

Department of Astronomy

University of Massachusetts, Amherst

Requirements for B.S. Degree in Astronomy - Astrophysics Track

This track is recommended for students who want to eventually pursue a Ph.D. degree in astrophysics or in a related field.

The requirements listed below are the Department major requirements only. In addition, to graduate you will need to satisfy the University General Education requirements and the College requirement of 60 credits in courses in the College.

Astronomy Courses:

ASTRON 191A: First Year Seminar (1 cr, Fall semester only)

ASTRON 228: Stars and Galaxies (3 cr, Spring semester only)

ASTRON 301: Writing in Astronomy (3 cr, satisfies Junior year writing requirement – Spring semester only)

ASTRON 335: Modern Astrophysics (4 cr, Fall semester only)

ASTRON 339: Astronomy in a Global Context (3 cr., satisfies integrative experience requirement - Spring semester only) or **PHYSICS 440**

ASTRON 452: Astrophysics II – Galaxies (4 cr, Spring semester only)

One additional course (at least 3 credits) at the 300+ level. Recommendations:

ASTRON 330: Topics in Astrophysics (3 cr.)

ASTRON 337: Techniques of Optical and Infrared Astronomy (4 cr, Fall semester)

(Although not required, we encourage students to get involved in research and take an independent study course)

Physics Courses:

PHYSIC 181 (4 credits with lab): Physics I – Mechanics (4 cr, Fall semester only)

PHYSIC 182 (4 credits with lab): Physics II – Electricity and Magnetism (4 cr., Spring semester only)

PHYSIC 281: Computational Physics (3 cr, Fall semester only)

PHYSIC 282: Techniques of Theoretical Physics (3 cr., Spring semester only)

PHYSIC 284 (and associated lab PHYSIC 286): Modern Physics I (4 cr., Spring semester only)

PHYSIC 287 (and associated lab PHYSIC 289): Physics III – Waves and Thermodynamics (4 cr, Fall semester only)

PHYSICS 421: Mechanics I (3 cr, Fall semester only)

PHYSIC 422: Intermediate Electricity and Magnetism (3 cr., Spring semester only)

PHYSIC 423: Statistical Physics (3 cr., Spring semester only)

PHYSIC 424: Quantum Mechanics (3 cr, Fall semester only)

Math Courses:

MATH 131: Calculus I (4 cr., fall or spring semesters)

MATH 132: Calculus II (4 cr., fall or spring semesters)

MATH 233: Multivariate Calculus (3 cr., fall or spring semesters)

MATH 331: Ordinary Differential Equations for Scientists and Engineers (3 cr., fall or spring semesters)

Suggested Course Schedule:

Freshman Year:

Fall: ASTRON 191A, PHYSIC 181, MATH 131

Spring: ASTRON 228, PHYSIC 182, MATH 132

Sophomore Year:

Fall: PHYSIC 281, PHYSIC 287/289, MATH 233

Spring: PHYSIC 282, PHYSIC 284/286, MATH 331

Junior/Senior Years:

Fall: ASTRON 335, PHYSIC 421, PHYSIC 424

Spring: ASTRON 301, ASTRON 339, ASTRON 452, PHYSIC 422, PHYSIC 423