charge 1, 2 and 3, and Developing Others (counseling). During Cultural Awareness and Cultural Property Protection (CPP), students discuss numerous situations on how ethical decisions impact personnel and the unit mission. Through the understanding of their roles and responsibilities, students learn about Comprehensive Soldier Fitness (CSF), being ready and resilient (R2C) and Individual and Family Readiness can assist them in preparing their Soldiers and their families on reducing and managing stress during times of uncertainty. The course places significant emphasis on preparing students for BOLC B and their first unit of assignment. It uses mission command case studies and scenarios to prepare them to face the complex ethical demands of serving as a commissioned officer in the United States Army. This semester, students: Identify the leader's roles and responsibilities for enforcing Army policies and programs; Explore the dynamics of building a team prepared to handle any future operational environment and win; Examine the importance of understanding culture and how it can affect their unit and mission; Develop both oral and written communication skills by conducting a battle analysis and decision briefs.

Credits: 3

MS 301: Traing Mgmt & Warfighting Func

Students study, practice, and apply the fundamentals of Army Leadership, Officership, Army Values and ethics, personal development, and small unit tactics at the team and squad level. At the conclusion of this course, students are capable of planning, coordinating, navigating, motivating and leading a team or squad in the execution of a tactical mission during a classroom PE, a Leadership Lab, or during a Situational Training Exercise (STX) in a field environment. Successful completion of this course will help prepare students for success at the ROTC Cadet Leader Course (CLC) which they attend in the summer at Fort Knox, KY. This course includes reading, homework, small group assignments and practical exercises, a mid-term exam, and a final exam. Students receive systematic and specific feedback on their leader attributes values and core leader competencies from their instructor and other ROTC cadre and MSL IV Cadets who will evaluate them using the ROTC Leader Development Program (LDP) model.

Credits: 3

MS 302: Applied Ldrshp Small Unit Op

Students study, practice, and apply the fundamentals of Army Leadership, Officership, Army Values and Ethics, Personal Development, and small unit tactics at the platoon level. At the conclusion of this course, students will be capable of planning, coordinating, navigating, motivating and leading a squad and platoon in the execution of a mission during a classroom PE, a Leadership Lab, or during a Leader Training Exercise (LTX). They will be required to write peer evaluations and receive feedback on their abilities as a leader and how to improve those leader skills that can further develop them into a successful officer. Includes reading, homework, small group assignments, briefings, case studies, and practical exercises, a mid-term exam, and a final exam. Students receive systematic and specific feedback on their leader attributes, values, and core leader competencies from their instructor, other ROTC cadre, and MSL IV Cadets who will evaluate them using the Cadet Officer Evaluation System (OES). Successful completion of this course will help prepare students for the ROTC Cadet Leader Course (CLC), which they will attend in the summer at Fort Knox, KY.

Credits: 3

MS 401: Mission Command & Army Prof.

Students explore the dynamics of leading in the complex situations of current military operations. They examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. They also explore aspects of interacting with non-government organizations, civilians on the battlefield, the decision making processes and host nation support. The course places significant emphasis on preparing students for BOLC B and their first unit of assignment. It uses mission command case studies and scenarios to prepare them to face the complex ethical demands of serving as a commissioned officer in the United States Army. This semester, students: Explore military professional ethics, organizational ethics and ethical decision making processes; gain practical experience in Cadet battalion leadership roles and training management; begin their leadership self-development including civil military and media relations; prepare for the transition to a career as an Army Officer.

Credits: 3

MS 402: Mission Comm. & Co. Grade Offi

Students explore the dynamics of leading in the complex situations during Unified Land Operations I, II, and III. They examine the Art of Command and how to properly communicate with their NCOs and Soldiers during Taking Charge 1, 2 and 3, and Developing Others (counseling). During Cultural Awareness and Cultural Property Protection (CPP), students discuss numerous situations on how ethical decisions impact personnel and the unit mission. Through the understanding of their roles and responsibilities, students learn about Comprehensive Soldier Fitness (CSF), being ready and resilient (R2C) and Individual and Family Readiness can assist them in preparing their Soldiers and their families on reducing and managing stress during times of uncertainty. The course places significant emphasis on preparing students for BOLC B and their first unit of assignment. It uses mission command case studies and scenarios to prepare them to face the complex ethical demands of serving as a commissioned officer in the United States Army. This semester, students: Identify the leader's roles and responsibilities for enforcing Army policies and programs; Explore the dynamics of building a team prepared to handle any future operational environment and win; Examine the importance of understanding culture and how it can affect their unit and mission; Develop both oral and written communication skills by conducting a battle analysis and decision briefs.

Credits: 3

Naval Science

NS 1050: Naval Science Orientation

Naval Science Orientation.
Credits: 0

Naval Science (Navy ROTC)

NS 1000: Intro to Naval Science

Course is an introduction to the naval profession and to the concepts of seapower. The mission, organization, and warfare components of the Navy and Marine Corps, including an overview of officer and enlisted ranks, rates, and career patterns; naval courtesy and customs, military justice, leadership, and nomenclature are discussed. Normally taken by freshmen.

Credits: 2**NS 1100: Seapower and Maritime Affairs**

Naval history from the beginnings of the age of sail through the twentieth century. The works and influence of Alfred Thayer Mahan as they relate to current and past fleet doctrine. The impact of foreign nations' maritime activities on world seapower. Normally taken by freshmen.

Credits: 3**NS 2100: Naval Ships Systems I**

Construction and propulsion of naval ships, including design, stability, control of damage. Propulsion systems including steam, diesel, gas turbine, nuclear power plants; shipboard electrical power generation and distribution; and shipboard auxiliary systems including refrigeration, fresh water distilling plants and air compressors. Normally taken by sophomores.

Credits: 3**NS 2200: Naval Ships Systems II**

Introduction to naval weapons systems including basics of radar, sonar, and gyroscopes; weapons systems analysis stressing the fire control problem, information flow, the servo principle, and use of computers; general operation, safety and maintenance of shipboard weapons systems. Normally taken by seniors.

Credits: 3**NS 3100: Navigation**

The theory and technique of piloting and celestial navigation. Normally taken by juniors.

Credits: 3**NS 3200: Naval Operations**

The maneuvering board, tactical communications, rules of the road, and seamanship. juniors.

Credits: 3**NS 3500: Evolution of Warfare**

The evolution of weapons, tactics, and military organization applicable to land operations; the classic principles and variables of land operations.

Credits: 3

NS 3600: Fundamentals of Maneuver Warfare

Introduces the student to the foundational concepts and history of the USMC as the premier Maneuver Warfighting Organization. Develops an individual who is both a critical thinker and scholar in the profession of arms.

Credits: 3

Prerequisites:

NS 1000

NS 4100: Leadership and Management

Fundamentals of leadership and management of an organization; emphasis on the Naval officer as leader and manager, concentrating on areas such as professional ethics, organizational theory, and the characteristics and roles of successful leaders. Normally taken by sophomores.

Credits: 3

NS 4200: Leadership and Ethics

Applications of the principles of leadership and management with a focus and emphasis on the military arena. Ethical and moral responsibility examined with emphasis on the interrelationship of authority, responsibility and accountability in an organization. Discussion intensive with oral presentations. Draws upon the experiences of a number of guest speakers, both military and civilian.

Credits: 3

Nursing

NUR 1102: Intro to Prof Nursing

Core curricular concepts including professional values, evidence-based practice, patient centered care, clinical reasoning, therapeutic communication, patient safety and dignity, and scholarly analytical skills are addressed. Examines historical, current and future factors that affect professional nursing.

Credits: 2

NUR 1104: Intro to Prof Nursing Practice

Examines professional nursing in the context of health care from national and global perspectives. Relationship of core curricular concepts to patient centered care is explored. Impact of healthcare planning, financing and delivery on nursing and global health is discussed.

Credits: 2

Prerequisites:

NUR 1102

NUR 2200: Healthy Lifestyles & Human Values

Exploration of real life issues of college students, with emphasis on personal decision making and values clarification. Substance use/abuse, sexuality, depression, STD/AIDS, stress management.

Credits: 3

NUR 2204: Health Assessment

Health assessment of individuals from birth through older adulthood, emphasizing the healthy adult. Health history and physical examination are discussed addressing evidence-based practice, clinical reasoning, genetics, genomics, culture, spirituality, human development, health teaching, therapeutic communication, patient safety and professional values.

Credits: 2

Prerequisites:

NUR 1104

Co-Requisites:

NUR 2205

NUR 2205: Practicum in Health Assessment

Students practice, in the laboratory setting, techniques of health assessment, including gathering health history, assessing body systems, documenting findings, and providing health teaching while incorporating concern for safety, privacy, and dignity within the context of professionalism and patient-centered care.

Credits: 1

Prerequisites:

NUR 1104

Co-Requisites:

NUR 2204

NUR 2206: Essentials of Nursing Practice

Best practices in professional nursing applied to patient care skills, including safety, hygiene, activity, nutrition, elimination, sleep, oxygenation, and health education are discussed. Using health assessment and clinical reasoning, nursing interventions to meet health care needs of individuals are addressed.

Credits: 2

Prerequisites:

NUR 2204 and NUR 2205

Co-Requisites:

NUR 2207

NUR 2207: Practicum in Essen of Nsg Prac

Practice of selected nursing and patient care skills in a variety of settings. Application of evidence-based nursing interventions to meet basic health needs of individuals in selected clinical settings is implemented.

Credits: 2

Prerequisites:

NUR 2204 and NUR 2205

Co-Requisites:

NUR 2206

NUR 2810: Resrch & Sci Evid in Nsg Prac

Critically examines the use of scientific evidence in nursing practice with emphasis on the use of systematic scholarly inquiry and analytical skills. The process for discovering new scientific evidence across research paradigms and their associated methodologies are examined.

Credits: 3

Prerequisites:

NUR 2204 (or concurrently) and (NUR 2205 (or concurrently) or NUR 3007 (or concurrently)) and (MAT 1250 (or concurrently) or MAT 1230 or STAT 1250 (or concurrently) or STAT 1230) and NUR 2206 (or concurrently) and NUR 2207 (or concurrently)

NUR 3000: Founda in Nur and Health

Concepts from College of Nursing philosophy as a framework for professional nursing practice. Standards, guidelines, reports and studies that influence nursing practice and healthcare. Strategies for use of scientific evidence, analytical skills and scholarly work to advance practice.

Credits: 3

Co-Requisites:

AAH 1102

NUR 3007: Health Assessment

Comprehensive nursing assessment of individual and families is emphasized. Opportunities to apply clinical skills such as interviewing, data collection, genograms and physical assessment are provided. Evidence-based tools are examined and used in completing assessments. College of Nursing Undergraduate RN-BSN students only.

Credits: 3

NUR 3030: Basic Conc Pharmacology

A classification of pharmacological agents, their actions, dosages, toxicity and interactions related to the physiological variables and life-cycle.

Credits: 3

Prerequisites:

((CHM 1131 :D- or CHM 1151 :D-) and (CHM 1134 :D- or CHM 1152 :D-)) and (BIO 1205 :D- and BIO 1206 :D-)

NUR 3108: Pathophysiology

Human pathogenesis from the cellular, histologic, and systemic perspectives. Emphasis on pathophysiology that is commonly experienced by the individual and frequently encountered in the clinical setting. The influence of etiologic agents, environment, and human behavior on health maintenance, health restoration, and health promotion.

Credits: 3

Prerequisites:

BIO 1205 :D- and BIO 1206 :D-

NUR 3114: Nsg Care Adults & Older Adults

Nursing care of adults and older adults with age-related acute and chronic health conditions. Ethical and holistic patient centered care focused on providing continuity of care to meet the needs of the patient and family across care settings.

Credits: 6

Prerequisites:

NUR 2206 and NUR 2207 and NUR 3030 (or concurrently)

Co-Requisites:

NUR 3108

NUR 3115

NUR 3115: Prac Nsg Adults & Older Adults

Clinical application of current evidence, therapeutic nursing interventions and principles of teaching-learning for patient centered care of adults and older adults. Continuity of care across care settings, including acute, chronic and community based clinical settings is emphasized.

Credits: 6

Prerequisites:

NUR 2206 and NUR 2207 and NUR 3030 (or concurrently)

Co-Requisites:

NUR 3108

NUR 3114

NUR 3118: Nsg Care Women & Childbear Fam

Nursing care of women and childbearing families across the reproductive spectrum.

Focuses on well women health and care of the childbearing family in wellness and in at risk situations, with an emphasis on improving the health of the family.

Credits: 3

Prerequisites:

NUR 3030 (or concurrently) and NUR 3108 and NUR 3114 and NUR 3115

Co-Requisites:

NUR 3119

NUR 3122

NUR 3119: Prac Nsg Women & Childbear Fam

Clinical application of current evidence, clinical reasoning, nursing judgment and a public health focus when planning, implementing and evaluating patient centered care for women and childbearing families. Clinical practice settings include hospitals, birthing centers, clinics, and other community based sites.

Credits: 3

Prerequisites:

NUR 3030 (or concurrently) and NUR 3108 and NUR 3114 and NUR 3115

Co-Requisites:

NUR 3118

NUR 3122

NUR 3120: Psychiatric & Mental Hlth Nsg

Nursing care of individuals and families with psychiatric and mental health problems.

Psychiatric nursing concepts from a biological, psychological, sociological, legal, ethical, policy and advocacy context are examined. Concepts of therapeutic communication, mental health recovery, family as resource are addressed.

Credits: 3

Prerequisites:

NUR 3030 (or concurrently) and NUR 3108 and NUR 3114 and NUR 3115

Co-Requisites:

NUR 3121

NUR 3122

NUR 3121: Prac Psych & Mental Hlth Nsg

Clinical application of nursing interventions for patients, families and groups experiencing mental health issues in hospital and community settings. Focused on integration of concepts of culture, ethnicity, spirituality, genetics/genomics, family and developmental influences on restoration, maintenance and promotion of health.

Credits: 3

Prerequisites:

NUR 3030 (or concurrently) and NUR 3108 and NUR 3114 and NUR 3115

Co-Requisites:

NUR 3120

NUR 3122

NUR 3122: Imper for Global & Pub Health

Factors that influence the health of communities and populations locally, nationally and globally. Public health principles and sciences, epidemiological data, environmental health, social determinants of health, genetics/genomics, influence of culture and health behaviors and health vulnerabilities are addressed.

Credits: 3

Prerequisites:

NUR 3114 and NUR 3115 and NUR 3118 (or concurrently) and NUR 3119 (or concurrently) and NUR 3120 (or concurrently) and NUR 3121 (or concurrently)

NUR 4104: Nsg Adults w Comp Hlth Prob

Nursing care of acutely ill adults and older adults with complex health problems. Restoration, maintenance and promotion of health for acutely ill adults and older adults and continuity of care within specialized settings and across care settings is emphasized.

