Physics, BS

Requirements

The Bachelor of Science with a major in physics requires a minimum of 120 s.h., including at least 55 s.h. of work for the major (minimum of 42 s.h. in physics plus 16 s.h. in supporting coursework). Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They must also complete the College of Liberal Arts and Sciences GE CLAS Core.

Students must complete several required mathematics courses in addition to their required physics core. The department offers a wide range of upper-level electives and students are encouraged to explore different research areas. All students are strongly encouraged to get involved with research.

In planning coursework, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a BS may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the coursework is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average, but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students who want to earn a double major in physics and astronomy must choose their coursework carefully; see the following section titled "Double Major in Physics and Astronomy."

Students who earn a BS in physics may not earn a BA in physics.

The BS with a major in physics requires the following courses or their equivalents. Substitutions may be allowed by exception through the department.

Requirements	Hours
Mathematics Courses	13-16
Introductory Physics Courses	8-12
Physics Core Courses	25
Upper-Level Elective Courses	9-11

Mathematics Courses

Course #	Title	Hours
All of these:		
MATH:1850	Calculus I	4
MATH:1860	Calculus II	4
MATH:2700	Introduction to Linear Algebra	4
MATH:2850	Calculus III	4
Or all of these:		
MATH:1550	Engineering Calculus I	4
MATH:1560	Engineering Calculus II	4
MATH:2550	Engineering Matrix Algebra	2
MATH:3550	Engineering Vector Calculus	3

Introductory Physics Courses

Course #	Title	Hours
These three courses:		
PHYS:1701	Physics I	4
PHYS:1702	Physics II	4
PHYS:2703	Physics III	4
Or these two courses:		
PHYS:1611	Introductory Physics I	4
PHYS:1612	Introductory Physics II	4

Physics Core Courses

Course #	Title	Hours
All of these:		
PHYS:2704	Physics IV	4
PHYS:3710	Intermediate Mechanics	3
PHYS:3730	Statistical Physics	3
PHYS:3741	Introduction to Quantum Mechanics I	3
PHYS:3742	Introduction to Quantum Mechanics II	3
PHYS:3756	Intermediate Laboratory	3
PHYS:3811	Electricity and Magnetism I	3
PHYS:3812	Electricity and Magnetism II	3

Upper-Level Elective Courses

Students can only take these courses once: PHYS:3850 Electronics, PHYS:4750 Advanced Laboratory, or ASTR:4850 Observational Techniques in Astronomy.

Students must take at least three different courses from the following lists to satisfy this requirement.

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements in the following list, including further work in mathematics.

Course #	Title	Hours
One of these:		
PHYS:3850	Electronics	4
PHYS:4750	Advanced Laboratory	3
ASTR:4850	Observational Techniques in Astronomy	3
Two of these:		
PHYS:3850	Electronics (if not taken for the previous requirement)	4
PHYS:4720	Introductory Optics	3
PHYS:4726	Electro Optics	3
PHYS:4728	Introductory Solid State Physics	3
PHYS:4731	Plasma Physics I	3
PHYS:4740	Elementary Particles and Nuclear Physics	3
PHYS:4750	Advanced Laboratory (if not taken for the previous requirement)	3
PHYS:4761	Mathematical Methods of Physics I	3
PHYS:4762	Mathematical Methods of Physics II	3
PHYS:4820	Optical Signal Processing	3

PHYS:4860	Computational Physics	3
PHYS:4905	Special Topics in Physics	3
PHYS:5905	Special Topics in Physics	3
ASTR:3771	Introduction to Astrophysics I	3
ASTR:3772	Introduction to Astrophysics II	3
ASTR:4850	Observational Techniques in Astronomy (if not taken for the previous requirement)	3

Teacher Licensure

Students interested in teaching in elementary and/or secondary schools should seek admission to the Teacher Education Program (TEP) in the College of Education.

To qualify for licensure in secondary teaching, students in the TEP complete a degree in education as well as a related College of Liberal Arts and Sciences degree. See Apply on the College of Education website for details on requirements and deadlines for applying to the College of Education and about TEP choices of majors leading to licensure.

Double Major in Physics and Astronomy

Students who are earning two majors from the same department (e.g. physics and astronomy) may apply more than 56 s.h. from their home department toward their degree, but they must earn at least 56 s.h. of credit in courses outside their home department in order to graduate. Students working toward a Bachelor of Science with a double major in physics and in astronomy must complete all requirements for both majors and must earn a minimum of 56 s.h. outside the Department of Physics and Astronomy in order to graduate. Students interested in earning a double major should consult with their advisors. See Requirements for a Bachelor's Degree on the College of Liberal Arts and Sciences website.