

Bachelor of Science in Astronomy & Physics AY24/25

General Education Requirements			Major Requirements		
English Composition ^A			Mathematics		
ENGL 101 or 107	3	☐	MATH 122B or 125 - <i>Calculus I</i>	3-4	☐
ENGL 102 or 108	3	☐	MATH 129 - <i>Calculus II</i>	3	☐
or			MATH 223 - <i>Vector Calculus</i>	4	☐
ENGL 109H	3	☐	MATH 254 or 355 - <i>Differential Equations</i>	3	☐
Second Language ^B			Introductory Physics ¹		
2nd Semester Proficiency by credit or exam	3-5	☐	PHYS 161H - <i>Introductory Mechanics</i>	4	☐
			PHYS 162H - <i>Introductory Optics & Thermodynamics</i>	4	☐
			PHYS 261H - <i>Introductory Electricity & Magnetism</i>	4	☐
			PHYS 263H - <i>Introductory Relativity & Quantum Physics</i>	3	☐
Introduction to General Education ^C			Physics Core		
UNIV 101	1	☐	PHYS 204 - <i>Mathematical Techniques in Physics</i>	3	☐
Exploring Perspectives			PHYS 305 - <i>Computational Physics</i>	3	☐
Artist	3	☐	PHYS 321 - <i>Theoretical Mechanics</i>	3	☐
Humanist	3	☐	PHYS 331 - <i>Electricity & Magnetism I</i>	3	☐
Natural Scientist ^D	3	☐	PHYS 332 - <i>Electricity & Magnetism II</i>	3	☐
Social Scientist	3	☐	PHYS 371 - <i>Quantum Theory I</i>	3	☐
Building Connections			PHYS 381 - <i>Methods of Experimental Physics I</i>	2	☐
Building Connections #1	3	☐	PHYS 382 - <i>Methods of Experimental Physics II</i>	2	☐
Building Connections #2	3	☐	PHYS 426 - <i>Thermal Physics</i>	3	☐
Building Connections #3	3	☐	PHYS 472 - <i>Quantum Theory II</i>	3	☐
General Education Portfolio ^C			Astronomy Core		
UNIV 301	1	☐	ASTR 250 - <i>Fundamentals of Astronomy</i>	3	☐
Programming			ASTR 300A - <i>Astronomy & Astrophysics I</i>	3	☐
CSC 110	4	☐	ASTR 300B - <i>Astronomy & Astrophysics II</i>	3	☐
Graduation Requirements			ASTR 302 - <i>Introduction to Observational Astronomy</i>	3	☐
Total Units: 120 ^E		☐	ASTR 400A - <i>Theoretical Astrophysics I</i>	3	☐
Upper-Division Units: 42 ^F		☐	ASTR 400B - <i>Theoretical Astrophysics II</i>	3	☐
Cumulative GPA: 2.000+		☐	ASTR Upper-Division Elective ^{2,3}	3	☐
Mid-Career Writing Assessment		☐	Physics Elective (Select Two) ⁴		
Units in Residence @ UA: 30+		☐	PHYS Upper-Division Elective #1	3	☐
Upper-Division Units @ UA: 18+		☐	PHYS Upper-Division Elective #2	3	☐
ASTR Major Units: 36		☐	Physics Research		
PHYS Major Units: 53		☐	PHYS 492 or 498H	3	☐

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- A. Some students may need to take ENGL 106, 107, and 108 to satisfy the Composition requirement.
 - B. There are multiple ways to satisfy the Second Language requirement: taking two semesters of a second language, having AP/IB or Transfer credit, taking a language proficiency test, or having an internationally recognized test, such as Duolingo, IETLS, or TOEFL.
 - C. Transfer students are not required to complete the UNIV 101 and 301 requirements.
 - D. Introductory Mechanics will satisfy The “Exploring Perspective: Natural Scientist” requirement; students do not need to take a different Natural Scientist course.
 - E. All University of Arizona students need to complete a minimum of 120 total units – these are units that are part of the General Education and major curriculum, however, there are not enough units within one major to meet the 120 total units so some students may need to take additional courses to meet the requirement.
 - F. All University of Arizona students need to complete a minimum of 42 upper-division units – these are units that are 300+, including General Education and major courses. If a student is pursuing only one major, there may not be enough units within the major to meet the 42 upper-division requirements.
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- 1. The Department of Physics requires Physics majors to take the “Accelerated” sequence of Introductory Physics courses: PHYS 161H, 162H, 261H, and 263H.
- 2. Astronomy majors are required to take 3 units of upper-division Astronomy credit. This can be 3 units of ASTR research or 3 units of approved upper-division ASTR credit. It is possible to get an unlisted course approved, you will need to work with your advisor to determine if the course is appropriate.

ASTR 302 – Physics of the Solar System

ASTR 416 – Modern Astronomical Optics

ASTR 418 – Astronomical Instrumentation

ASTR 428 – Adaptive Optics & Imaging through Random Media

ASTR 442 – Mars

ASTR 450 – Origin of the Solar System & Other Planetary Systems

ASTR 475 – Planetary Astrobiology

ASTR 485 – Radio Astronomy

ASTR 488A – Astrochemistry

ASTR 492 – Astronomy Research

ASTR 498H – Honors Thesis

- 3. If you are interested in graduate school in Physics, Astrophysics, Astrobiology, etc. it is strongly recommended that you engage in undergraduate research.
- 4. Physics majors are required to complete two approved upper-division PHYS electives. Students must select from the following courses:

ATMO 436A – Introduction to Atmospheric Sciences

PHYS 320 – Optics

PHYS 405 – Digital Electronic Techniques

PHYS 422 – Continuum Mechanics

PHYS 431 – Molecular Biophysics

PHYS 450 – Nuclear & Particle Physics

PHYS 460 – Solid State Physics

PHYS 468 – Classical & Quantum Relativity

PHYS 469 – Introduction to General Relativity

PHYS 473 – Atomic & Molecular Spectroscopy

PHYS 476 – Methods of Mathematical Physics