Credits: 3

Prerequisites:

NUR 3118 and NUR 3119 and NUR 3120 and NUR 3121 and NUR 3122

Co-Requisites:

NUR 4105

NUR 4105: Prac Adults w Comp Hlth Prob

Clinical application of clinical decision making skills, clinical reasoning and nursing judgment in caring for adults and older adults with complex health problems. Focus is on provision of evidence based, patient centered care, patient safety, dignity and interprofessional collaboration.

Credits: 3

Prerequisites:

NUR 3118 and NUR 3119 and NUR 3120 and NUR 3121 and NUR 3122

Co-Requisites:

NUR 4104

NUR 4108: Nsg Care Child & Adol

Nursing care of children, adolescents and families in community based and acute care settings. Emphasis is placed on family, social, cultural, religious and developmental factors on health promotion for well, acutely ill and chronically ill children and adolescents.

Credits: 3

Prerequisites:

NUR 3118 and NUR 3119 and NUR 3120 and NUR 3121 and NUR 3122

Co-Requisites:

NUR 4109

NUR 4109: Prac Nsg Care Child & Adol

Clinical Application of clinical decision making, clinical reasoning and nursing judgment in caring for children, adolescents and families in acute care and community based settings. Focus is on providing evidence based, patient centered care to maintain, restore and promote health.

Credits: 3

Prerequisites:

NUR 3118 and NUR 3119 and NUR 3120 and NUR 3121 and NUR 3122

Co-Requisites:

NUR 4108

NUR 4112: Health Prom & Home Health

Nursing care for individuals, families, communities and populations. Emphasis is placed on designing, implementing and evaluating population based interventions to promote health.

Consideration is given to populations experiencing chronic health problems being cared for in the home and community.

Credits: 3

Prerequisites:

NUR 4104 and NUR 4105 and NUR 4108 and NUR 4109 and NUR 2810 and NUR 3122 and NUR 4113 (or concurrently)

NUR 4113: Prac Health Prom & Home Health

Clinical application of evidence based nursing care in community based settings that provide home care or ambulatory care for individuals, families, communities, and populations of all ages. Application of health promotion strategies for populations to maintain or improve health.

Credits: 5

Prerequisites:

NUR 4104 and NUR 4105 and NUR 4108 and NUR 4109 and NUR 4112 (or concurrently)

NUR 4114: Nursing and Health Policy

Impact of health policy, health care financing and economics, legislative and regulatory authority on nursing practice and the health care delivery system. Societal and professional issues influencing nursing practice and the nurse as an active participant in policy are examined.

Credits: 2

Prerequisites:

NUR 3118 (or concurrently) and NUR 3119 (or concurrently) and NUR 3120 (or concurrently) and NUR 3121 (or concurrently) and NUR 3122 (or concurrently)

NUR 4116: Leadership & Management

Principles of leadership, management and organizational processes in nursing practice and in health care systems. Nursing's responsibility for quality, patient safety, professional values, accountability, and interprofessional collaboration is emphasized.

Credits: 2

Prerequisites:

NUR 4104 (or concurrently) and NUR 4105 (or concurrently) and NUR 4108 (or concurrently) and NUR 4109 (or concurrently) and NUR 4114 (or concurrently) and NUR 4117 (or concurrently)

NUR 4117: Field Work Leadership & Mgmt

Clinical application of principles of leadership and management and organizational processes in nursing practice. Field work experiences may include acute care, long-term care, home health, and community based settings.

Credits: 3

Prerequisites:

NUR 4104 and NUR 4105 and NUR 4108 and NUR 4109 and NUR 4114 (or concurrently) and NUR 4116 (or concurrently)

NUR 4118: Cultural Influences on Health Beliefs & Practices

Cultural influences on health beliefs and practices are examined. Implications for providing culturally sensitive nursing care to diverse individuals, groups and communities are addressed.

Credits: 3

NUR 4200: Seminars in Selected Topics

Opportunity for focused study of selected topics, such as current issues and trends in nursing and healthcare.

Credits: 1

NUR 4900: Guided Study in Nursing

Study or project development in a special interest area in nursing under faculty guidance. Includes tutorial sessions as necessary. Registration with the permission of the Dean.

Credits: 1

NUR 4901: Guided Study in Nursing

Credits: 2

NUR 4902: Guided Study in Nursing

Credits: 3

NUR 4903: Guided Study in Nursing

Credits: 4

NUR 4904: Guided Study in Nursing

Credits: 5

NUR 4905: Guided Study in Nursing

Credits: 6

Nutrition

NTR 2120: Principles of Nutrition

Principles of normal nutrition and the interrelatedness of economics, culture and health.

Credits: 3

Organizational Development Management

ODM 1000: Foundation of Organizational Behavior

Overview of the key principles and research of organizational behavior. Examines individual human behavior in the workplace as influenced by personality, values, perceptions, and motivations, and group behavior as related to collaboration, communication, politics, and negotiation.

Credits: 3

ODM 1100: Foundations of Strategic Mgmt

Overview of key principles and practices of strategic management. Examines topics such as establishing mission, vision, and direction, evaluating environmental influences, assessing industry and market trends, building organizational culture, leading effective teams, managing and leading change. Emphasizes the development and implementation of strategy across industries.

Credits: 3

ODM 2000: Essentials of Finance & Acct

Introduction to basic standards and concepts underlying finance and accounting. Topics include balance sheets, income statements, cash flow statements, budgets, forecasts, and reporting.

Credits: 3

ODM 2010: Foundations of Marketing

Introduction to key concepts, terms, and strategies used in the marketing function of an organization. Focus is on understanding how firms and consumers behave and developing a tool kit of strategies and tactics to be used in promoting an organization's marketing strategy.

Credits: 3

ODM 2020: Ethics, Regulations & Soc Resp

Examines the intersection of ethics, regulation, and social responsibility, and the business management and strategy. Provide students with the opportunity to understand and analyze the economic, legal, political, ethical, and societal issues involving the interaction of business, government, and society.

Credits: 3

ODM 2030: Organizational Decision Making

Explores decision-making philosophy, approaches, challenges, and best practices. Provides opportunities to analyze contexts that impact decision process and quality, and develop skills related to individual and organizational decision-making.

Credits: 3

ODM 2040: Strategic Oper & Process Impro

Introduces key components of operations management and strategy. Overview and analysis of tools, techniques, and methodologies of process improvement.

Credits: 3

ODM 2050: Innovation & Creative Thinking

The cultivation of innovation and creative thinking are essential to an organization's success in the 21st Century Global context. This course will examine how innovation and creativity can be facilitated, managed and sustained in a work setting. Students will learn about the theories behind and the practical applications of these key concepts.

Credits: 3

ODM 5000: Organiz Devlp & Mgmt Capstone

Integrates strategic management and organizational development tools and practices from throughout the curriculum to topics such as change management and entrepreneurship.

Credits: 3

Peace and Justice

- [Peace and Justice, B.A. \(GIS\)](#)

Location: Corr Hall, Rm. 106

PJ 2250: Violence & Justice in the Wrld

Examines root causes of violence, pathways to building a more peaceful and just world. Basic issues include, peace, justice, power dynamics, violence, nonviolence, restorative justice, peacemaking, peacekeeping, and peace building.

Credits: 3

PJ 2500: Education & Social Justice

American education's contribution to class, gender, and "race" inequality; political bias in school curricula: unequal treatment of students by teachers and administrators based on "race", ethnicity, class, and gender; unequal allocation of resources among public schools; the public - private school debate; possible political influences in universities; the mass media as an important component of education.

Credits: 3

PJ 2700: Peacemakers & Peacemaking

Classical and contemporary examples and approaches to peacemaking in response to injustice and social conflict. Issues to be considered include the nature and significance of nonviolent struggle, political reconciliation, and the role of religion in shaping moral action for social change.

Credits: 3

PJ 2800: Race, Class, & Gender

A critical examination of the social constructions of race, class, gender, and sexuality in U.S. culture and the injustices and inequalities that arise from them. Strategies, policies, and procedures for change are also examined.

Credits: 3

PJ 2900: Ethical Issues in P & J

Introduction to contemporary complex moral issues. Examines economic, political, and social roots. Brings the Catholic Christian ethical tradition to bear to understanding their moral significance and responsibility to address them. Issues include: poverty, environmental justice, conflict, refugees, migration, genocide, and others.

Credits: 3

PJ 2993: Internship

Internship

Credits: 3

PJ 2996: Internship

Internship.

Credits: 6

PJ 3000: Selected Topics

Violence in families and society, the traditions of Just War theory, and the critiques of war from the perspective of pacifism and non-violence. The importance and role of the peacemakers of the world, the values of conflict resolution, and strategies that aid the creation of a peaceful world order.

Credits: 1

PJ 4000: Selected Topics

The history of the struggle for justice and human rights in geographical locations, such as the Middle East, Ireland, Africa, and Central America, focusing on such issues as world hunger and apartheid, and culminating in an attempt to articulate systemic questions of justice.

Credits: 3

PJ 5000: Selected Topics

Justice & discrimination in U.S. society from social, economic, political & ethical perspectives. Strategies for the just elimination of discrimination. Topics include civil rights, gender issues of justice, etc.

Credits: 3

PJ 5100: Discrimination, Justice & Law

Development of discrimination and civil rights law in the United States through case materials in areas of racial discrimination, gender-based discrimination, reverse discrimination, sexual preference-based discrimination, and age discrimination, if time permits.

Credits: 3

PJ 5400: Ethics, Justice and the Family

The moral meaning of marriage; justice, gender, and the domestic division of labor; the legal protection of marriage and the parties to it; marriage, reproductive technology, and the commodification of children; the moral meaning of "having children"; the responsibilities of parents to their children; the responsibilities of children to their parents, with special reference to care for the aged; distributive justice and the family; society's responsibilities to serving the needs of its children. Course readings will be taken from a number of disciplines, including Christian ethics, law and legal history, philosophy, and sociology.

Credits: 3

PJ 5500: Politics of Whiteness

Examination of scholarship addressing the structure, function, & manifestations of "whiteness," primarily in U.S. culture, & its relationship to issues of diversity. Topics also include white supremacy, white identity, & the future of critical white studies.

Credits: 3

PJ 5600: Independent Study

Independent Study

Credits: 3

Philosophy

PHI 1000: Knowledge, Reality, Self

Philosophical responses to the questions of how we can know, what is real, and what is the nature of human existence that explore the dialogue between Catholic, Christian, secular and skeptical perspectives on these questions.

Credits: 3

PHI 1990: Topics

One-credit course on variable topics; course meets for a minimum of 14 hours.

Credits: 1

PHI 2010: Logic & Critical Thinking

The study of logic and critical thinking. Topics include: argument identification and analysis; formal and informal logic; fallacies; inductive argument; the role of argumentative structures in various philosophical traditions.

Credits: 3

PHI 2020: Symbolic Logic

Propositional and first-order predicate logic; logical structure of arguments; symbolic languages; correct and incorrect inferences; fallacies; truth-tables; natural deduction.

Credits: 3

PHI 2115: Ethics for Health Care Prof

Rights and duties of the patient/client and the members of the health care team, death and dying, genetic engineering and manipulation.

Credits: 3

PHI 2117: The Good Doctor

The art and science, learning and dispositional attitudes necessary for the moral practice of medicine by a good doctor. Themes for the course drawn from philosophical resources, sociological theory, data and first-person medical narratives.

Credits: 3

PHI 2121: Environmental Ethics

The relation of the physical and biological environment to ethical values. Priorities among environmental, economic and political values as a basis for ethical decisions.

Credits: 3

PHI 2130: Business Ethics

Social justice and charity as principles of order in economic life and relationships: topics include consumer rights, corporate social responsibility, and ecology.

Credits: 3

PHI 2155: Engineering Ethics

Engineering ethics through case studies focusing on professional responsibility, the role of technology in society and a holistic evaluation of the purpose of science and engineering.

Credits: 3

PHI 2160: The Ethics of War

Just war theory, total war, nuclear deterrence and nuclear war, disarmament, genocide, war crimes and atrocities, terrorism, non-violent resistance, and pacifism.

Credits: 3

PHI 2170: Mass Media Ethics

The impact of the changing communications technologies on the human person and society; freedom of the press, violence; pornography and censorship, confidentiality of sources, advertising ethics and codes of ethics and standards of practice.

Credits: 3

PHI 2180: Computer Ethics

Codes of professional ethics, unauthorized access, ownership of software, and the social responsibility of computing professionals.

Credits: 3

PHI 2190: Freedom

Human freedom analyzed from a metaphysical and political perspective; readings from classical and contemporary sources on such topics as determinism, slavery, rights, authority and dissent.

Credits: 3

PHI 2300: Philosophy of Law

The nature and function of law, relation of law to ethics, the judicial process, the role of constitutions, the rights of citizens, law and international relations.

Credits: 3

PHI 2400: Social & Political Phil

Social and political philosophers and the influence of their theories on the philosophical foundation of modern culture and society; emphasis on such conceptions as society, the state, justice and equality, and the social and political nature of persons.

Credits: 3

PHI 2410: Philosophy of Sex & Love

Embodiment, the nature of sexuality, the types of love, sexual ethics, marriage, sexual differences, and sexual discrimination.

Credits: 3

PHI 2420: Philosophy of Women

Nature and status of women from ancient times to the present, with consideration of the more general context of self-identity; contemporary feminist theories; feminism as a political movement.

Credits: 3

PHI 2430: Eco-Feminism

Basic positions in eco-feminism as they relate to the philosophical and religious traditions of the West.

Credits: 3

PHI 2440: Amer Indian Thought & Culture

Religious and philosophical concepts of personhood community, and nature; contrast of European and Euro-American Indian philosophies.

Credits: 3

PHI 2450: Catholic Social Thought

Catholic Social Thought from Rerum Navarum to the present. Its Aristotelean-Thomistic grounding. The Church's challenge to analyses of contemporary social, political, and economic systems.

Credits: 3

PHI 2460: Globalization

Philosophical issues of globalization including: international law and human rights, immigration and migration, human trafficking, cyber solidarity, fair trade, poverty tourism, protest in the global civic sphere, and religious dialogue across borders.

Credits: 3

PHI 2470: Irish Thought and Literature

An examination of main thinkers in the Irish tradition; the relation of reason (science) and religion; the importance of poetry; themes to be explored include (e)migrant thought, exile and home, English as colonizers, language and voice, laughter and comedy.

Credits: 3

PHI 2480: Africana Philosophy

Survey of theoretical writings and discourses by authors from Africa and the African diaspora at large, especially African-American and West-Indian authors.

Credits: 3

PHI 2490: Latin Amer & African Amer Phil

Colonialism and anti-colonial struggles, slavery and abolition, the Black and Latinx radical traditions, intersectionality and materialist critique, race/gender/sexuality/class relations, mass incarceration and detention, media and culture, liberation struggles.

Credits: 3

PHI 2500: Philosophy of Exchange

Monetary exchange in philosophical perspective: money as a means and as an end; higher and lower forms of exchange; sacrificial economies; the politics of scarcity; sacred economics.

