PHYSICS - BS, ASTROPHYSICS TRACK

The BS PHYS, Astrophysics track will provide you with a solid foundation in basic physics combined with knowledge of fascinating astrophysical objects and phenomena. It will prepare you for graduate studies in Astronomy, Astrophysics, and related fields. You will also learn quantitative problem-solving skills, experimental research skills, and expertise in computer simulations that are highly valued in any field and any industry.

Program Requirements

First Year

Fall

ENGL 104 or ENGL 103 Composition and Rhetoric or Introduction to Rhetoric and Composition 3
MATH 171 Calculus I 4
PHYS 101 Freshman Physics Orientation 1
PHYS 150 Introduction for Programming for Physics 1 3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) 2

Spring

ASTR 102 Observational Astronomy 1
MATH 172 Calculus II 1
PHYS 206 Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the 4
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) 3
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) 2

Second Year

Fall

MATH 221 Several Variable Calculus 1 4
MATH 308 Differential Equations 1 3
PHYS 207 Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences 1
PHYS 221 Optics and Thermal Physics 1 3

Spring

ASTR 314 Survey of Astronomy 3
PHYS 225 Electronic Circuits and Applications 3
PHYS 309 Modern Physics 1 3

Third Year

Fall

ASTR 320 Astrophysical Research Methods 3
PHYS 302 Advanced Mechanics I 3
PHYS 304 Advanced Electricity and Magnetism I 3
PHYS 332 Theoretical Methods for Physicists II 3
POLS 206 American National Government 3

Spring

ASTR 420 Advanced Astrophysical Research Methods 3
PHYS 303 or PHYS 305 Advanced Mechanics II or Advanced Electricity and Magnetism II 3
PHYS 327 Experimental Physics I 4 2
PHYS 328 Experimental Physics II 4 1
PHYS 412 Quantum Mechanics I 3
POLS 207 State and Local Government 3

Fourth Year

Fall

ASTR 291 or ASTR 491 Research 5 3
ASTR 401 Stars and Extrasolar Planets 3
PHYS 408 Thermodynamics and Statistical Mechanics 4
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) 2
General elective 6 3

Spring

ASTR 403 Extragalactic Astronomy and Cosmology 3
Social and behavioral science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) 2
Science or technical elective 7 3
General electives 6 7

Total Semester Credit Hours 120

1 A Physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level Physics courses.
2 Any course in this category from the approved University Core Curriculum list of courses.
3 Any approved Communication course, except PERF 407.
4 PHYS 327 is an approved W course. PHYS 328 is an approved C course.
5 A combination of ASTR 291 and ASTR 491 must equal 3 hours. Students with a U1 or U2 classification should take ASTR 291. Students with a U3 or U4 classification should take ASTR 491.

6 Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. These may be in addition to other University Core Curriculum courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/); PHYS 201, PHYS 202.

7 Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).