

Required Course List for Astronomy Major (Revised Sep. 9, 2019)

Required Basic Astronomy Courses (14 credits):

- ASTR 120 Astrophysics I: The Solar System (3 cr)
- ASTR 121 Astrophysics II: Stars and Beyond (4 cr)
- ASTR 310 Observational Astronomy (4 cr)
- ASTR 320 Theoretical Astrophysics (3 cr)

Advanced Astronomy Courses (6 credits; any two 400-level Astronomy courses are required):

- ASTR 406 Stellar Structure and Evolution (3 cr)
- ASTR 410 Radio Astronomy Techniques (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 Physics of Exoplanets (3 cr)
- ASTR 450 Orbital Dynamics (3 cr)
- ASTR 480 High Energy Astrophysics (3 cr)

Optional Astronomy Seminars

- ASTR 288C Astronomy Research Techniques (2 cr)
- ASTR 288I Introduction to the Astronomy Major (1 cr)
- ASTR 288M Current Events in Astronomy Research (1 cr)
- ASTR 288P Introduction to Astronomical Programming (1 cr)

Required Introductory Physics Courses (16 credits):

- PHYS 165 Introduction to Programming for Physical Science (3 cr) (*Students with 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.*)
 - PHYS 171 Mechanics and Thermal Physics (3 cr)
 - PHYS 272 Fields (3 cr)
 - PHYS 273 Waves (3 cr)
 - PHYS 275 Experimental Physics I: Mechanics, Heat and Fields (2 cr)
 - PHYS 276 Experimental Physics II: Electricity and Magnetism (2 cr)
- Also accepted with consent of Astronomy advisor: PHYS 161, 165, 260, 261, 270, 271 (14 cr)*

Supporting Mathematics/Mathematical Methods Courses (15 credits):

- MATH 140 Calculus I (4 cr)
- MATH 141 Calculus II (4 cr)
- MATH 241 Calculus III (4 cr)
- PHYS 274 Mathematical Methods for Physics I (3 cr) (*MATH 246 and MATH 240/461 will be accepted for PHYS 274.*)

Advanced Physics Courses (13 credits):

- PHYS 371 Modern Physics (3 cr)
- PHYS 373 Mathematical Methods for Physics II (3 cr)
- PHYS 401 Quantum Mechanics I (4 cr)
- PHYS 404 Statistical Thermodynamics (3 cr)

Total credits required for the Astronomy major = 64 cr. Grades in all of the above required courses must be C- or better.

Four-year Plan for Astronomy Majors (Revised September 9, 2019)

FIRST YEAR

ASTR 120 (DSNS) 3	ASTR 121 (DSNL) 4
ENGL 101 (FSAW) 3	MATH 141 4
MATH 140 (FSMA/AR) 4	PHYS 171 3
GenEd (SCIS/DSHU) 3	GenEd (FSOC) 3
GenEd (DSHS) 3	GenEd (SCIS/DSHS) 3
ASTR288I 1	Total = 17 cr
Total = 17cr	

SECOND YEAR

ASTR 310 (DSSP) 4	PHYS 273 3
MATH 241 4	PHYS 274 3
PHYS 272 3	PHYS 276 2
PHYS 275 2	GenEd (DSHU) 3
ASTR 288C (option 1) (2)	GenEd (DVUP) (option 1) (3)
GenEd (DVUP) (option 2) (3)	Elective (option 2) (3)
Total = 15 or 16 cr	ASTR 288M/P (optional) (1)
	Total = 14 or 15 cr

THIRD YEAR

PHYS 165 3	ASTR 320 3
PHYS 371 3	PHYS 401 4
PHYS 373 3	ENGL 393 or 390 (FSPW) 3
GenEd (DVUP or CC) 3	Elective 3
Elective 3	Elective 3
Total = 15 cr	Total = 16 cr

FOURTH YEAR

ASTR 4** 3	ASTR 4** 3
PHYS 404 3	Elective 3
GenEd (DSSP) 3	Elective 3
Elective 3	Elective 3
Elective 3	Elective 3
Total = 15 cr	Total = 15 cr

Total credits with “Option 1” and no ASTR 288M: 124 cr. Total credits with “Option 2” and no ASTR 288M: 125 cr. (A minimum of 120 cr is required for graduation.) A grade of C- or better must be earned in all courses that are required for the major.

Required Astronomy major credits: 64 cr.

Four-year Plan for Astronomy/Physics Double Majors (Revised September 9, 2019)

FIRST YEAR

ASTR 120 (DSNS) 3	ASTR 121 (DSNL) 4
ENGL 101 (FSAW) 3	MATH 141 4
MATH 140 (FSMA/AR) 4	PHYS 171 3
GenEd (SCIS/DSHU) 3	GenEd (DSHS) 3
GenEd (SCIS/DSHS) 3	GenEd (FSOC) 3
ASTR288I 1	Total = 17 cr
Total = 17 cr	

SECOND YEAR

ASTR 310 (DSSP) 4	PHYS 273 3
MATH 241 4	PHYS 274 3
PHYS 272 3	PHYS 276 2
PHYS 275 2	PHYS 165 3
ASTR 288C (option 1) (2)	GenEd (DVUP) (option 1) (3)
GenEd (DVUP) (option 2) (3)	Elective (option 2) (3)
Total = 15 or 16 cr	ASTR 288M/P (optional) (1)
	Total = 14 or 15 cr

THIRD YEAR

PHYS 371 3	ASTR 320 3
PHYS 373 3	PHYS 401 4
PHYS 375 (DSSP) 3	ENGL 393 or 390 (FSPW) 3
ASTR 4** 3	PHYS 404 3
GenEd (DSHU) 3	GenEd (DVUP or CC) 3
Total = 15 cr	Total = 16 cr

FOURTH YEAR

PHYS 402 4	ASTR 4** 3
PHYS 410 4	PHYS 405 3
PHYS 4** 3	PHYS 411 4
Elective 3	Elective 3
Total = 14 cr	Elective 3
	Total = 16 cr

Total credits with “Option 1” and no ASTR 288M: 124 cr. Total credits with “Option 2” and no ASTR 288 M: 123cr. (A minimum of 120 cr is required for graduation with double major.) A grade of C- or better must be earned in all courses that are required for the major.

Required Astronomy major credits: 64 cr.

Required Physics major credits: 68 cr.