Credits: 3

PHI 2550: Technology & Society

Case studies of specific technologies (such as television, automobiles, health technology) and critical examination of ethical Philosophical and policy issues that these technologies raise.

Credits: 3

PHI 2650: Philosophy of Sport

Nature of play, sport and game with special emphasis on the role of sport in modern society.

Credits: 3

PHI 2700: Philosophy of Science

Philosophical implications of specific laws and theories; Newton's laws, energy, evolution, relativity, atomic theory. Methodological problems of observation, discovery, testing; scientific realism, revolutions in scientific thought.

Credits: 3

PHI 2710: Information Knowledge Inquiry

The nature of human knowledge; sources of knowledge; justification of belief; conduct of inquiry; information; scientific reasoning; testimony; ecological rationality; and technologically extended knowledge.

Credits: 3

PHI 2760: Philosophy & Literature

Philosophical ideas in selected literary works; examination of the relation of literature to philosophy; fiction and truth, modes of communication.

Credits: 3

PHI 2900: Philosophy of Religion

The meaning of God, the experience of the Divine, nature of revelation, negative theology, the absence of God.

Credits: 3

PHI 2920: Asian Philosophies

Sources of Eastern philosophies; aspects of Hinduism, Jainism, Buddhism, Confucianism, Taoism, and/or Sufism.

Credits: 3

PHI 2930: Indian Philosophy

Introduction to basic traditions of Indian philosophy; exploration of debates between these traditions on fundamental issues of epistemology metaphysics, and philosophy of religion.

Credits: 3

PHI 2940: Indian & Tibetan Buddhist Phil

An exploration of fundamental problems, traditions, and themes in Buddhist philosophy as developed in India and Tibet.

Credits: 3

PHI 2990: Topics in Philosophy

Credits: 3

PHI 2993: Internship

Departmentally related and academically creditable field work experience. See department chair for more information. Permission of Department Chair required.

Credits: 3

PHI 2996: Internship

Departmentally related and academically creditable field work experience. See department chair for more information.

Credits: 6

PHI 3020: History of Ancient Philosophy

Plato, Aristotle and selected pre-Socratic and Hellenistic philosophers in the context of ancient and classical Greek civilization.

Credits: 3

PHI 3030: History of Medieval Philosophy

Philosophical movements from the early Middle Ages to the rise of modern philosophy; the influence of later Medieval speculation upon thinkers of the modern period; readings from Augustine, Aquinas, Bonaventure, and others.

Credits: 3

PHI 3040: Hist of Early Mod Philosophy

The systems of Descartes, Spinoza, Leibniz, and the empiricists - Locke, Berkeley, and Hume; Kant; selections read and evaluated.

Credits: 3

PHI 3050: Kant & 19th Cent Philosophy

Credits: 3

PHI 3100: Augustine & Antiquity

Life and thought of Saint Augustine; the problem of certitude, the problem of evil, the nature of history, human knowledge and God, the soul-body relations, and political philosophy.

Credits: 3

PHI 3160: History of Islamic Phil

Islamic thought, concentrating particularly on Islamic medieval theology and philosophy.

Credits: 3

PHI 3720: Marx & Marxism

Marx on the theories of human nature, freedom and history; related developments in Marxist thought.

Credits: 3

PHI 3990: Topics in Hist of Philosophy

Credits: 3

PHI 3991: Philosophy for Theology I

Historical and contemporary approaches to philosophical problems of theological relevance; philosophical methods for use in ministry; influence of Augustine on Western thought. Restricted to students in the Augustinian Novitiate Program.

Credits: 1

PHI 3992: Philosophy for Theology II

The relationships that exist between modern and contemporary philosophy and Christian theology; philosophical methods for use in ministry. Restricted to students in the Augustinian Novitiate Program.

Credits: 2

Prerequisites:

PHI 3991

PHI 4125: Bioethics

Advanced issues in clinical and research ethics: neuro-enhancement, radical life-extension, phase 1 trials on the non-consenting, ethics of life and death, and ethics of pandemics.

Credits: 3

PHI 4140: Phil of Contemporary Music

Critical listening to rock pop, jazz, rap, funk, punk, dance, and ambient music; relation of music to noise; theories of Hanslick, Nietzsche, Adorno, Barthes, Foucault, Deleuze, and Cage.

Credits: 3

PHI 4150: Philosophy & Film

Analysis of selected classics and current films from the perspective of basic philosophical concepts and questions.

Credits: 3

PHI 4200: Philosophy of Language

Major classical and contemporary philosophical theories concerning language, including the relationship of language to thought, experience and reality; theories of meaning, communication, linguistics, translation, poetic and religious language.

Credits: 3

PHI 4210: Environmental Philosophy

Credits: 3

PHI 4300: Death and Dignity

An account of the most influential philosophical interpretations of death, and an exploration of the fact of dying as a political and social phenomenon grounded on historical examples.

Credits: 3

PHI 4600: Psychoanalysis & Philosophy

Philosophical implications of Freudian theory as it relates to the individual and culture; the role of the unconscious; interpretation, structure of the ego, human sexuality and the foundations of civilization.

Credits: 3

PHI 4610: Philosophy of Mind

The nature of mind, soul, consciousness; the mind-brain relationship; classical and contemporary philosophical approaches; the nature of person identity and moral responsibility.

Credits: 3

PHI 4825: Existentialism

The active, feeling and living human being as the starting point for thinking about existence as more than brute facts and rational truths. Alienation, absurdity, emptiness and dread but also the freedom, authenticity, commitment and creativity as human responses to the apparent meaninglessness of life.

Credits: 3

PHI 4900: Feminist Theories

Credits: 3

PHI 4990: Independent Study & Research

Topic chosen by the student and approved by the professor and the chair.

Credits: 3

PHI 5000: Adv Sem for Phil Majors

Special topic in philosophy or current interest to faculty and students. Course is open to Philosophy majors and minors and graduate students with the approval of the Director of Graduate Studies in Philosophy.

Credits: 3

PHI 6000: Senior Thesis

Inquiry in depth into one major philosophical problem or into the thought of one major philosopher; practice in the use of research and bibliographical techniques.

Credits: 3

Physics

PHY 1100: General Physics I

Mechanics, heat and sound. Recommended for Biology majors.

Credits: 3

Prerequisites:

(MAT 1310 (or concurrently) :D- or MAT 1312 (or concurrently) :D- or MAT 1320 (or concurrently) :D- or MAT 1400 (or concurrently) :D- or MAT 1500 (or concurrently) :D-)

PHY 1101: General Physics I Lab

Selected experiments in mechanics, heat and sound. Recommended for Biology majors.

Credits: 1

PHY 1102: General Physics II

A continuation of PHY 1100; light, electricity and modern physics. Recommended for Biology majors.

Credits: 3

Prerequisites:

PHY 1100 :D- and (MAT 1312 :D- or MAT 1320 :D- or MAT 1400 :D- or MAT 1500 :D-)

PHY 1103: General Physics II Lab

Selected experiments in light and electricity. Recommended for Biology majors.

Credits: 1

Prerequisites:

PHY 1101 :D-

PHY 1500: The Concept of Light

Historical and analytical survey of the concept of light from classical to modern view points. Open to VSB and Arts majors (fulfills Arts core science requirement when taken with PHY 1501).

Credits: 3

PHY 1502: Gravity

Gravitational force and the laws governing the motion of objects; Newton and Einstein's theories; role in the evolution of the universe; interaction with other forces of nature. Non-calculus based. For VSB and Arts majors (fulfills Arts core science requirement when taken with PHY 1503).

Credits: 3

PHY 2400: Physics I Mechanics

Introduction to Mechanics. Designed for students in the College of Engineering.

Credits: 3

Prerequisites:

MAT 1500 (or concurrently) :D-

PHY 2402: Physics II Elec & Magnet

Electrostatics, DC Circuits, magnetism, and AC circuits. Designed for students in the College of Engineering.

Credits: 3

Prerequisites:

MAT 1505 (or concurrently) :D- and (PHY 2400 :D- or PHY 2410 :D-)

PHY 2403: Phy Lab for Engineering

Selected experiments illustrating the principles of Mechanics and Electricity and Magnetism. Designed for students in the College of Engineering.

Credits: 1

Prerequisites:

PHY 2402 (or concurrently) :D-

PHY 2410: University Phy:Mechanics

Vectors, kinematics, and dynamics of particles, rigid bodies, and fluids. Recommended for Science majors.

Credits: 3

Prerequisites:

MAT 1500 (or concurrently) :D-

PHY 2411: Lab: Mechanics

Selected experiments demonstrating the fundamental principles of Mechanics and Waves with emphasis on techniques of measurements and data analysis. Recommended for Science majors.

Credits: 1

Co-Requisites:

PHY 2410

PHY 2412: Univ Physics:Elec & Mag

Electrostatics, DC circuits, magnetism, and AC circuits. Recommended for Science majors.

Credits: 3

Prerequisites:

(PHY 2410 :D- or PHY 2400 :D-) and MAT 1505 (or concurrently) :D-

PHY 2413: Lab:Elec & Magnetism

Recommended for Science majors.

Credits: 1

Co-Requisites:

PHY 2412

PHY 2414: Univ Physics: Thermo

Heat, kinetic theory of gases, first and second laws of thermodynamics, wave motion acoustics, geometrical and physical optics. Recommended for Science majors.

Credits: 3

Prerequisites:

(MAT 2500 (or concurrently) :D- and PHY 2410 :D-)

PHY 2415: Lab: Thermodynamics

Selected experiments in heat, waves and optics. Recommended for Science majors.

Credits: 1

Co-Requisites:

PHY 2414

PHY 2416: Modern Physics

Special theory of relativity, atomic theory, quantum physics, the Schrodinger equation, solid-state physics, nuclear physics, elementary particles and cosmology. Recommended for Science majors.

Credits: 3

Prerequisites:

(PHY 2410 :D- and PHY 2412 :D- and PHY 2414 :D-) and (MAT 2500 (or concurrently) :D- or MAT 2705 (or concurrently) :D-)

PHY 2417: Lab:Modern Physics

Interference; Franck Hertz experiment; Photoelectric effect; Michelson interferometry; Millikan oil drop experiment; Electron Spin Resonance (ESR); Ferroelectricity; Superconductivity; Low Temperature physics experiments. Recommended for Science majors.

Credits: 1

Prerequisites:

PHY 2416 (or concurrently) :D-

PHY 2601: Computational Phy Lab I

Computer applications, data analysis and presentation, algorithms and programming, numerical methods, and basic graphics for Physics and Astronomy majors.

Prerequisite:Any Intro Physics course (may be taken concurrently).

Credits: 1

PHY 2603: Computational Phy Lab II

Continuation of Computational Physics I.

Credits: 1

Prerequisites:

PHY 2601 :D-

PHY 3310: Electronics

DC and AC analysis including network theorems, power, resonance, filters, bridge circuits, amplifiers, integrated circuits, active devices, digital logic circuits and applications.

Credits: 3

Co-Requisites:

PHY 3311

PHY 3311: Electronics Lab

Laboratory experiments are chosen to supplement the Physics 3310 lectures and to give experience with sophisticated electronic equipment.

Credits: 1

Co-Requisites:

PHY 3310

PHY 4000: Elec & Magnetism I

Electrostatics, Coulomb's and Gauss' Laws, Maxwell's first two equations, Laplace's equation and boundary value problems, dielectrics, currents in conductors.

Credits: 3

Prerequisites:

(PHY 2414 :D- and PHY 4200 :D-)

PHY 4001: Elec & Magnetism I Lab

Selected experiments in the field.

Credits: 1

Prerequisites:

(PHY 2414 :D- and PHY 4200 :D-)

Co-Requisites:

PHY 4000

PHY 4002: Elec & Magnetism II

Magnetism, Biot-Savart's law, Faraday's law, Maxwell's third and fourth equations, electromagnetic wave equation, radiation.

Credits: 3

Prerequisites:

PHY 4000 :D-

Co-Requisites:

PHY 4003

PHY 4003: Elec & Magnetism II Lab

Selected experiments in the field.

Credits: 1

Prerequisites:

(PHY 4000 :D- and PHY 4001 :D-)

Co-Requisites:

PHY 4002

PHY 4100: Mechanics I

Newtonian Mechanics, oscillations (simple, non-linear and driven), Lagrangian and Hamiltonian dynamics, central force motion and scattering, special theory of relativity.

Credits: 3

Prerequisites:

PHY 2414 :D-

PHY 4102: Mechanics II

Dynamics of rigid bodies, coupled oscillations, wave phenomena, fluid mechanics (steady and turbulent flow, the equations of Euler and Navier-Stokes).

Credits: 3

Prerequisites:

PHY 4100 :D-

PHY 4200: Mathematical Physics I

Vector and tensor analysis, matrices and determinants, infinite series, functions of a complex variable.

Credits: 3

Prerequisites:

(PHY 2414 :D- and MAT 2500 :D-)

PHY 4202: Mathematical Physics II

A continuation of PHY 4200; second order differential equations, orthogonal functions, integral transforms, integral equations.

Credits: 3

Prerequisites:

PHY 4200 :D-

PHY 4301: Experimental Methods I

Introduction to experimental methods in Physics.

Applications of spectroscopic techniques in nuclear, solid-state, and materials Physic.

Detection of particle and electromagnetic radiation, signal processing, spectral analysis and interpretation.

Credits: 2

PHY 4303: Experimental Methods II

Introduction to experimental methods in Physics continued: X-Ray and Mossbauer

Spectroscopy; interaction of electromagnetic radiation with matter; resonant versus non-resonant scattering cross-sections; hyperfine interactions in solids, crystal field splittings and dynamic magnetic relaxation phenomena in nonoscale systems; introduction to nanotechnology. Course is Writing Intensive.

Credits: 2

PHY 5100: Quantum Mechanics

Operators, Schrodinger Equation, one dimensional problems, harmonic oscillator, angular momentum, hydrogen atom, scattering theory.

Credits: 3

Prerequisites:

PHY 4100 :D- and PHY 4200 :D-

PHY 5200: Thermo/Statistical Mech

Statistical methods, statistical thermodynamics, Ensembles, Partition functions. Quantum statistics. Kinetic theory of transport processes.

Credits: 3

PHY 5300: Subatomic Physics

Structure of subatomic particles and nuclei, symmetries and conservation laws, interactions and nuclear models, radioactivity and passage of radiation through matter. A writing intensive course.

Credits: 3

PHY 5500: Solid State Physics I

Description of crystal structure, diffraction of X-rays, classification of solids, thermal properties of solids, dielectric properties, diamagnetism and paramagnetism, free electron theory of metals, band theory of solids.

Credits: 3

Prerequisites:

PHY 2416

PHY 6000: Advanced Optics

Topics in geometrical and physical optics.

Credits: 3

PHY 6400: General Relativity

Introduction to Einstein's Theory of General Relativity. Differential geometry, equivalence principle, geodesics, and the Einstein equations. Applications to black holes, gravitational waves, and cosmology.

