

BACHELOR OF SCIENCE, MAJOR IN PHYSICS

Additional information: Reference the Program Landing Page (<https://www.shsu.edu/programs/bachelor-of-science-in-physics/>) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

Code	Title	Hours
Bachelor of Science, Major in Physics		
Core Curriculum		
Component Area I (Communication)		6
Component Area II (Mathematics) ¹		3
Component Area III (Life and Physical Science) ²		8
Component Area IV (Language, Philosophy, and Culture)		3
Component Area V (Creative Arts)		3
Component Area VI (U.S. History)		6
Component Area VII (Political Science/Government)		6
Component Area VIII (Social and Behavioral Sciences)		3
Component Area IX (Component Area Option) ¹		4
Degree Specific Requirements		
BIOL 1406 or GEOL 1403 or PHYS 1404	General Biology I Physical Geology Solar System Astronomy	4
BIOL 1407 or GEOL 1404 or PHYS 1403	General Biology II Historical Geology Stars & Galaxies	4
CHEM 1411	General Chemistry I ²	4
CHEM 1412	General Chemistry II ²	4
COSC 1436	Programming Fundamentals I	4
Advanced Electives		7
MATH (Advanced) or Science (Advanced)		6
Major: Foundation		
PHYS 1401	Physics Boot Camp	4
PHYS 1411	Introduction To Physics I	4
PHYS 1422	Introduction To Physics II	4
PHYS 3391 & PHYS 3111	Modern Physics I and Modern Physics Laboratory I	4
PHYS 3370 & PHYS 4110	Introduction to Theoretical Physics and Advanced Undergraduate Laboratory I	4
PHYS 4366	Introduction to Quantum Mechanics	3
PHYS 4368	Electricity And Magnetism	3
PHYS 4370	Classical Mechanics	3
PHYS 4371	Thermodynamics and Statistical Mechanics	3
PHYS 4395	Undergraduate Research	3
Major: Prescribed Electives		
PHYS Advanced Electives		3
Electives: General		
General Electives		1
Minor: Required ³		
MATH 1420	Calculus I ¹	4
MATH 1430	Calculus II	4
MATH 2440	Calculus III	4
MATH 3376	Differential Equations	3

MATH 3377	Introduction to Linear Algebra and Matrices	3
Total Hours		120

¹ MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics), one semester credit hour of Component Area IX (Component Area Option), and the Degree Specific requirement.

² CHEM 1411, CHEM 1412 satisfies the Core Curriculum requirement for Component Area III (Life and Physical Science).

³ The following minor cannot be paired with this degree program: Minor in Physics.

Notes

Students must earn a 2.0 minimum overall GPA in all coursework.

Students must meet a 2.0 minimum overall major GPA in all major coursework.

Students must earn a 2.0 minimum SHSU GPA in all coursework.

Students must meet a 2.0 minimum SHSU major GPA in all major coursework.

All students interested in Physics or Pre-Engineering enroll in the Physics Bootcamp (PHYS 1401) during their first semester on campus. This lets interested students see what Physics is all about as early as possible, with no prerequisites. It ensures that they have math skills required in the next two years, and helps them understand what those skills are good for in Physics and Engineering. It develops confidence, teamwork, camaraderie, and a sense of belonging in the department. A weekly group-based problem-solving practice session is integrated. The Bootcamp is typically offered each Fall and Spring term.

A student may need preparatory work in Mathematics or might be eligible for advanced placement, either of which necessitates adjustment of the schedule. Such a student should consult a member of the Physics or Mathematics faculty concerning his/her schedule.

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First Year

Fall	Hours	Spring	Hours
CHEM 1411 ¹		4 CHEM 1412 ¹	4
ENGL 1301 ²		3 ENGL 1302 ²	3
General Elective		1 MATH 1430	4
MATH 1420 ³		4 PHYS 1411	4
PHYS 1401		4	
		16	15

Second Year

Fall	Hours	Spring	Hours
Component Area IV		3 COSC 1436	4
HIST 1301 ⁴		3 HIST 1302 ⁴	3
MATH 2440		4 PHYS 3370 & PHYS 4110	4
PHYS 1422		4 POLS 2306 ⁵	3
POLS 2305 ⁵		3	
		17	14

Third Year

Fall	Hours	Spring	Hours
Component Area VIII		3 Component Area V	3
Component Area IX		3 BIOL 1407, GEOL 1404, or PHYS 1403	4
BIOL 1406, GEOL 1403, or PHYS 1404		4 MATH 3377	3
MATH 3376		3 PHYS 4370	3
PHYS 3111		1	
PHYS 3391		3	
		17	13

Fourth Year

Fall	Hours	Spring	Hours
Advanced Electives		3 Advanced Electives	4
Math or Science Advanced		3 Math or Science Advanced	3
PHYS 4368		3 PHYS 4366	3
PHYS 4371		3 PHYS Advanced Electives	3
PHYS 4395		3	
		15	13

Total Hours: 120

- ¹ Satisfies Core Curriculum requirement for Component Area III (Life and Physical Science).
- ² Satisfies Core Curriculum requirement for Component Area I (Communications).
- ³ Satisfies Core Curriculum requirement for Component Area II (Mathematics) and one semester credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option).
- ⁴ Satisfies Core Curriculum requirement for Component Area VI (U.S. History).
- ⁵ Satisfies Core Curriculum requirement for Component Area VII (Political Science).

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Students must earn a 2.0 minimum SHSU GPA in all coursework.

Students must meet a 2.0 minimum SHSU major GPA in all major coursework.

The following minor cannot be paired with this degree program: Minor in Physics.

All students interested in Physics or Pre-Engineering enroll in the Physics Bootcamp (PHYS 1401) during their first semester on campus. This lets interested students see what Physics is all about as early as possible, with no prerequisites. It ensures that they have math skills required in the next two years and helps them understand what those skills are good for in Physics and Engineering. It develops confidence, teamwork, camaraderie, and a sense of belonging in the department. A weekly group-based problem-solving practice session is integrated. The Bootcamp is typically offered each Fall and Spring term.

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The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The BS in Physics is designed to provide graduates with the following marketable skills:

- Ability to creatively solve real-world problems.
- Sophisticated understanding of applied mathematics.
- Capacity to analyze and interpret complex data.
- Quantitative understanding of mechanical, electrical, and thermal systems.
- Model complex interactions with computer programming and technology.