

Required Course List for BS Astrophysics Specialization (Oct. 8, 2025)

Required Basic Astronomy Courses (17 credits):

ASTR 130	Astrophysics 1 - Foundations (3 cr)
ASTR 131	Astrophysics 2 - Planets and Stars (3 cr)
ASTR 232	Astrophysics 3 - Milky Way and Beyond (4 cr)
ASTR 310	Observational Astronomy (4 cr)
ASTR 320	Theoretical Astrophysics (3 cr)

Advanced Astronomy Courses (9 credits; any three 400-level Astronomy courses):

ASTR 406	Stellar Structure and Evolution (3 cr)
ASTR 410	Radio Astronomy (3 cr)
ASTR 415	Computational Astrophysics (3 cr)
ASTR 421	Galaxies (3 cr)
ASTR 422	Cosmology (3 cr)
ASTR 430	The Solar System (3 cr)
ASTR 435	Astrophysics of Exoplanets (3 cr)
ASTR 450	Orbital Dynamics (3 cr)
ASTR 480	High Energy Astrophysics (3 cr)

Experiential Learning (3 credits)**:

ASTR 288	Special Projects in Astronomy (1 - 3 cr)
ASTR 498	Special Problems in Astronomy (1 - 3 cr)
ASTR 399	Honors Seminar (1 - 3 cr) <i>by invitation of department only.</i>

Physics or other relevant research credit accepted with approval of the Astronomy advisor.

***With advisor approval, the experiential learning requirement can be satisfied with a summer internship + ASTR 386 (0 cr) + one additional ASTR or PHYS 300/400-level course.*

Required Introductory Physics Courses (16 credits):

PHYS 171	Introductory Physics: Mechanics (3 cr)
PHYS 265	Introduction to Scientific Programming (3 cr) <i>(Students with significant computer programming experience may replace this course with PHYS 474: Computational Physics (3 cr) or ASTR 415: Computational Astrophysics (3 cr); students completing ASTR 415 for this requirement may not count it toward the 400-level Astronomy course requirement.)</i>
PHYS 272	Introductory Physics: Fields (3 cr)
PHYS 273	Intermediate Oscillations and Waves (3 cr)
PHYS 275	Experimental Physics I: Mechanics and Waves (2 cr)
PHYS 276	Experimental Physics II: Electricity and Magnetism (2 cr)

Supporting Mathematics Courses (16 credits):

MATH 140	Calculus I (4 cr)
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MATH 141 Calculus II (4 cr)

MATH 241 Calculus III (4 cr)

MATH 243 Introduction to Linear Algebra and Differential Equations (4 cr) (*MATH 246 and MATH 240/461 will be accepted for MATH 243.*)

Advanced Physics Courses (13 - 14 credits):

PHYS 313 Electricity and Magnetism I (4 cr)

PHYS 371 Modern Physics (3 cr)

Two of the following:

PHYS 401 Quantum Physics I (4 cr)

PHYS 404 Introduction to Statistical Thermodynamics (3 cr)

PHYS 410 Classical Mechanics (3 cr)

Total credits required for the BS Astrophysics Specialization = 74 or 75 cr.

- All of the above courses must be completed with a C- or better.
- Astronomy majors may not minor in Physics. Astronomy majors who choose the BS Astrophysics Specialization may double-major in one of the Physics specializations.
- Astronomy majors who choose the BS Astrophysics or BS Astronomy - Physical Science Specializations may double-major in Computer Science.
- Once a student has begun the Astronomy major at the University of Maryland, no more than one course at the 300/400-level from a “study abroad” type program may be used in place of an ASTR-prefix course required for the major.
- Highlighted courses are required for all Astronomy major specializations.

Four-year Plan for BS Astrophysics Specialization

FIRST-YEAR

ASTR 130	3
ENGL 101 (FSAW)	3
MATH 140 (FSMA/AR)	4
GenEd (SCIS/DSHU)	3
GenEd (SCIS)	3

Total = 16 cr

ASTR 131 (DSNS)	3
MATH 141	4
PHYS 171	3
PHYS 275	2
GenEd (DSHS)	3

Total = 15 cr

SECOND YEAR

ASTR 232 (DSNL)	4
MATH 241	4
PHYS 272	3
PHYS 265	3
GenEd (FSOC)	3

Total = 17 cr

PHYS 273	3
PHYS 276	2
MATH 243	4
GenEd (DSHU)	3
GenEd (DVUP)	3

Total = 15 cr

THIRD YEAR

ASTR 310 (DSSP)	4
PHYS 313	4
PHYS 371	3
GenEd (DSHS)	3

Total = 14 cr

ASTR 320	3
ASTR 4**	3
PHYS 401 or 404 or 410	3/4
ENGL 390 or 393 (FSPW)	3
GenEd (DVUP)	3

Total = 15/16 cr

FOURTH-YEAR

ASTR 4**	3
ASTR 498	3
PHYS 401 or 404 or 410	3/4
GenEd (DSSP)	3
Elective	3

Total = 15/16cr

ASTR 4**	3
GenEd (DVUP or CC)	3
Elective	3
Elective	3
Elective	3

Total = 15 cr

Total: minimum 122 cr (if took PHYS 404 & 410)

Four-year Plan for BS Astrophysics/Physics Double-Majors

FIRST-YEAR

ASTR 130	3
ENGL 101 (FSAW)	3
MATH 140 (FSMA/AR)	4
GenEd (SCIS/DSHU)	3
PHYS 170	1
Total = 14 cr	

ASTR 131 (DSNS)	3
MATH 141	4
PHYS 171	3
PHYS 275	2
GenEd (SCIS/DSHS)	3
Total = 16 cr	

SECOND YEAR

ASTR 232 (DSNL)	4
MATH 241	4
PHYS 272	3
PHYS 265	3
GenEd (FSOC)	3
Total = 17 cr	

PHYS 273	3
PHYS 276	2
MATH 243	4
GenEd (DSHU)	3
GenEd (DVUP)	3
Total = 15 cr	

THIRD YEAR

ASTR 310 (DSSP)	4
PHYS 313	4
PHYS 371	3
ENGL 390 or 393 (FSPW)	3
GenEd (DSHU)	3
Total = 17 cr	

ASTR 320	3
ASTR 4**	3
PHYS 375	3
PHYS 401	4
PHYS 404	3
Total = 16 cr	

FOURTH-YEAR

ASTR 4**	3
ASTR 498	3
PHYS 402	3
PHYS 410	3
GenEd (DVUP or CC)	3
Total = 15 cr	

ASTR 4**	3
PHYS 405	3
PHYS 413	3
PHYS 4**	3
Total = 12 cr	

Total: 122 cr