Credits: 3

Prerequisites:

(PHY 4100 :D- and PHY 4200 :D-)

PHY 6450: Supervised Study in Physics

Reading and/or laboratory work in a selected branch of physics under the direction of a member of the staff. Restricted to the Permission of the Instructor.

Credits: 1

PHY 6500: Supervised Study in Physics

Reading and/or laboratory work in a selected branch of physics under the direction of a member of the staff.

Credits: 2

PHY 6600: Supervised Study in Physics

Same as PHY 6500 with increased number of hours.

Credits: 3

PHY 6900: Topics in Physics

Lecture course in an area of Physics. May be repeated for credit if topics are different.

Credits: 3

Political Science

PSC 1100: American Government

Constitutional development; national institutions, federalism, civil rights and liberties; instruments of popular control. Pre-requisite for 2100 and 5100-level courses and PSC 6900.

Credits: 3

PSC 1200: International Relations

Theories and concepts in the study of international relations; important and enduring questions in world affairs; trends and changes in the post-Cold War and post-9/11 world. Prerequisite for 2200 and 5200-level courses and PSC 6900.

Credits: 3

PSC 1300: Comparative Politics

Political dynamics of various countries and regions. Regime types and political institutions. Politics of inclusion and exclusion. Sources of political change and continuity. Pre-requisite for 2300 and 5300-level courses and PSC 6900.

Credits: 3

PSC 1400: Political Theory

A survey of early and modern political thought and its relevance to contemporary politics. Prerequisite for 2400 and 5400-level courses and PSC 6900.

Credits: 3

PSC 1900: Research Seminar

Covers elements required for writing research paper on a problem in political science, including using the library, evaluating and properly citing sources, understanding appropriate research methods, and writing and redrafting a research paper. Prerequisite for PSC 6900.

Credits: 3

PSC 2110: U.S. State & Local Government

Constitutions, institutions, instruments of popular control, and intergovernmental relations.

Credits: 3

Prerequisites:

PSC 1100

PSC 2120: U.S. Congress

Congressional functions, structures, and procedures; distribution of power; elections, representation, parties, committees, and the legislative process. Relations with the President, executive bureaucracy, judiciary, and interest groups. Congress's role in the economy, budgeting, domestic policy, and national security policy.

Credits: 3

Prerequisites:

PSC 1100

PSC 2125: U.S. Presidency

The nature, functions, and development of the American presidency, including relations between the president and other Washington actors, the public and the press.

Credits: 3

PSC 2130: U.S. Judiciary

Historical overview of the Supreme Court; competing perspectives on judicial behavior; and patterns in the relationship between the Court and other branches of the federal government.

Credits: 3

Prerequisites:

PSC 1100

PSC 2140: US Con Law I: Powers&Struct

Major Supreme Court cases concerning the powers of Congress and the president, federalism, commerce taxing, and voting.

Credits: 3

PSC 2145: US Con Law II: Rights&Lib

Major Supreme Court decisions, 1789 to the present, concerning provisions of the Bill of Rights and the Fourteenth Amendment; emphasis on constitutional "literacy," or the ability to read Court decisions and write about them.

Credits: 3

PSC 2150: U.S. Pol. Parties & Elections

The place of parties in national politics; the nature, organization, and functions of political parties; suffrage requirements and election methods; the activities of organized interests.

Credits: 3

Prerequisites:

PSC 1100

PSC 2180: U.S. National Security Policy

Development of strategic thought in the United States, arms control and disarmament, intelligence, technology, alliance policy, role of civilian and military branches of government, and related topics.

Credits: 3

PSC 2190: U.S. Pub Opinion & Polit Behav

The normative and empirical roles of public opinion and civic involvement in American democracy; conceptual and measurement issues, individual-level and societal factors influencing public opinion and political behavior.

Credits: 3

Prerequisites:

PSC 1100

PSC 2210: Globalization

Transformation of international politics through diffusion of ideas, technology, migration, capital and markets. Globalization, diffusion, and interactions of ideas, technology and capital. Effects on domestic and international politics, economics, society.

Credits: 3

Prerequisites:

PSC 1200

PSC 2220: International Law

The rules and principles of international law based on a study of treaties, diplomatic practice, and cases dealt with by international and national courts.

Credits: 3

Prerequisites:

PSC 1200

PSC 2230: International Organization

The development of international organization, the U.N., its principles, structure, and accomplishments; regional organizations; prospects for the future.

Credits: 3

Prerequisites:

PSC 1200

PSC 2240: Internat'l Political Economy

Interactions between domestic, comparative and international politics and economics. Institutions, ideas and power dynamics in trade, finance, and development. The movement of labor, goods, services, and capital across national boundaries.

Credits: 3

Prerequisites:

PSC 1200

PSC 2260: War and Conflict

Causes of interstate war, laws and norms of war, nuclear proliferation and deterrence, terrorism, civil war, territorial disputes, religion and conflict, and humanitarian and military intervention and peacekeeping.

Credits: 3

Prerequisites:

PSC 1200

PSC 2310: Nationalism

National identity and consciousness, origin and development of nations and states. Role and effects of nationalism in modern politics, culture, society, and economy.

Credits: 3

Prerequisites:

PSC 1300

PSC 2330: East Asian Politics

Northeast Asian countries' political and economic development after World War II.

Credits: 3

Prerequisites:

PSC 1300

PSC 2340: Politics of the Arab World

Political change in the principal Arab States with emphasis on the diverse forms of rule and political movements. The impact of colonial rule and socioeconomic changes on political life, leadership, social structure, political culture, and modernization.

Credits: 3

Prerequisites:

PSC 1300

PSC 2350: African Politics

Politics and societies of contemporary Africa. Colonialism and its legacies. Postcolonial regimes; authoritarianism, neo-patrimonialism and "big man" rule; political reform and democratization. Theories of conflict and conflict resolution. Economic development: International and domestic explanations of poverty and underdevelopment; the HIV crisis, foreign aid, debt and debt relief, and economic reform and renewed growth.

Credits: 3

Prerequisites:

PSC 1300

PSC 2360: Latin American Politics

Politics and societies of contemporary Latin America. Legacies of social revolution and authoritarian rule; democratic transition and consolidation; market reforms and their consequences. Democratic representation; the resurgence of the political left; identity politics (race/ethnicity, inclusion and exclusion). US-Latin American relations: immigration, trade, energy, and security policies.

Credits: 3

PSC 2370: Third World Politics

Political systems of the developing world, including ideologies, the role of the military, nation building, gender issues, religion, ethnic conflict and additional topics.

Credits: 3

Prerequisites:

PSC 1300

PSC 2380: European Politics

European political institutions, changes in party systems, and impact of European integration/globalization on domestic economies.

Credits: 3

Prerequisites:

PSC 1300

PSC 2390: Indian & South Asian Politics

The historical development of India and Pakistan; their contemporary problems and conduct of foreign relations with the great powers.

Credits: 3

Prerequisites:

PSC 1300

PSC 2410: Early Political Theories

The relevance of the classics of political thought for understanding modern politics from the Greeks to the modern era.

Credits: 3

PSC 2420: Modern Political Theories

The structure of modern political thought and developments of twentieth century political thought as an aid to understanding our age.

Credits: 3

PSC 3110: Politics of Immigration (U.S.)

This course explores the varied perspectives of public, private, and nonprofit leaders on the nature of American citizenship from the founding era to the 21st century. It examines how the meaning of American citizenship continues to shape political life in multiple ways - from legislation, to advocacy, to social service provision in the United States.

Credits: 3

PSC 3120: Political Communication (U.S.)

The role, behavior and influence of communications in American politics.

Credits: 3

PSC 3130: Women and Politics in the U.S.

Why women traditionally have been marginal to political life; the efforts of women in the past and today to change that fact; the problems that must be solved before women can translate their numerical strength into political power.

Credits: 3

PSC 3140: Race, Ethnicity & Pol. in U.S.

The importance of race and ethnicity in American politics, and the politics (historical, legal, attitudinal, and behavioral) of four of the United States' principal racial and ethnic minority groups—blacks (African-Americans), Latinos, Asians, and Native Americans.

Credits: 3

PSC 3150: Political Psychology

The interplay between politics and psychology; principles, terminology, and methods of psychological theories to understand how people think and feel about politics and how politics affects their thinking.

Credits: 3

PSC 3160: Black Politics

This course is designed to provide students with an overview of Black Politics and introduce several theories, approaches, and analyses of the African American predicament. The course also examines the dynamics of two of the most salient forms of Black Politics: protest activity and conventional electoral politics. Within this framework the course will analyze the character functions, and influence of Black leadership, sociopolitical organizations, and examine the persistence of racial disparities in several public policy areas of significance faced by Black Americans.

Credits: 3

PSC 3165: Pol Econ of Black America

Black Political Economy examines the complex interplay between race and economics. The course covers the principles, terminology, and methods of standard economics and Black political economy. There is an examination of the complicated journey of Black workers from the transatlantic slave trade to the demise of the industrial order in the twenty-first century. There is a particular focus in the course on the current economic circumstance and outlook for African Americans in major American cities in the context of the global economy.

Credits: 3

PSC 3210: American Foreign Policy

The institutions, processes, and ideas which shape contemporary American foreign policy; the major problem areas.

Credits: 3

PSC 3220: Middle East International Rels

Intra-regional and international problems facing the Middle East: the struggle for independence; the impact of the Cold War; the protracted conflict between Israelis and Arabs; and the tensions in the oil-rich Persian Gulf.

Credits: 3

PSC 3230: Development and Aid

Development and the role of official development assistance. Includes aid effectiveness, modalities, impact of globalization, conflation of aid with strategic purpose, and rising influence of non-traditional donors, such as China and oil-exporting countries.

Credits: 3

PSC 3240: East Asia Political Economy

Interactions between domestic and international actors in Asia; role of political regimes, institutions and firms; dynamic processes of trade and financial sector liberalization and economic crisis. Pre-requisite: PSC 1200 or junior standing.

Credits: 3

PSC 3250: Genocide and Mass Killing

Definitions of genocide and mass killing, causes of genocide and mass killing, contexts in which violence occurs, dynamics of violence, variations in violence, individual motivations of perpetrators, rescue and resistance, obstacles and opportunities for intervention and prevention, tribunals and truth commissions.

Credits: 3

PSC 3320: Russian Politics

The contemporary Russian political system; political transformation from the Communist system which preceded it.

Credits: 3

PSC 3330: British Politics

Development of the British state; the powers of Parliament and other institutions; the British welfare state, public opinion, and policing; questions of union and devolution; major current topics in British politics.

Credits: 3

PSC 3340: Irish Conflict and Peace

Foundations of the Irish state; political system and party system development; conflict in Northern Ireland; relations within the divided island and between the Irish Republic and Britain; Irish social, political cultural and economic development; gender in Irish society and politics; Ireland in the international political system.

Credits: 3

PSC 3410: Theories of War and Peace

The relevance of the classics of political thought for understanding modern politics from the Greeks to the modern era.

Credits: 3

PSC 3420: American Political Thought

The founding of the American Republic; nature of the federal union, factions, popular sovereignty, the extended republic, representation, separation of powers, and checks and balances. Subsequent issues and controversies about these and related matters.

Credits: 3

PSC 3440: Politics and Religion

The nature of religious and political identity; the possibility and desirability of keeping them apart; the relationship between religion and politics in a free society; religious pluralism, its requirements and consequences; the prospects for "civil religion."

Credits: 3

PSC 4175: Topics in Am Gov & Politics

Topical courses in American Government and Politics offered on occasional basis.

Credits: 3

PSC 4275: Topics in Internat'l Relations

Topical courses in International Relations offered on occasional basis.

Credits: 3

PSC 4375: Topics in Comparative Politics

Topical courses in comparative politics offered on occasional basis.

Credits: 3

PSC 4475: Topics in Political Theory

Topical courses in political theory offered on an occasional basis.

Credits: 3

PSC 5110: Ind Study in Am Gov & Politics

Readings, research, and writing on topics in American government and politics under faculty supervision. Pre-requisite: permission of instructor and department chair.

Credits: 3

Prerequisites:

PSC 1100

PSC 5210: Ind Study in Intern'l Rel

Readings, research, and writing on topics in international relations under faculty supervision. Pre-requisite: permission of instructor and department chair.

Credits: 3

Prerequisites:

PSC 1200

PSC 5310: Ind Study in Comparative Pol

Readings, research, and writing on topics in comparative politics under faculty supervision. Pre-requisite: permission of instructor and department chair.

Credits: 3

Prerequisites:

PSC 1300

PSC 5410: Ind Study in Political Theory

Readings, research, and writing on topics in political theory under faculty supervision. Pre-requisite; permission of instructor and department chair.

Credits: 3

Prerequisites:

PSC 1400

PSC 6160: Washington Minimester

A three-week program of seminars in Washington, D.C. with public officials, staff members, party leaders, and interest group representatives. Held annually in mid-May. Enrolls the previous fall. Limit: 15 students. Permission of instructor required.

Credits: 3

PSC 6503: Internship Elective

Internship.

Credits: 3

PSC 6900: Political Sci Seminar

Capstone seminar on specialized topics in political science.

Credits: 3

Prerequisites:

PSC 1100 and PSC 1200 and PSC 1300 and PSC 1400 and PSC 1900

Psychological and Brain Sciences

PSY 1000: General Psychology

Introductory examination of the fundamental concepts of psychology, with particular emphasis on the description of normal human behavior and those factors that underlie it. Prerequisite to all other courses in psychology.

Credits: 3

PSY 1001: Intro to Brain and Behavior

Examination of fundamental concepts in psychology with special emphasis on underlying neural mechanisms. Satisfies same pre-requisite requirements as PSY 1000 and is the preferred introductory psychology course for CBN majors. Cannot receive credit for both PSY 1000 and PSY 1001.

Credits: 3

PSY 2000: Intro Statistics

Basic concepts, assumptions, and applications of descriptive statistics and inferential statistics.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2050: Research Methods in Psy.

Introduction to the reading, design, and reporting of psychological research. Writing intensive.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2100: Sem Professional Development

Overview of ethical and professional issues in psychology.

Credits: 1

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2150: Undergrad Research Experience

Supervised research experience. Students may register for PSY 2150 more than once.

Credits: 1

Prerequisites:

PSY 1000 or PSY 1001 or HON 1811

PSY 2400: Cross-Cultural Psychology

Theory and research on cultural influences on human diversity in behavior and psychological processes.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2450: Psychology of Gender

Sexism in psychological research & theory; gender stereotyping & discrimination; psychological theories of gender; women's physical & mental health, female sexuality & lifespan development; sexual orientation; victimization of women; biological influences on women's experiences.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2700: Industrial/ Organizational Psy

Applications of psychological data, theories, research methods, and testing procedures to individuals in organizational settings.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2800: Human Factors

Application of theories of human performance (perception, cognition, and motor control) to the design of products and systems.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2900: Special Topics

An intensive examination of selected topical areas within psychology.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2901: Special Topics Laboratory

Laboratory course corresponding to a special topics course. May be required for a particular topics course.

