Physics, Physics Honors (BSPhy)

All aspects of the physical universe are of interest to the physicist, who seeks to understand not only the smallest forms of matter and the rich phenomena present in our everyday lives but also the universe itself. Physics has played a critical role in human technological and intellectual development during the twentieth century. The tools of the physicist—observation, imagination, model building, prediction, and deduction—will enable physics to continue this influence into the new century. The Bachelor of Science in Physics degree program is designed to provide the skills, understanding, and outlook required for participation in the discovery of new knowledge about nature.

The Bachelor of Science in Physics program is balanced and broad. It is designed to give the student a strong foundation for graduate study or work in physics and, with additional training, for work in a variety of other areas, such as astronomy, astrophysics, biophysics, chemical physics, computer science, engineering, geophysics, mathematics, medicine, physics teaching, and space sciences. Students who end their formal training with the bachelor's degree may seek employment in industry, in national laboratories, or in teaching; they should consider the options in computation, radiation physics, space sciences, biophysics, and teaching, which augment the broad instruction provided by the basic Bachelor of Science in Physics. Students who plan to follow Physics Honors, must be admitted to the Dean's Scholars Honors Program.

Total Hours Required: 126

Plan of Study

The Plan of Study is a suggested four-year course sequence to support academic planning and serves as a helpful guide. Currently enrolled students should meet with their academic advisor to tailor their course selections and timelines to their individual goals and circumstances.

Course	Title	Hours
Year 1		
Semester 1		
M 427L	Advanced Calculus for Applications II	4
PHY 301	Mechanics	3
PHY 101L	Laboratory for Physics 301	1
RHE 306	Rhetoric and Writing	3
First-Year Signature Course (090)		3
	Hours	**14**
Semester 2		
M 427J or M 427J	Differential Equations with Linear Algebra or Differential Equations with Linear Algebra	4
PHY 316	Electricity and Magnetism	3
PHY 116L	Laboratory for Physics 316	1
Visual and Performing Arts (050)		3
American and Texas Government (070)		3
Free Elective		3
	Hours	**17**
Year 2		
Semester 1		
PHY 315	Wave Motion and Optics	3
PHY 115L	Laboratory for Physics 315	1
PHY 355	Modern Physics and Thermodynamics	3
Social and Behavioral Sciences (080)		3
Liberal Arts/Fine Arts course		3
CH 301C	Foundations of Chemistry I	3
	Hours	**16**
Semester 2		
PHY 353L	Modern Physics Laboratory	3
PHY 336K	Classical Dynamics	3
M 340L	Matrices and Matrix Calculations	3
CH 302C	Foundations of Chemistry II	3
RHE 309S	Critical Reading and Persuasive Writing	3
	Hours	**15**
Year 3		
Semester 1		
PHY 373	Quantum Physics I: Foundations	3
PHY 352K	Classical Electrodynamics I	3
M 361	Theory of Functions of a Complex Variable	3
BIO 315H	Advanced Introduction to Genetics: Honors	3
U.S. History (060)		3
	Hours	**15**
Semester 2		
PHY 369	Thermodynamics and Statistical Mechanics	3
PHY 362K	Quantum Physics II: Atoms and Molecules	3
Humanities (040)		3
BIO 325H	Genetics: Honors	3
U.S. History (060)		3
	Hours	**15**
Year 4		
Semester 1		
PHY 371C	Individual Study in Physics	3
PHY 362L	Quantum Physics III: Particles and Nuclei	3
Liberal Arts/Fine Arts course		3
Upper-division research course		3
Free Elective		3
Free Elective		3
	Hours	**18**
Semester 2		
PHY 379H	Honors Tutorial Course	3
PHY 474	Advanced Laboratory I	4
American and Texas Government (070)		3
Free Elective		3
Free Elective		3
	Hours	**16**
	Total Hours	**126**

Requirements

All requirements are listed below, starting with the most specialized moving to the most general. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy General Education requirements, including Core Curriculum.

Code	Title	Hours
Concentration		
Honors Breadth Requirement (credit earned by examination may not be counted toward this requirement)		20
CH X01C & CH X02C	Foundations of Chemistry I and Foundations of Chemistry II	
M X27J & M X27L	Differential Equations with Linear Algebra and Advanced Calculus for Applications II (at least one of the math courses must be a designated honors section)	
Hours chosen from: Honors courses in the college		
Hours chosen from: Honors-designated course from a department in the college outside of mathematics		
M X40L & M X61	Matrices and Matrix Calculations and Theory of Functions of a Complex Variable	6
PHY 336K	Classical Dynamics	3

PHY 352K	Classical Electrodynamics I	3
PHY 353L	Modern Physics Laboratory	3
PHY 355	Modern Physics and Thermodynamics	3
PHY 362K	Quantum Physics II: Atoms and Molecules	3
PHY 362L	Quantum Physics III: Particles and Nuclei	3
PHY 369	Thermodynamics and Statistical Mechanics	3
PHY 373	Quantum Physics I: Foundations	3
PHY 474	Advanced Laboratory I	4
First-Year Signature Course (090) (a section that is approved by the departmental honors advisor)		3
Coursework approved by the departmental honors advisor		10
Hours chosen from:		3
NSC X09.1	Planning Your Capstone Experience	
NSC X09.2	Health Science Scholars Capstone Experience Preparation	
NSC X09.4	Polymathic Capstone Field Invention	
Hours chosen from:		6
PHY X71C & PHY X79H	Individual Study in Physics and Honors Tutorial Course	
NSC X23 & NSC X71	Natural Sciences Topics and Capstone Thesis Seminar	
Hours chosen from: the College of Liberal Arts and/or the College of Fine Arts		6
Subtotal		*82*
Major (see details below)		**12**
Degree (see details below)		**6**
Free electives: Additional coursework to reach total hours required.		2
Subtotal		*20*
General Education		
Remaining Core Curriculum (42 hours total)		24
Foreign Language other than English, Beginning Proficiency		
Subtotal		*24*
College Requirements - Natural Sciences		
General University Requirements		
Total Hours		**126**

Additional Requirements and Policy

To graduate under Physics Honors, students must remain in good standing in the Dean's Scholars, Health Science Scholars, or Polymathic Scholars Honors Program. Students must also submit an honors thesis, and present their research in an approved public forum, such as the college's annual Undergraduate Research Forum. More information about the Undergraduate Research Forum is available at https://cns.utexas.edu/.

Major-Physics (BSPhy)

Code	Title	Hours
PHY 301	Mechanics	3
PHY 101L	Laboratory for Physics 301	1
PHY 316	Electricity and Magnetism	3
PHY 116L	Laboratory for Physics 316	1
PHY 315	Wave Motion and Optics	3
PHY 115L	Laboratory for Physics 315	1
Total Hours		**12**

Degree-Bachelor of Science in Physics

Code	Title	Hours
Foreign Language/Culture Choices		
One of the following foreign language/culture choices: (Students in Teaching and Physics Honors concentrations are exempt from this requirement)		6
Foreign Language other than English, Beginning Proficiency		
First course in a foreign language and a three-semester-hour course in the culture of the same language area		
Total Hours		**6**

Additional Requirements and Policies

Students in all options must fulfill both the University's General Requirements for graduation and the college requirements. They must also earn a grade of at least *C-* in each mathematics and science course required for the degree, and a grade point average in these courses of at least 2.00. More information about grades and the grade point average is given in the General Information Catalog.

Upper-division Coursework

At least 21 semester hours of upper-division coursework, including at least 12 semester hours of upper-division coursework in physics, must be completed in residence at the University.