

Astronomy & Astrophysics Major

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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. The department also offers a minor in Astronomy & Astrophysics.

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.

Program: [Astrophysics and Planetary Science](#)

Type: Bachelor of Science

PRIMARY MAJOR (122 credits)

Required Major Courses (88 credits)

The major consists of 88 credits, including courses in astronomy, physics, mathematics, and computer science. Students completing the major will also qualify for a minor in physics.

| Course | Title | Credits |
|---------------|--------------------------------|----------------|
| AST 2120 | Sun and Stars | 3 |
| AST 2121 | Solar System Astronomy | 3 |
| AST 2122 | Understanding Our Universe | 3 |
| AST 2123 | Astroynamics: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 Prncpl 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 2420 | Matter and Interactions I | 3 |
| PHY 2421 | Lab: Matter and Interactions I | 1 |
| PHY 2422 | Matter and Interactions II | 3 |
| PHY 2423 | Lab:Matter and Interactions II | 1 |
| PHY 3200 | Thermo, Optics and Waves | 3 |
| PHY 3400 | Modern Physics | 3 |
| PHY 4801 | Experimental Physics I | 2 |
| PHY 2601 | Computational Phy Lab I | 2 |
| PHY 2603 | Computational Phy Lab II | 2 |
| PHY 4100 | Mechanics I | 3 |
| PHY 4200 | Mathematical Physics I | 3 |
| | Upper-Level Physics Elective | 9 |

Core Curriculum Requirements (33 credits)

Astronomy & Astrophysics 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 (1 credit)

Students with an Astronomy & Astrophysics primary major have one (1) required free elective credit.

Degree Credit Summary

- **Major Credits:** 88 credits
- **Core Credits:** 33 credits
- **Free Electives Credits:** 1 credit
- **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 Astronomy & Astrophysics 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

Upper-Level Physics Elective

Credits: 9

Select 3 Classes of three or more credits in PHY 3000:9999.