Credits: 1

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 2905: Special Topics Seminar

Selected topics in memory improvement, time management, stress management, interpersonal communication, etc. Open to all Majors. Only three 1-credit seminars may be applied toward graduation. Cannot be used to fulfill Psychology electives.

Credits: 1

PSY 2993: Psychology Internship

Supervised work experience in agency, hospital, school, or company. Minimum 3.0 G.P.A., Psychology major. Permission of instructor. Apply in Psychology Department office. Cannot be used to fulfill Psychology electives. Graded S/U.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 3200: Human Development

Theory and research on social/ personality, physical, and cognitive/intellectual changes from infancy through old age.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 3300: Perception

Theory and application of sensory and perceptual processes such as distance perception, color vision, illusions and deafness.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 3500: Psych of Personality

Theories, dynamics, and structure of personality. Students cannot receive credit for this course and PSY 4700.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 3600: Social Psychology

Survey of theory and research on altruism, attraction, social cognition, the self, attitudes and attitude change, social influence, affiliation, personal control, and aggression.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

PSY 3700: Psychopathology

Classification, etiology, and treatment of mental and behavioral disorders with emphasis on contemporary theory and research.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and PSY 2050 :D-

PSY 3800: Clinical Psychology

Fundamental concepts, basic areas of professional functioning, and contemporary issues in the mental health field.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and PSY 2050 :D-

PSY 4200: Biopsychology

Theoretical and laboratory examination of basic neural and hormonal processes underlying behavior.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and (PSY 2000 (or concurrently) :D- and PSY 2050 :D-) or (PSY 2000 :D- and PSY 2050 (or concurrently) :D-)

PSY 4500: Cognitive Psychology

Theory and research on human learning, memory, and cognitive processes. Writing intensive.

Credits: 3

Prerequisites:

(PSY 2000 (or concurrently) :D- or PSY 4000 :D-) and PSY 2050 :D- or PSY 2000 :D- and PSY 2050 (or concurrently) :D-

PSY 4600: Animal Learning & Cognition

Cognitive mechanisms responsible for simple behavior and behavioral change as they have been studied using animal subjects.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and PSY 2050 :D-

PSY 5150: Foundations of Modern Psych

Overview of the major concepts and theories of psychology presented in a historical context.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and PSY 2000 :D- and PSY 2050 :D-

PSY 5250: Contemp Research Issues in Psy

Recent and emerging topics, issues, and methods in psychological science.

Credits: 3

Prerequisites:

(PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-) and PSY 2000 :D- and PSY 2050 :D-

PSY 5900: Independent Research Project

Supervised research project and report. Student may register for PSY 5900 more than once; however, only 3 hours of research can be applied toward the degree requirements in psychology.

Credits: 3

Prerequisites:

PSY 1000 :D- or PSY 1001 :D- or HON 1811 :D-

Public Administration

PA 1050: Public Administration

Administrative politics, law, and ethics, organizational theory and technical fields, such as budgeting, planning, and personnel.

Credits: 3

PA 2000: Public Policy

Theories of public policy making, national public policies, and contemporary issues.

Credits: 3

PA 2100: City and Suburb

Politics and problems in metropolitan areas of the United States.

Credits: 3

PA 3000: Overview of Non-Profit Sector

Examination of the size, scope, central activities, and public impact of the nonprofit sector in the U.S. and abroad. Exploration of current trends and career opportunities in the nonprofit sector.

Credits: 3

PA 4100: Public Budgeting

How government and nonprofits raise revenue, engage in the budgeting process, and use budgets to manage in the public sector.

Credits: 3

PA 4200: Organizational Development

Evaluation of human capital initiatives, marketing and communication strategies, and service delivery in government and nonprofit organizations.

Credits: 3

PA 5000: Special Topics

Special topics in public administration.

Credits: 3

PA 5100: Independent Study

Individual students with specific interests in public administration work on a tutorial basis with an appropriate professor.

Credits: 3

PA 6000: Vocation of Public Service

The exploration of the concept of public service as a "vocation," envisioning public service as a means of self-expression through which citizen-servants discover meaning and purpose in their lives by promoting the common good and developing the bonds of community.

Credits: 3

PA 6100: PSA Internship

Supervised work opportunity to explore public service professional interests and gain experience in the public or nonprofit sector. Prerequisite: Approval from the Chair of the Department of Public Administration.

Credits: 3

Prerequisites:

PA 1050 (or concurrently) or PA 2000 (or concurrently)

PA 6200: Special Topics Course

Provides students with opportunity to take a course in an additional area of focus in the field of public service.

Credits: 3

Real Estate

RES 2150: Real Estate Fundamentals

An introduction to the field of real estate, includes the following broad topical areas: the legal nature of real estate, valuation and appraisal, real estate finance, and the secondary mortgage market.

Credits: 3

RES 2250: Real Estate Law

Topics in real estate law: ownership, possession and management of land and buildings, landlord and tenant, nonpossessory rights, contractual documents and agreements, transfer of rights; title insurance, moral and ethical dimensions, financing the transaction, litigation and claims involving real estate.

Credits: 3

RES 2340: Contemp Topics in Real Estate

Contemporary topics in Real Estate: Contemporary issues and topics in Commercial real estate including valuation, sustainability and topics of interest in the current environment. Must be enrolled in one of the following Fields of Study (Major, Minor, or Concentration): Real Estate

Credits: 3

Prerequisites:

RES 3150

RES 3001: Real Estate Internship

Employment with an approved firm in the area of Commercial Real Estate where experience is gained with appropriate training, instruction, and supervision. Course does not fulfill the requirements for major. A minimum GPA of 2.5, approval of the office of Business Relations and written permission of the chairperson.

Credits: 3

RES 3150: Real Estate Investments

Valuation of commercial real estate properties including discounted cash flow approach. Pro forma accounting statement modeling, cash flow forecasting, lease price determinants, initial and exit cap rate determination and ultimately valuing actual real estate properties. The "four food groups" of commercial real estate.

Credits: 3

Prerequisites:

RES 2150

RES 3250: Advanced Real Estate Modeling

Apply advanced modeling techniques to underwrite and value commercial real estate assets, Argus certification, excel based modeling. Monte Carlo simulation, Google sketch-up, partnership waterfall modeling.

Credits: 3

Prerequisites:

RES 3150

RES 3360: Independent Study-Real Estate

Independent study under a faculty member's guidance in an area of special interest to the student. The area of interest must be discussed with the faculty member prior to registration. Course does not fulfill the requirements for major. Prerequisites: Real Estate major with senior standing, and written permission of chairperson required.

Credits: 3

Prerequisites:

RES 2150 and RES 3150

RES 4150: Real Estate Development

Senior capstone class that focuses on the development process from land acquisition to final product incorporating real time real estate development projects. Specific topics include land acquisition, tax issues, optimal land use decisions, architectural and sight design, contracting and construction, leasing and marketing of properties and optimal exit strategies.

Credits: 3

Prerequisites:

RES 3150

Romance Languages and Literatures

RLL 1000: Special Studies

Studies in one of the areas not included in the languages, literatures and civilizations usually offered, e.g., Polish, Romanian and Ukrainian; readings and discussions.

Credits: 3

RLL 2221: Latinx Cultural Studies

The purpose of this course is to examine the experiences of different Latino communities living in the United States (Puerto Rican, Cuban, Dominican and Mexican) through literature, film, music, art and popular culture. Topics to be discussed include experiences of migration, identity formation and negotiation in terms of race, gender, sexuality and class, bilingualism and code switching, and marketing geared toward the Latino community.

Credits: 3

RLL 3046: Readings in FRE & Francoph Lit

Analysis of specific trends in French and Francophone literatures. Topics may include Surrealism, the New Novel, Existentialism, Negritude, Creolite, etc. Taught in English.

Credits: 3

RLL 3075: Theme in FRE & Francoph Cinema

Analysis of major works dealing with a chosen topic. The course may explore a specific movement (the New Wave, etc.) Taught in English.

Credits: 3

RLL 3100: Themes in Romance Studies

Advanced study of topics in more than one Romance studies area. (FFS, ITA, or SPA) Taught in English.

Credits: 3

RLL 3287: Cult Stud: FRA & Francoph Worl

Exploration of the political, economic and sociocultural connections between France and its former colonies. Potential topics include France and the Maghreb, the African diaspora in France, etc. Taught in English.

Credits: 3

RLL 3412: Topics

Advanced study of topics of special interest in Italian, French or Spanish literary and/or cultural studies. May be repeated for credit if topic changes. Taught in English.

Credits: 3

RLL 3413: Topics on Italy and Beauty

Advanced study of expressions of beauty as manifested in Italian Culture Literature, Art, Philosophy, Design, and Commerce. May be repeated for credit if topic changes.

Taught in English

Credits: 3

RLL 3420: The Renaissance

Advanced studies in the culture and art of the Renaissance, explored either by way of an overall European perspective, or with a specific focus on Italy, France, and Spain. Taught in English.

Credits: 3

RLL 3430: European Intellectual Thought

Overarching topics and common themes in the European Intellectual thought, as outlined in literature, philosophy, and art from the middle ages to the present. Readings in English translation will touch upon the Spanish, French, Italian, British, and German traditions. Taught in English.

Credits: 3

RLL 3440: The Postcolonial Perspective

Theories related to colonization and postcolonial representation are examined either in several geographical areas simultaneously, or are applied to a specific literary/cultural tradition.

Credits: 3

RLL 3450: Themes in Cultural Studies

Cultural meaning-making process manifest in cultural products, traditions and representations. Taught in English.

Credits: 3

RLL 3744: Cervantes

Readings in English of Cervantes' work. Taught in English.

Credits: 3

Russian Studies

RUS 1111: Introductory Russian I

Functional use of Russian for students with no prior knowledge of Russian. Recitations, readings and oral drills. Supplementary language laboratory work.

Credits: 6

RUS 1112: Introductory Russian II

Functional use of Russian for students with no prior knowledge of Russian. Recitations, readings and oral drills. Supplementary language laboratory work. RUS 1111 or equivalent or permission of instructor.

Credits: 6

RUS 1123: Intermediate Russian I

Review of Introductory Russian, followed by further development of reading, speaking, writing, and translation skills.

Credits: 3

Prerequisites:

RUS 1111 :D-

RUS 1124: Intermediate Russian II

Continued development of skills employed in Intermediate Russian I.

Credits: 3

Prerequisites:

RUS 1123 :D-

RUS 1131: Conversation Composition

Advanced communication skills including reading and discussing topics on current events.

Credits: 3

RUS 1132: Advanced Convers & Comp

A continuation of RUS 1131.

Credits: 3

RUS 3412: Russian Culture in Context

Advanced study of topics of special interest in Russian language, literary and/or cultural studies. May be repeated for credit if topic changes.

Credits: 3

RUS 4110: Russian Film

Understanding of Russian life and culture today by focusing on basic historical, ideological, economic, religious and cultural developments. Each student chooses one aspect of social development for further research. Conducted in English.

Credits: 3

RUS 4120: The Russian Short Story

Representative Russian short stories from Pushkin to Pasternak. Conducted in English.

Credits: 3

RUS 5900: Russian:Independent Study

Supervised study, activity or research. May be taken more than once. Prior approval of chair and instructor.

Credits: 3

Service Learning

SL 1000: Serv Learning 4th Hour Seminar

Service-Learning Seminar is a requirement for students in the Sophomore Service-Learning Community. Through the integration of knowledge, and experience through weekly service, students dialogue to critically reflect on the systemic issues and cultural narratives that affect the communities in which they serve. Restricted to Sophomore Service-Learning Community

Credits: 1

SL 3000: Service Learning Practicum

Community based service experience that connects current and prior coursework to real world applications. Written and communal reflection is directed toward understanding the implications for the organization, society, and self- a final paper/project incorporating scholarly sources.

Credits: 3

Social Sciences

SCSC 1050: Independent Study

Independent Study of selected interdisciplinary topic in social science.

Credits: 3

SCSC 1975: Business in British Society

Political, economic, social context of British business. Intercultural competence and contemporary affairs in Britain. Preparation for Global Citizens Program internship experience. Must be enrolled in Global Citizens Program.

Credits: 3

Sociology

SOC 1000: Intro to Sociology

Introduction to the analysis of social behavior, emphasis on socialization, collective and group behavior.

Credits: 3

SOC 1500: Social Problems

Significant problems of American society; the sociocultural basis of social problems, the conditions facilitating their incidence, and approaches to therapeutic intervention.

Credits: 3

SOC 1903: Internship Elective

Credits: 3

SOC 2100: Cultural Anthropology

Principles of cultural anthropology; ethnological variations in language, techniques, customs and values; problems of cultural development and change.

Credits: 3

SOC 2200: Sociology of Deviance

A sociological examination of rule-breaking behavior; causal theories of deviance; types of deviance and their distribution in contemporary society.

Credits: 3

SOC 2300: Sociology of the Family

Institutional organization of mate selection, courtship, and marriage relationships in American society; family relationships and functions; family disorganization and change.

Credits: 3

SOC 2400: Sociology of Social Work

History and development of social welfare; basic issues in social welfare planning and administration. The major methods of social work, practice; social casework, group work and community organization, in such areas as child welfare, family service and counseling, probation and corrections.

Credits: 3

SOC 2600: Sociology of Religion

The interaction between society and religion; religion and scientific claims; investigation of human nature as social and the concept of oneness in religion.

Credits: 3

SOC 2700: Business and Society

The structure of complex organizations and their relationship to other social institutions. Emphasis on the modern corporation, how corporations interact with labor and government, and how corporations and organizations affect our everyday lives.

Credits: 3

SOC 2800: Sociology of Occupations

Influence of the social milieu upon internal organizations of occupations and professional modes of selection, entrance, and training; occupational mobility and career patterns; occupational influences upon individual behavior.

Credits: 3

SOC 2900: Politics, Economy and Society

Relationships between state and society from a comparative perspective. Focuses primarily on the United States, with frequent references to the experiences of other developed nations as well as those of third world countries.

Credits: 3

SOC 2950: Perspectives on US Poverty

Poverty in the United States, emphasizing the experience of the past thirty years (measurement, causes, and policies to combat poverty). Emphasis on the special problems of urban poverty and poverty among children.

Credits: 3

SOC 2993: Internship

Internship

Credits: 3

SOC 3300: Sociology of Law

The meaning, origin, and impact of law viewed from several sociological perspectives; the law in action and the social context of legal professions.

Credits: 3

SOC 3400: Health, Medicine & Society

This course explores the social dimensions of health, disease and illness, focusing especially on the social determinants of disease, the social experience of illness, and the role and meaning of medicine and public health in modern U.S. society. The class examines how we define health problems and their solutions, and it considers the ways in which factors such as race, gender and class, and social connections affect health.

