INTRODUCTORY COURSES - NO PRE-REQUISITES
150 or below (All Sc; some QR): intended for students who desire a broad, nontechnical introduction to astronomy.
150 to 199 (All SC and QR): topical rather than survey courses. ASTR 155 is a lab course that provides a hands-on introduction to astronomical observing. ASTR 160 and 170 provide an introduction to frontier topics in modern astrophysics and cosmology.

INTRODUCTORY COURSES - H.S. CALCULUS AND PHYSICS PRE-REQUISITES
ASTR 210 and 220 are quantitative introductions to astronomy that teach about fundamental measurements and tools in astronomy and include an in-depth study of stellar astrophysics (ASTR 210) or galaxies and cosmology (ASTR 220). ASTR 255 provides training in data analysis and research techniques including computer programming and numerical and statistical analysis.

ADVANCED ELECTIVES
300+ electives are more specialized and intensive. The pre-requisites for these courses include ASTR 210 or 220, multi-variable calculus, and two semesters of introductory college physics.

Graduate courses in astronomy are also open to qualified undergraduates who already have a strong preparation in mathematics, physics, and astronomy, with the permission of the instructor and of the Director of Graduate Studies.

- Access to Yale’s telescopes: Keck (Hawaii), Palomar (California), SMARTS (Chile)
- Data from SDSS, NASA space telescopes
- High performance computing
- Paid summer internships for qualified students

SAMPLE UNDERGRADUATE PROJECTS

Thermal and chemical evolution of Venus and super-Venus planets (J. O’Rourke, B.S.)

The Mass Distribution of Stellar Mass Black Holes (L. Kreidberg, B.S.)

The music of the spheres: from Pythagoras to Kepler (P. Davis, B.A., dbl. major music)

Other Worlds planetarium show (A. Payne, B.A.)

PUBLIC OUTREACH

The on-campus Leitner Family Observatory and Planetarium offers a 16” reflecting telescope, a 19th-century 8” refractor, a radio observatory, and a Spitz digital planetarium, and is open to the public weekly.

CONTACT US

Director of Undergraduate Studies: astro.dus@yale.edu
Department Website: astronomy.yale.edu
Public Outreach: leitnerobservatory.org
The Yale Astronomy degree programs train students in research techniques, quantitative reasoning and creative problem solving. Students who complete the major continue on to top-tier graduate programs in astrophysics or related science fields, and they are sought after by employers in a range of fields including astrophysics, data science, health care management, banking and the investment industry.

The **B.S. degree in Astrophysics** provides a strong foundation for students interested in graduate study or a career in astronomy, physics, data science or other related sciences. Coursework includes a strong emphasis on physics and mathematics.

The **B.A. degree in Astronomy** is designed as a basis for a liberal arts education and is an asset for careers such as medicine, teaching, journalism, business, law, or government. It allows greater flexibility in course selection than the B.S. program because the emphasis is on breadth of knowledge rather than on specialization. Coursework includes fundamental physics and math.

### Astronomy B.A.

**Distribution Requirements:**
- 2 courses in humanities / arts (HU)
- 2 courses in social sciences (SO)
- 2 courses in science (SC)*

**Skill Requirements:**
- 2 writing (WR) courses
- 1 to 3 language (L) courses (depending on placement in freshman year)
- 2 quantitative reasoning (QR) *
  * automatically completed with the major

**Astronomy Requirements:**

**Pre-requisites:**
- Phys 170/180/200
- Phys 171/181/201
- Math 112, 115

**Astronomy courses (5 total):**
- Astro 210 or 220, 255, 310, 492
- 1 elective: Astro 150+

**Science (3 total):**
- 3 electives in any of the natural, applied or mathematical sciences (including astronomy), at least 2 with college-level pre-requisites

**Math / Scientific Methods (2 total):**
- 2 courses: Math 120 or ENAS 151 and one elective (e.g.: ASTR 356, Linear Algebra, Differential Equations, Computer programming, Statistics)

### Astrophysics B.S.

**Distribution Requirements:**
- 2 courses in humanities / arts (HU)
- 2 courses in social sciences (SO)
- 2 courses in science (SC)*

**Skill Requirements:**
- 2 writing (WR) courses
- 1 to 3 language (L) courses (depending on placement in freshman year)
- 2 quantitative reasoning (QR) *
  * automatically completed with the major

**Astronomy Requirements:**

**Pre-requisites:**
- Phys 180/200/260
- Phys 181/201/261
- Math 165L/205L/ASTR155
- Math 166L/206L/ASTR155
- Math 112, 115, 120 (or ENAS151)

**Astronomy courses (7 total):**
- 6 courses (200+): ASTR 210 or 220, 255, 310, 320, 490, 491
- 1 elective: ASTR 356, 343, 360, 375, 380 or one Phys 400+

**Physics courses (3 total):**
- 3 courses (400+): e.g., Phys 401, 402, 439

**Math / Scientific Methods (2 total):**
- 2 courses (e.g.: Phys 301, ASTR 356, Linear Algebra, Differential Equations, Computer programming, Statistics)