Statistics Major

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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.

Program: Mathematics and Statistics
Type: Bachelor of Science

PRIMARY MAJOR (122 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.

Required Major Courses (55 credits)

Course	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	Probability	3
STAT 5705	Theory of Stat Inference	3
CSC 1051	Algorithms & Data Struc I	4
	Statistics Major Electives	9
	Statistics Natural Science Elective	8
STAT 5905	Seminar in Statistics	3

Core Curriculum Requirements (33 credits)

Statistics Majors meet the following core requirements in the major and therefore are omitted from the summary below:

- Core Math (3 cr)
- Natural Science (8 cr)

Course	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3
ETH 2050	The Good Life:Eth & Cont Prob	3
	Literature and Writing Seminar (1 course)	3
	History (1 course)	3
	Social Sciences (2 courses)	6
	Fine Arts (1 course)	3
	Upper-Level Theology (1 course)	3
	Language Requirement	
	Diversity Requirement (2 courses)	

Free Elective Requirement (34 credits)

Students with a Statistics primary major have thirty-four (34) required free elective credits.

Degree Credit Summary

- **Major Credits:** 55 credits
- **Core Credits:** 33 credits
- **Free Electives Credits:** 34 credits
- **Total Required Credits:** 122 Credits

Note: The above credit totals are based on the minimum number of required credits in each degree area. The minimum number of required credits in each area listed above must be met. Credits taken beyond the required minimum for one area may not be applied to another area.

SECONDARY MAJOR

Students who declare Statistics as a **secondary major** must complete the Required Major Courses to achieve this major. Students are able to count any eligible course taken in their primary major, the core curriculum, minors, concentrations, or free electives toward these requirements.

Category Descriptions

Linear Algebra Course

Credits: 3

Select one linear algebra course from below.

Course	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.

Course	Title	Credits
MAT 4600	Deterministic Oper Res	3

Statistics Natural Science Elective

Credits: 8

Choose two natural science courses with lab at the science-major level.

Astronomy

Course	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

Course	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

Chemistry

Course	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

Course	Title	Credits
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4

Physics, Option 1

Course	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, Option 2

Course	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