Credits: 3

SOC 3450: Soc of Mental Health & Illness

Examination of mental health and illness in social and historical context; different frameworks for understanding mental illness (e.g. psychological, biomedical, and sociological); social meanings, definitions, and determinants of mental illness; approaches to treatment; and the various ways in which the mentally ill (and/or those labelled as mentally ill) have been marginalized in society.

Credits: 3

SOC 3500: Sociology of Gender

Exploration of gender as a social construct shaped by social structures and cultural norms; focus on intersections of gender with other axes of inequality including race/ethnicity, social class, sexuality, and citizenship.

Credits: 3

SOC 3600: Sociology of Race & Racism

Development of race and ethnic relationships in America; the impact of power-conflict relations on race and ethnic patterns; particular attention given to development from early 1950's to present.

Credits: 3

SOC 3700: Urban Sociology

The nature of the city; history of urban settlement; urban form; institutions, organizational structures and processes; major problems of living in urban America.

Credits: 3

SOC 3800: Social Movements

The sociological study of social movements, including mobilization, participation, tactics, goals and ideology; the social contexts in which movements arise and develop; the nature and influence of historical and contemporary movements and activism.

Credits: 3

SOC 4000: Special Topics

Topics addressing special or emerging interests, chosen for their current importance and the specific expertise of an instructor.

Credits: 3

SOC 4200: Sports and Society

Sports as both a unifying and divisive social force. The corporatization and commodification of organized sports.

Credits: 3

SOC 5050: Soc Theory & Public Policy

Influence of sociological ideas on social policies. Students will be expected to design a theoretically driven empirical study which impacts on some public policy.

Credits: 3

Prerequisites:

SOC 1000

SOC 5100: Contemp Thry & Research

Significant contemporary contributions to sociology theory and research.

Credits: 3

Prerequisites:

SOC 1000

SOC 5300: Data Analysis-Social Scientist

Credits: 3

SOC 5400: Applied Research in Soc

The development of real-world research skills through the application of sociological methods and statistics. Special emphasis is given to sampling, measurement, applied statistics, data management and evaluative research.

Credits: 3

SOC 6000: Sociology Independent Study

Supervised project or research culminating in research report or major paper.

Credits: 3

SOC 6500: Seminar

Advanced course for seniors focusing on particular substantive area; topics rotate.

Credits: 3

Prerequisites:

(SOC 5300 and SOC 5400) and (SOC 5000 or SOC 5050 or SOC 5100)

Spanish Studies

SPA 1111: Introductory Spanish I

Groundwork Spanish, including oral proficiency, aural comprehension, and reading; for students with no prior knowledge of Spanish.

Supplementary language laboratory work and oral drills.

Credits: 4

SPA 1112: Introductory Spanish II

SPA 1112 is the continuation of Introductory Spanish and as such, students need to know that some knowledge of Spanish is necessary in order to start at the SPA 1112 level. Groundwork Spanish, including oral proficiency, aural comprehension, and reading; for students with no prior knowledge of Spanish.

Supplementary language laboratory work and oral drills.

Credits: 4

SPA 1121: Intermediate Spanish I

Review of grammar, composition, reading and conversation. Students should have completed SPA 1111 and 1112 or the equivalent.

Credits: 3

SPA 1122: Intermediate Spanish II

Review of grammar, composition, reading and conversation. Students should have completed SPA 1121 or the equivalent.

Credits: 3

SPA 1125: Exp Lrn in Spanish Spk Phila

This one-credit course allows students to work with local organizations to further develop their linguistic and cultural competencies through community engagement opportunities. The course will be comprised of a structural blend of experiential learning, readings, discussions, and reflections. Pre-requisites: SPA 1121 or approval of instructor.

Credits: 1

Prerequisites:

SPA 1121

SPA 1130: Span. for Heritage Speakers I

Combination of reading and writing in addition to speaking. Work is individualized for needs of students. Objective is to prepare students for a more advanced course. Restricted to students with Hispanic background who have been exposed to Spanish at home.

Credits: 3

SPA 1131: Conversation & Composition I

Regular practice in conversation and composition with review of grammar and continuing work on language skills in Spanish. Students should have completed SPA 1122 or the equivalent.

Credits: 3

SPA 1132: Conversation & Composition II

Spanish 1132 is a continuation of 1131 with more intensive practice in conversation and composition in Spanish, through literary and cultural analysis of texts, as well as a review of difficult grammatical points. As a result, students will develop their vocabulary and improve their proficiency and skills for analyzing literary works of representative Hispanic texts, while also developing essential critical thinking skills in preparation for taking upper-level courses in Spanish. Students should have completed Spanish 1131 or the equivalent.

Credits: 3

SPA 1135: Span for Heritage Speakers II

Practice in conversation and composition with focus on advanced proficiency in Spanish. Course conducted in Spanish. Restricted to students with Hispanic background who have been exposed to Spanish at home.

Credits: 3

SPA 1138: Advanced Grammar

Intensive grammar review with special attention to literary style. Students should have completed 1132 or the equivalent.

Credits: 3

SPA 1140: Writing & Stylistics in Span.

Intensive practice in written expression and textual analysis for heritage and non-heritage speakers. Compositions are modeled on selected Spanish texts.

Credits: 3

SPA 1142: Adv. Spanish for Health Prof.

Beyond improving the linguistic competence of students, this course aims to expose the challenges of the medical profession within the United States and how it addresses problems of power, oppression, deprivation, marginalization, and/or social privilege.

Credits: 3

Prerequisites:

SPA 1122

SPA 2012: Special Topics Abroad

The course will serve to transfer study abroad courses at the 2000 level whose description is relevant to the program but do not have an exact equivalent in our curriculum. Pre-requisite SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 2044: Latin American Novel

Reading and interpretation of Spanish-American novels from the modernist period to the present. Students should have completed 1132 or the equivalent. Pre-requisite SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 2124: Sounds of Spanish

Overview of major features of Spanish phonetics and phonology with a secondary focus on regional and social variations found in the Spanish-speaking world. Applications to measurement and analysis of acoustic features of speech and improvement of Spanish pronunciation.

Credits: 3

Prerequisites:

SPA 1132

SPA 2220: Literature & Culture of Spain

The foremost works of Spanish literature from the beginnings to present day. A required course for majors. Students should have completed 1132 or the equivalent. Pre-requisite SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 2221: Lit. & Cult. of Latin America

Spanish-American literature from colonial times to the present. A required course for majors. Students should have completed 1132 or the equivalent. Pre-requisite SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 2424: Saints in Spain

This course will study the evolution of the idea of sainthood between the 8th and 13th centuries. Drawing on Arabic and Latin texts in Spanish translation as well as Spanish texts, we will study issues like shared saint veneration, social norms and collective memory in Medieval Spain. Pre-requisite SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 2993: Community Interpre. Internship

A community-based experience helping lawyers translate & interpret for the Philadelphia Hispanic community. Students will be required to undergo an interview process with the instructor in order to ascertain whether they possess the necessary oral and written proficiency levels in Spanish before registering for the course. Pre-requisite SPA 1132 or authorization from instructor.

Credits: 3

Prerequisites:

SPA 1132

SPA 3025: Faces of Modernity

Study of artistic trends in twentieth century Spain. Pre-requisite: SPA 1132 or authorization from the chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 3044: Spanish Postmodern Fiction

Representative trends in 20th and 21st Centuries Spanish novels. Pre-requisite: SPA 1132 or authorization from chairperson

Credits: 3

Prerequisites:

SPA 1132

SPA 3045: Spanish Dystopian Fiction

This popular course analyzes several kinds of Spanish dystopian fiction. The analysis of these texts will allow students to understand how renowned Spanish authors see the future of our planet and civilization. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 3046: Latin America Now

This course examines the most contemporary cultural movements happening in Latin America: environmentalism, feminism, indigenism, populism, etc. To do so we will analyze literary, journalistic, and sociological texts as well as visual sources. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 3047: Entangled Hist in Col Latin Am

This course examines major themes in colonial literature through a corpus of novels, short stories, poems, images, and historical documents. Students will examine different materials related to the pre-Hispanic and early modern world and discuss how today's imaginaries associated with the colonial past are continuously in dialogue with contemporary literary and cultural productions. By analyzing the entangled nature of literary artefacts produced in the colonial world, we will give special emphasis to the multiple voices that shape the past and present of the Spanish Americas. Attributes: Diversity Requirement 3, Latin American Studies Pre-requisites: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 3054: Hispanic Poetry

A study of Spanish and Spanish-American foremost male and female poets from Spain's vanguard movement to present day jointly from Latin America's colonial times to present day against Europe's socio-political and aesthetic backdrop. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:

SPA 1132

SPA 3064: Spanish Theatre of 20 & 21 c.

A critical analysis of representative dramatic works of Spain from Jacinto Benavente to present day, with special emphasis on women dramatists and gender issues of the twentieth and twenty-first centuries within the historical and socio-cultural evolution of contemporary Spain. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3074: Hispanic Cinema

Spanish films based on literary works as a medium will be used to better understand contemporary Spanish culture and civilization. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3200: Intro to Spanish Translation

Hands-on introduction to written Spanish-English translation. The emphasis is on Spanish to English translation of a variety of different texts from the fields of business, law, literature, tourism, and science. Basic theory principles and translation procedures considered a vital component in the formal training of a translator.

Credits: 3

Prerequisites:
SPA 1138

SPA 3214: Intro to Spanish Linguistics

The structure of Spanish. Methods, findings, and theory of linguistic research on the sound system and the structures of present-day Spanish. The basics of abstract linguistic analysis. Hands-on introduction to the major subdisciplines of linguistics: morphology, phonetics, phonology, semantics, and syntax. Pre-requisite: Any SPA course at the 2000 level or authorization from chairperson.

Credits: 3

SPA 3254: Spanish Lyric Tradition

Examines the major themes and evolution of Spanish lyrical verse through the political and socio-cultural experiences of Spain's most representative male and female poets from its beginnings to present day. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3412: Special Topics

Advanced study of topics of special interest in Spanish literary and/or cultural studies. May be repeated for credit if topic changes. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3484: Medieval Cultures

The Cid and other major works of the Spanish Middle Ages: early lyric, epic, ballad, prose. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3485: Nature in the Middle Ages

Nature in Medieval Culture explores issues of sustainability, race gender and intersectionality in Medieval literature. Pre-requisite: SPA 1132 or authorization from the chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3654: Early Modern Poetry

Traces the political and socio-cultural milieu of Spain's Early Modern era as reflected in the works of representative poets of Spain's renaissance period at the beginning of Europe's 16th century through Spain's baroque ending with the close of the 17th century. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3744: Cervantes

An interdisciplinary approach to Cervantes's work. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3

Prerequisites:
SPA 1132

SPA 3764: Romantic Monsters, Ghost

This class studies the canonical texts of Spanish Romanticism within the European context. The different literary genres are studied in dialogue with other arts and with the Spanish society of that period. The goal is to understand the thinking and feelings of people from the early part of the nineteenth century, in the cultural ambience of that particular time in Spain and Europe. We will also study the vision of women at the time, from the point of view of men and also of women writers, and we will compare those ideas with society today. The course has Diversity II Attributes. Pre-requisite: SPA 1132 or authorization from the chairperson.

Credits: 3**Prerequisites:**

SPA 1132

SPA 3944: Latinx Lit and Performance Art

This course will expose students to performance studies and literary criticism. Overall, the seminar offers a historical and critical grounding for Chicano/Latino writing in the US by surveying Latinx literature and performance from the nineteenth century to the present. Pre-requisite: SPA 1132 or authorization from chairperson.

Credits: 3**Prerequisites:**

SPA 1132

SPA 3970: Research Seminar

Principles and techniques of literary research. Overview of major Spanish and Spanish-American authors and representative works. Pre-requisite: SPA 1132 or authorization from the chairperson. Required to obtain a major in Spanish.

Credits: 3**Prerequisites:**

SPA 1132

SPA 5900: Independent Study in Spanish

Supervised study, activity or research. May be taken more than once. Pre-requisite: Intermediate Spanish or above. Prior approval of chair and instructor. Permission given only in very special situations.

Credits: 3**Prerequisites:**

SPA 1132 (or concurrently)

Studio Art

SAR 1000: Intro to Art Appreciation

The elements of art: form, color, line, design, materials and techniques. For students who would like to improve their ability to understand painting, sculpture, and architecture.

Credits: 3**SAR 2010: Intro to Calligraphy**

A practical and historical approach to the study of writing. The development of the written letter and the ability to use the newly acquired hand, with the proper materials and techniques.

Credits: 3**SAR 2020: Basic Watercolor Techniques**

Techniques of transparent watercolor painting with concentration on still life.

Credits: 3**SAR 2021: Basic Drawing Techniques**

A foundation course in drawing, emphasizing visual concepts through work in a variety of media including charcoal, pencil and ink. Direct observation of the model, composition, perspective, and theory.

Credits: 3**SAR 2022: Basic Oil Painting**

Basic techniques in the oil medium, with emphasis on understanding the nature of canvas as a vehicle, and color theory.

Credits: 3**SAR 2100: Music Theory I**

Basic materials and structures of music (pitch and rhythmic notation, scales and keys, the basics of rhythm, etc.), as well as composition, aural, and sight-reading skills.

Credits: 4**SAR 2110: Western Music to 1750**

Development of Western European music from its earliest traceable roots through the Renaissance, and Baroque periods through the musical characteristics, instruments, and theory of each period, as well as the cultural and historical context.

Credits: 3**SAR 2111: Western Music:1750-Present**

Development of Western European music from the close of the Baroque era (ca. 1750) through the Classical, Romantic, and Modernist eras to the present through the musical characteristics, instruments, and theory of each period, as well as the cultural and historical contexts.

Credits: 3

SAR 2113: The Charm of Music

A listening study approach to the many-faceted world of music from the great classics and their masters to the cultural explosion of the twentieth century.

Credits: 3

SAR 2114: Songwriting: Words & Music

An introduction to the art of songwriting through the study of existing songs and their components (imagery, meter, rhyme, structure, melody, harmony, rhythm, etc.), as well as the development of students' own songs through specific assignments and exercises.

Credits: 3

SAR 2119: Jazz:America's Music

A listening study of the greats of American Jazz, beginning with Ragtime, New Orleans, Big Band, Swing, Fusion and current trends.

Credits: 3

SAR 2150: Intermediate Watercolor

Human figure and landscape painting. Concentration on moods, character, personality of the human figure; landscape moods, lights, darks and composition. Dry-brush and wet-on-wet techniques.

Credits: 3

Prerequisites:

SAR 2020 :D-

SAR 3030: Special Topics in Music

A specialized area of music studies combining elements of music history, theory, and composition, as well as performance.

Credits: 3

Prerequisites:

SAR 2114 :D-

SAR 3031: Special Topics in Studio Art

A fine arts course that introduces the student to the history, theory and technique of art resulting in the creation of an original piece of art.

Credits: 3

SAR 4007: Painting of Icons

Painting icons in the classical, Byzantine Russian tradition including the study of the historical and physical inquiry into the iconic imagery of the twentieth century visual culture. No artistic talent necessary.

Credits: 3

SAR 5000: Independent Study

Credits: 3

SAR 5004: Basic Printmaking

Basic introduction, to the traditional methods of the fine art of making prints including Monoprint, Stencil (e.g. Screen Printing, Relief (e.g., Woodcut, Linoleum), Intaglio (e.g., Experimental techniques of color printing, foam printing). The artistic development of the subject within its history will also be discussed. Water base inks will be used.

Credits: 3

Summer Business Institute

SBI 0099: Excel

Provides a basic understanding of Excel functions along with financial and valuation models. Course is open to currently enrolled SBI students.

Credits: 0

SBI 1000: Professional Success

Skill building and strategizing for job/internship search; exposure to job/internship resources and practicing professionals. Course is open to students accepted to the SBI Program.

Credits: 1

SBI 1001: Business Fundamentals

Dynamic nature of business in a changing environment explored. Cross functional approach to understanding business operations. Emphasis on purpose of business; how business vision is actualized. Action learning, problem solving approach utilized.

Credits: 1

SBI 1006: Business Law Basics

Basic legal issues involved in the creation and operation of business organizations.

RESTRICTED TO: SBI Students

Credits: 1

SBI 2005: Applied Economics

Decision making of households, firms and the government with respect to the allocation of scarce resources. Topics include supply and demand, nature and characteristics of the U.S. economy, market structures etc.

Credits: 3

SBI 2006: Corporate Responsibility

Core concepts of business law, ethical decision-making, corporate social responsibility & governance. Restricted to students accepted to the SBI Program.

Credits: 3

SBI 2007: Analytics & Info Technologies

Explore alignment of info technologies with business; focus on acquisition of business data using info systems; gain meaningful insight on data using analytical tools. RESTRICTED TO: SBI Students

Credits: 2

SBI 3005: Financial Mgmt & Reporting

Foundational principles of corporate finance & financial accounting; emphasis on solving business problems. Restricted to students accepted to the SBI Program.

Credits: 4

SBI 3006: Competitive Effectiveness

Integration of marketing & management concepts as an approach to creating value in business. Restricted to students accepted to the SBI Program.

Credits: 4

SBI 3010: Financial Accounting

Generally accepted accounting principles and both the creation and analysis of financial statements. Exposure to importance of accounting in making decisions including those related to business, investing, and financing.

Credits: 2

SBI 3020: Principles of Finance

Financial decision-making and firm value; topics include time value of money, bond valuation, measuring risk and return, stock valuation, the cost of capital, and capital budgeting.

Credits: 2

SBI 3030: Management Essentials

Introduction to organizational structures and functions; leading, planning, controlling, and problem solving through effective utilization of and respect for human capital.

Credits: 2

SBI 3040: Principles of Marketing

Strategic and applied introduction to how goods and services are developed, distributed, priced and communicated to meet consumer needs.

Credits: 2

SBI 3145: Managerial Economics

Use of economic concepts and tools to determine management strategies that efficiently allocate scarce resources within the firm to optimize the value of the firm.

Credits: 3

Swahili

SWA 1111: Intro Swahili Language I

Groundwork in Swahili, including oral proficiency, aural comprehension, and reading knowledge; for students with no prior knowledge of Swahili. Supplementary language laboratory work and oral drills.

Credits: 4

SWA 1112: Intro Swahili Language II

Groundwork in Swahili, including oral proficiency, aural comprehension, and reading knowledge; for students with one semester of Swahili completed. Supplementary language laboratory work and oral drills.

Credits: 4

Prerequisites:

SWA 1111

Theatre

THE 2019: The Theatrical Experience

The variety of arts and crafts that combine to create theatre. Through hands-on experience, discussion, and performance, the interrelations among dramatic idea, stage direction, acting, design and technical elements that harmonize in a theatrical production are discovered.

Credits: 3

THE 2021: Theatre in Philadelphia

Credits: 3

THE 2025: Improvisational Theatre

Improvisation to explore non-verbal communication strategies and the study of theatre as a communication medium. Readings in non-verbal communication and modern theatre theory.

Credits: 3

Prerequisites:

THE 2029 :D-

THE 2029: Fund Princ of Acting

Traditional acting theories and basic techniques: games, improvisation, sensory awareness exercises and beginning work on scenes.

Credits: 3

THE 2030: Advan Princ of Acting

Creation of an original piece of theater. Self-selected scenes used to deepen individual growth.

Credits: 3

THE 2032: Elements of Dance

The broad range of dance styles, dance theory, vocabulary, and body placement.

Credits: 3

THE 2033: Advanced Elements of Dance

Expanded study of dance styles, dance theory, vocabulary, and body placement.

Credits: 3

Prerequisites:

THE 2032 :D-

THE 2034: Musical Theatre

Explores the conventions of musical theatre. Practical work in the application of musical performance theory to specific song, movement and stylized acting techniques.

Credits: 3

THE 2040: Theatre Practicum

Significant and responsible participation in the department's production program.

Credits: 0

THE 2041: Theatre Practicum

Significant and responsible participation in the department's production program. (Note: this course is identical to THE 2040 Theatre Practicum, but provides students the opportunity to earn a credit hour.)

Credits: 1

THE 2051: Creativity

Students from all disciplines experiment with creativity in their major and their work, utilizing theatre-based approaches to creating performances, stories, ads, business plans, films, and/or projects that nurture innovation, originality, and collaboration.

Credits: 3

THE 3007: Playwriting

Credits: 3

THE 3010: Mindfulness in Action

An investigation of classic forms of mindfulness meditation and contemplation - from calm abiding to insight awareness to transformation - through studying traditional techniques and experiencing traditional practices. All in the interest of exploring and expanding creativity in everyday life.

Credits: 3

THE 3030: Spec Topics in Theatre

A specialized area of theatre studies (e.g., avant-garde, feminist, Asian, Melodrama), combining elements of theatre history, dramatic literature and criticism, as well as performance and production aspects of live theatre.

Credits: 3

THE 4011: Directing the Play

Fundamentals of directing: script analysis, approaches to working with the actor, movement and blocking, visualization, design, and rhythm.

Credits: 3

Theology and Religious Studies

THL 1000: Faith, Reason, and Culture

Introduction to sources and major thinkers that have shaped responses to fundamental human questions that underlie all religions and shape the human search for meaning. Engagement of religious truth claims, themes, values, and witness as resources for analyzing and critically evaluating contemporary cultural challenges.

Credits: 3

THL 1500: Spirituality & Healing Arts

Discovery of practical spirituality through engaging select contemplative practices; deepening of individual spirituality and the discovery of the presence of God in practicing healing arts; exploration of connections with self, and patient, care; particular attention given to Christian contemplative traditions.

Credits: 3

THL 2460: Bible and Environment

Exploration of biblical perspectives on the environment through a variety of key characters and their relation to the land and other creatures. Attention to historical treatment of the ecology in Christian and Jewish theology and engagement of contemporary ecological issues.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 2490: THM Biblical Studies

Critical analysis of biblical themes, biblical theology, spirituality and ethics as well as their reception in history and in culture. Attention in theory and practice of exegesis and biblical interpretation. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2550: THM Contemporary Christianity

Contemporary Christian writings, controversies, and events. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2590: THM Historical Theology

Historical development of theology by topical or chronological arrangement. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2750: Augustine: Then and Now

Exploration of connections between our time and culture and Augustine's time and culture; study of select sermons and letters of St. Augustine; comparison and contrast of 'snapshots' of moments in Augustine's experience with 'snapshots' from the 3rd millennium.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2760: Augustine's Influence & Legacy

Exploration of Augustine's influence on western theology - the nature of the human being, the existence of human freewill, the nature of human sexuality, the nature of grace, the role of Christ as Savior, the extent of God's salvific will for humanity.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2780: THM Christianity in History

Emergence, growth, and transformation of Christianity from its origins in the eastern Mediterranean to its worldwide expansion. Ways in which Christian symbolism and ritual have shaped the lives of ordinary people. Major writings, controversies, and events. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 2900: THM Catholicism in the US

Thematic issues in American Catholic experience and Catholic identity in the United States.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 2910: THM Global Catholicism

Examination of Catholicism in global society. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 3200: Understanding Jesus

The historical Jesus and questions of method; christologies of the early Christian sources and councils; the later tradition of Christological reflection; contemporary trajectories.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 3250: THM Problem of Evil

Formulations of the problem and historical attempts to solve it. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 3400: Sacraments

History of Christian sacraments; sacraments as celebrations of life in God; theology of worship as fulfillment of being human; present and future shapes of Christian liturgy; applications to particular sacraments, e.g., baptism, reconciliation, eucharist.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 3450: Pastoral Care of the Sick

Treatment of theological understanding of the sacrament, anointing of the sick. Examination of primary texts on pastoral care from the Roman Catholic Church, and of the spirituality of caregivers. Pastoral-theological exploration of entire range of care provided to the ill and dying.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 3600: Liturgy, Cultures, and Justice

Study of historical development of Christian worship and prayer, from its roots in Jewish and early Church thought and practice to liturgical reforms of the twentieth century. Attention to cultural influences on liturgy and Christian understanding of connection between worship and justice.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 3740: THM Liberation Theologies

Theologies emerging from specific struggles for liberation in Latin American, Africa, Asia, and North America; their context, content, and critique. See department website for announcement of particular themes;

Credits: 3

Prerequisites:

THL 1051 :D- or THL 1000 :D- or THL 1050 :D- or HON 1827 :D- or HON 1053 :D- or HON 1003 :D- or HON 1850 :D- or HON 1825 :D-

THL 3760: Faith, Identity, and Calling

Systematic reflection on "big questions" about discovering life as journey and "work" as calling in conversation with writings in the Western traditions - ancient Greek poetry, Christian wisdom, contemporary fiction, memoirs. Requires sharing faith experiences - or their absence and doubt.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 3790: THM Theological Studies

Exploration of issues in theology. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4100: THM Catholic Ethics

Contemporary Catholic ethics. Foci include economic justice, solidarity, poverty, racism, environmentalism, technology, agriculture, and Catholic social thought. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4200: Ethics of Life and Death

Explorations of selected issues in biomedical ethics (e.g., abortion, euthanasia).

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4320: Markets and Morality

Analysis of market economies - do they promote or stifle human welfare, freedom, and the common good? What does Christian discipleship require in the marketplace? Use of sources in Christian ethics, Catholic social thought, economics, and other disciplines to answer these questions.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4330: Christian Environmental Ethics

Examine foundational theological issues and major christian thinkers on the environment; in-depth study of synthetic chemical, agriculture, and treatment of animals; and weekly class discussions on various practical topics in environmental ethics.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or THL 1051 :D- or HON 1003 :D- or HON 1053 :D- or HON 1825 :D- or HON 1850 :D- or HON 1827 :D-

THL 4480: Introduction Biomedical Ethics

Development of tools for critical analysis of biomedical ethical issues. Reflection on ethical issues in society and personal lives. Focus on a distinctively Catholic Christian approach to these matters.

Credits: 3

Prerequisites:

THL 1050 or THL 1000 or HON 1825 or HON 1003 or HON 1053 or THL 1051 or HON 1827 or HON 1850

THL 4490: THM Christian Ethics

Issues in Christian ethics. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 4500: Augustinian Spirituality

Study of spirituality of Augustine and of Augustinian spiritual writers and traditions.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4550: The Contemplative Tradition

Exploration of classical Christian teachings on silent prayer and meditation. Focus on both the theoretical understanding of the ancient practice of contemplation and its practice in daily life. Interdisciplinary approach through reading ancient Christian and contemporary authors.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 4990: THM Spirituality Studies

Study of Christian and/or non-Christian spiritual voices, movements, traditions, or themes (western or non-western, local or global) in ancient, medieval, early modern, modern, or contemporary times. Exploration of relationship to theology, faith, culture, and practice. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 5000: THM Religion

Evolution and development of central themes or concepts in the academic study of religion such as visual culture; violence and conflict; politics; law; myth and/or ritual; interreligious dialogue. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5001: THM Presence/Absence of God

Major seminar. Theism and the atheistic critiques of the nineteenth and twentieth centuries; the problem of God in western culture; contemporary retrieval of the doctrine of God as Trinity.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5002: THM Major Thinkers & Ages

Major seminar. Christian thinkers from the early church through the twenty-first century.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5003: THM Catholic Studies

Investigation of distinctive elements of Catholicism: ecclesiological, historical, sociological, moral, spiritual, theological, biblical, liturgical, among others.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5004: THM Theology and Culture

Study of the mutual interplay between theology and culture and the practical ways in which theology and culture interact in various historical, political, social, and economic contexts.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5005: THM Global Rel. Experience

Exploration of non-Christian religions, religions in non-Western regions of the world, religious beliefs and practices in a broader global context, or experiences deemed "religious".

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5100: THM Judaism

Development of the religious tradition of the Jewish people; the Torah, the Talmud and other commentaries; Jewish ideals in ethnic literature. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5150:**Islam:History,Thought,Culture**

History and development of Islam: beliefs, rituals, sects, and intellectual movements.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5160: Islamic Mysticism

Sources, development, principles, contribution, and influence of Islamic mysticism.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5170: Islamic Philosophy & Theology

Islamic relationalism and the crisis of moderate and conservative Muslim theologians; the dialectical struggle between Islamic philosophy and theology.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1850 :D- or HON 1827 :D-

THL 5180: Islamic Political Thought

Integration of Islamic philosophy, religion, political science and history; the state in pre-Islamic Arabia, the Qur'anic concept of the state, the crisis of succession, Muslim theorists, revival and reform.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5200: Religion in Russia

The history, mind, spirit and life of Russia Orthodoxy; its influence in its adherents in the modern, complex and pluralistic world.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 5270: Religion in India and SE Asia

The doctrinal and social history of the religious traditions of India and Southeast Asia: Hinduism, Buddhism, Jainism, Islam and Sikhism; the role of these religious in contemporary Indian and Southeast Asian societies.

Credits: 3

Prerequisites:

HON 1825 :D- or THL 1000 :D- or THL 1050 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5280: Religion in China and Japan

The doctrinal and social history of the religious traditions of East Asia: Confucianism, Taoism, Shinto, Buddhism; popular religion and state cults; the role of these religions in contemporary Asian societies.

Credits: 3

Prerequisites:

HON 1825 :D- or THL 1000 :D- or THL 1050 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5290: Hindus and Christians in India

A multi-disciplinary examination of the two-thousand-year history of encounter between Christians and Hindus, highlighting areas of commonality, difference, exchange, interaction and identity formation. Exploration of historical modes of engagement: antagonism and distrust, reciprocity and mutual benefit, dialog, fulfillment, and hybridity.

Credits: 3

THL 5400: THM Science & Religion

The interaction of science and religion from Galileo to the contemporary period. theological implications of recent developments in the natural sciences. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1850 :D- or HON 1827 :D-

THL 5410: Theology and Film

Exploration of connection between theology and film and of the ways that filmmakers "do" theology. Survey of the literature on the subject and analysis of films and filmmakers that have demonstrated theological sensitivity and/or interest in theological questions and themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 5420: Modernity and Crisis of Faith

Analysis of so-called "New Atheism" through the lens of Soren Kierkegaard. Exploration of Kierkegaard's diagnosis of this "crisis of faith" and his understanding of the religious life.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1825 :D- or HON 1827 :D- or HON 1850 :D-

THL 5450: Religion, Art, and Science

Study of religion, art, and science as aspects of persons and cultures. Exploration of theology and ritual as they relate to societies, cultures or persons; and the artistic (or aesthetic) dimension of religion, the scientific, and the personal.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5800: Religion and Literature

Religious attitudes and experience in contemporary literature.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 5820: THM Religion in America

Religious thought, institutions, movements, symbols, performances, and lived religious experience in the Americas. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 6000: THM Theology or Religion

Exploration of issues in religion or religious studies and theology or theological studies. See department website for announcement of particular themes.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 6001: Themes in Religious Studies

Themes in religious studies taken by Villanova students studying overseas.

Credits: 3

Prerequisites:

THL 1000

THL 6050: Internship

Supervised field experience in an approved setting (e.g., social service, teaching).

Credits: 3

THL 6051: Internship

Supervised field experience in an approved setting (e.g., social service, teaching).

Credits: 6

THL 6300: Research Seminar

Research seminar for TRS majors. Individual or group projects that participants design with the help of a faculty facilitator. Emphasis on active role in the learning process. Exploration of fields and topics of interest to students that connect theology /religion with culture.

Credits: 3

Prerequisites:

THL 5001 :D- or THL 5002 :D-

THL 6400: Independent Study

Independent study restricted to TRS majors and minors. Permission of chairperson required.

Credits: 3

Prerequisites:

THL 1050 :D- or THL 1000 :D- or HON 1825 :D- or HON 1003 :D- or HON 1053 :D- or THL 1051 :D- or HON 1827 :D- or HON 1850 :D-

THL 6500: Advanced Seminar

Capstone experience for TRS majors. Consolidation and synthesis of knowledge gained in the research seminar. Preparation and delivery of student-lead conversations. Involves students communicating their explorations or discoveries. Includes a final product.

Credits: 3

Prerequisites:

THL 5001 :D- or THL 5002 :D-

THL 6600: Portfolio Review

Assessment of portfolio materials that document students' general, broad knowledge in their specialization.

Credits: 0

Prerequisites:

THL 6300 :D-

Co-Requisites:

THL 6500

Villanova Experience

VEXP 1000: The Leadership Experience

Exploration of leadership and personal growth in first year college experience.

Credits: 1

VEXP 1001: Health & Wellness

A workshop style course stressing all aspects of health: social, physical, intellectual, career, emotional, and spiritual. Study and application of skills of health- conscious living; work with health and wellness professionals on campus including personal trainers, yoga instructors, and nutritionists.

Credits: 1

Co-Requisites:

AAH 1102

Villanova Integrated Academics

VIA 2111: Digital Life Technology I

Multidisciplinary exploration of technology and design concepts that support a modern digital life. Emphasis on cyber security principles and techniques applied to computers, smart phones, and other smart connected devices. Significant demonstration and hands-on activities.

Credits: 1

VIA 2112: Digital Life Technology II

Multidisciplinary group-based exploration of digital life technology and design concepts. Emphasis on cybersecurity principles and techniques applied to systems of interconnected computers, networks, devices, and people. Significant hands-on group activities.

Credits: 1

VIA 3010: Indoor Air Quality/Hum Hlth

Examine and analyze issues surrounding indoor air quality (IAQ) and human health using environmental science, biology, public health, and social, policy, and economic influences. Air pollution, health effects, economics, social, and cultural factors, in developed and developing countries.

Credits: 3

VIA 3020: Creating Social Impact

Using interdisciplinary and sustainable innovations in the social impact sector to solve social problems. Become innovative problem solvers. Learn by doing via class discussions and hands-on projects to discover how to make social change now and as lifelong changemakers.

Credits: 3

VIA 3030: US Statesman:Lib/Eqty Com Good

Economics and political philosophy applied to the history, theory, and practice of statesmanship. In-depth study of important case studies focusing on how political leaders must balance competing political and economic interests in society for the sake of the common good.

Credits: 3

VIA 3040: Global Soccer:History/Data

This course will utilize methodologies drawn from history and data analytics to investigate soccer as a global phenomenon. Students will explore soccer history beginning in 1850 and develop the necessary coding skills to work in the R programming language. Utilizing these skills and, ideally, conducting some research in a language other than English, students will collaborate to produce detailed reports on the history and culture of soccer in individual countries around the world.

Credits: 3

VIA 3050: Building What Matters

Introduction to the built environment and concentrate on sustainability and environmental challenges within the built environment. Introduction to central theory and concepts of sustainable planning and design of the built environment and technical approaches and tools, such as GIS, used in urban planning to address these challenges. Focus on the planning process, the different urban environments that are the outcome of these processes and the associated environmental and sustainability challenges and opportunities.

Credits: 3

Villanova School of Business

VSB 0099: B2B:FR Experience

Continuation of professional development activities to include but not limited to resume review, participation in networking etiquette interactive sessions and an intro to Handshake. Restricted to: VSB Freshman Cohort

Credits: 0

VSB 1000: Information Technology

On line course focuses on design and use of spread sheets to support decision making/problem solving.

Credits: 1

VSBS 1001: Business Dynamics I

Emphasis on purpose of business; how business vision is actualized. Explores dynamic nature of business in a changing environment. Highlights skills of leaders. Integrates global, ethical, & technological dimensions of business. Emphasizes innovation as a business, personal skill. Restricted to VSB students & Business Minors.

Credits: 3

VSBS 1002: Business Dynamics II

Continuation of Business Dynamics I. Contribution of business functions to accomplish business vision; cross functional view of business. Integrates global, ethical, technological & innovative dimensions of business, personal success. Action learning, problem-solving approach. Restricted to VSB students & Business Minors.

Credits: 3

Prerequisites:

VSBS 1000 and VSBS 1001

VSBS 1005: Business Dynamics - Accel

Explores dynamic nature of business in a changing environment. Cross functional view of business and contribution of functions to accomplish vision. Integrates global, ethical, and technological dimensions. Emphasizes innovation as business, personal skill. Restricted to VSB Transfer Students.

Credits: 6

VSBS 1015: Business Dynamics

Explores dynamic nature of business in a changing environment. Cross functional view of business and contribution of functions to accomplish vision. Integrates global, ethical, and technological dimensions. Emphasizes innovation as business, personal skill.

Credits: 3

VSBS 1500: Special Topics in Business

Contemporary issues and topics impacting the business environment.

Credits: 1

VSBS 1600: Special Topics in Business

Introductory topics of interest in the business environment.

Credits: 3

VSBS 2000: Backpack-to-Briefcase:SO Sem

Professional development program combining class sessions and out-of-class activities focused on career exploration, job search skills, and development of soft skills.

Credits: 1

VSBS 2004: Financial Accounting

Course introduces generally accepted accounting principles and both the creation and analysis of financial statements. Students are exposed to the importance of accounting in making decisions such as those related to business, investing, and financing.

Credits: 3

Prerequisites:

VSBS 1015 and VSBS 1000 (or concurrently) and (ECO 1001 (or concurrently) or SBI 2005 (or concurrently)) and ECO 1002 (or concurrently)

VSBS 2006: Strategic Info Technology

Strategic alignment of business and information technology (IT); managing IT as a strategic resource; strategies for sourcing IT development and services.

Credits: 3

Prerequisites:

VSBS 1000 (or concurrently) and (ECO 1001 (or concurrently) or SBI 2005 (or concurrently)) and ECO 1002 (or concurrently) and (VSBS 1015 or VSBS 1005 or VSBS 1002)

VSBS 2007: Corp Respon & Regulation

Examines law, ethics, corporate responsibility, and business regulation. Studies the sources, substantive principles, and evolving nature of law, and its role in ethical business decision making.

Credits: 3

Prerequisites:

(ECO 1001 (or concurrently) or SBI 2005 (or concurrently)) and ECO 1002 (or concurrently) and (VSBS 1015 or VSBS 1005 or VSBS 1002)

VSBS 2008: Business Analytics

Use of business intelligence and quantitative methods, including statistical analysis, forecasting/extrapolation, predictive modeling, optimization and simulation in the context of organizational decision making and problem solving.

Credits: 3

Prerequisites:

(MAT 1400 or MAT 1500) and (MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430) and VSBS 1000 and (ECO 1001 (or concurrently) or SBI 2005 (or concurrently)) and ECO 1002 (or concurrently) and (VSBS 1015 or VSBS 1005 or VSBS 1002)

VSBS 2009: Principles of Finance

The theory and techniques of financial management. Financial markets; financial statements and analysis; time value of money; interest rates; bond valuation; risk and return; equity valuation; cost of capital; capital budgeting; working capital management. Restricted to VSB students and Business Minors.

Credits: 3

Prerequisites:

VSBS 1000 and (ECO 1001 or SBI 2005) and ECO 1002 and VSBS 2004 and (MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430)

VSBS 2010: Fin Mgt & Reporting

Integrative perspective in understanding financial issues in business. Transaction analysis, valuation, revenue recognition, expense matching, cash flow, time value of money, risk/return, working capital management, capital budgeting, cost of capital covered. Satisfies Financial Accounting, Introduction to Finance requirements.

Credits: 6

Prerequisites:

(VSBS 1000 and (ECO 1001 or SBI 2005) and ECO 1002) and (VSBS 1001 and VSBS 1002 or VSBS 1005 or VSBS 1015) and (MAT 1235 (or concurrently) or MAT 1430 (or concurrently) or STAT 1235 (or concurrently) or STAT 1430 (or concurrently))

VSBS 2020: Competitive Effectiveness

Explores value creation for stakeholders and establishing competitive advantage; how goods/services are developed to meet customer/consumer needs and are distributed for consumption. Innovating, problem-solving, leading, and controlling through effective use of human capital explored. Satisfies Intro to Management/Intro to Marketing.

Credits: 6

Prerequisites:

VSBS 1000 and (ECO 1001 or SBI 2005) and ECO 1002 and (VSBS 1015 or VSBS 1005 or VSBS 1002) and VSBS 2004 (or concurrently)

VSBS 2030: Fin Mgt & Report I: Fin Acc

Understanding business by being able to understand the financial statements. Accounting concepts, transaction analysis, analytical procedures, valuation and allocation, revenue recognition and expense matching, and cash flow analysis - operating, investing, and financing. Restricted to VSB students and Business Minors.

Credits: 3

Prerequisites:

VSBS 1000 and (ECO 1001 or SBI 2005) and ECO 1002 and (VSBS 1015 or VSBS 1005 or VSBS 1002) and (MAT 1235 (or concurrently) or MAT 1430 (or concurrently) or STAT 1235 (or concurrently) or STAT 1430 (or concurrently))

Co-Requisites:

VSBS 2040

VSBS 2040: Fin Mgt & Report II: Prin Fin

The theory and techniques of financial management. Time value of money; risk and return; financial analysis and planning; working capital management, capital budgeting; cost of capital; strategic long term financing decisions. Restricted to School of Business students and Business Minors.

Credits: 3

Prerequisites:

VSBS 1000 and (ECO 1001 or SBI 2005) and ECO 1002 and (VSBS 1015 or VSBS 1005 or VSBS 1002) and (MAT 1235 (or concurrently) or MAT 1430 (or concurrently) or STAT 1235 (or concurrently) or STAT 1430 (or concurrently))

Co-Requisites:

VSBS 2030

VSBS 2121: Business Scholars Seminar

Special business topics offered in a lecture/seminar format to prepare students for research opportunities. RESTRICTED TO: Permission of VSB Honors Director

Credits: 1

Prerequisites:

VSBS 1015

VSBS 2500: Personal Finance

Critical personal finance skills for financial stability and success. Topics include: planning personal finances, money management and budgeting, tax strategies, investments, credit and debt, purchase decisions, insurance, retirements and estate planning. This course will NOT be used to fulfill a Finance major or Finance minor elective requirement.

Credits: 3

VSBS 3000: Backpack-to-Briefcase:JR Sem

Professional development program built around an internal case competition. Topics addressed include written and oral communication; business research; team dynamics and leadership.

Credits: 1

VSBS 3001: VSBS Internship-TWC

Full-time employment through The Washington Center program with appropriate training, instruction and supervision. Must be enrolled in The Washington Center program.

Credits: 6

VSBS 3006: Prin of Managerial Accounting

How management accounting information can be used to help firms achieve strategic goals and profitability objectives. Use of an entrepreneurial perspective to examine how managers apply risk measurement and management techniques to business planning and control systems. Case-based learning to help students develop communication, technology, and team work.

Credits: 3

Prerequisites:

VSBS 2020 (or concurrently) and (VSBS 2009 (or concurrently) or VSBS 2010 or VSBS 2030 and VSBS 2040)

VSBS 3008: Operations Management

Concepts and techniques for problems in manufacturing and service organizations. Topics: decision-making, forecasting, resource allocation, project management, quality, materials management, technology and strategy.

Credits: 3

Prerequisites:

(MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430) and VSBS 2008 and VSBS 2020 and (VSBS 2009 or VSBS 2010 or VSBS 2030 and VSBS 2040)

VSBS 3500: Special Topics in Business

Contemporary issues and topics impacting the business environment.

Credits: 3

Prerequisites:

(MAT 1235 or MAT 1430 or STAT 1235 or STAT 1430) and VSBS 2006 and VSBS 2007 and VSBS 2008 and VSBS 2020 and (VSBS 2009 or VSBS 2010 or VSBS 2030 and VSBS 2040)

VSBS 3900: Innovation & Design Practicum

Design is a systematic, human-centered approach to problem-solving used by decision-makers of the world's most innovative organizations (e.g., Google, Apple). by understanding what people want and need in their lives, designers iteratively test potential solutions to problems. Includes a theoretical component and a real-world project. Honors or permission of instructor.

Credits: 3

VSBS 4000: B2B: SR Leadership Academy

Professional development capstone course focusing on the understanding, importance and development of leadership skills; specific topics may vary.

Credits: 1

Prerequisites:

VSBS 3000

VSBS 4002: Strategic Think & Implem

Emphasizes strategy concepts to achieve integrative cross-functional solutions for competitive advantage. Application of strategy tools as well as concepts from prior course work. Application of knowledge to global and ethical challenges emphasized through the practice opportunities used in this course.

Credits: 3

Prerequisites:

VSBS 2006 and VSBS 2007 and VSBS 2008 and VSBS 3006 and VSBS 3008 and ECO 3108