

PHYSICS (PROFESSIONAL OPTION), BACHELOR OF SCIENCE IN PHYSICS

Minimum Total Credit Hours: 120

Major Hours: 45

Minimum Upper-Division Hours: 48

Overall GPA - Combined and OU: 2.00

Major GPA - Combined and OU: 2.00

Program Code: B781

- 48 Upper-Division Hours Required.
- Some courses required for the major may also fulfill University General Education and/or College of Arts & Sciences Requirements.
- A grade of C or better must be earned in each required Physics and Mathematics course.

Major Requirements

A total of 45 hours in Physics is required, including the courses listed below.

Code	Title	Credit Hours
PHYS 1205	Introductory Physics I for Physics Majors	5
PHYS 1215	Introductory Physics II for Physics Majors	5
PHYS 2203	Introductory Physics III: Modern Physics	3
PHYS 2303	Electronics	3
PHYS 3043	Physical Mechanics I	3
PHYS 3053	Physical Mechanics II	3
PHYS 3183	Electricity and Magnetism I	3
PHYS 3302	Advanced Lab I	2
PHYS 3312	Advanced Lab II	2
PHYS 3803	Introduction to Quantum Mechanics I	3
PHYS 4153	Statistical Physics and Thermodynamics	3
PHYS 4300	Senior Research Project (Capstone Course)	2
PHYS 4300	Senior Research Project (2 enrollments required)	2
Choose two of the following:		6
PHYS 4183	Electricity and Magnetism II (strongly recommended)	
PHYS 4213	Nuclear and Particle Physics	
PHYS 4243	Solid State Physics	
PHYS 4803	Introduction to Quantum Mechanics II (strongly recommended)	
PHYS 4813	Atomic and Molecular Physics	
Total Credit Hours		45

Major Support Requirements

Code	Title	Credit Hours
Chemistry		
Choose one of the the following:		0-5

CHEM 1315 General Chemistry

One year of high school chemistry

Mathematics

MATH 2443	Calculus and Analytic Geometry IV ¹	3
MATH 3413	Physical Mathematics I	3
MATH 3423	Physical Mathematics II	3
Choose 3 upper-division elective hours in mathematics		3
Total Credit Hours		12-17

¹ MATH 2934 may also be used to meet this requirement

General Education and College Requirements

Courses graded P/NP will not apply

Courses for fulfillment of General Education and College of Arts & Sciences requirements must be from the approved General Education course list published in the Class Schedule or at <http://www.ou.edu/gened/courses>.

University-Wide General Education (minimum 40 hours) and College of Arts and Sciences Requirements

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
<i>English Composition (6 hours)</i>		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
<i>Foreign Language (0-13 hours in the same language)</i>		
The College of Arts and Sciences requirement cannot be met by high school coursework.		
	Beginning Course	0-5
	Beginning Course, continued	0-5
	Intermediate Course (2000 level) ^{1,2}	0-3
<i>Mathematics (3 hours)</i>		
	Choose one course from the General Education Mathematics list	3
Core Area II: Natural Science (7 hours, including one laboratory component)		
<i>Biological Science</i>		
	Choose an approved General Education Natural Science course with one of the following prefixes: BIOL, HES, MBIO, or PBIO ¹	3-4
<i>Physical Science</i>		
	Choose an approved General Education Natural Science course with one of the following prefixes: AGSC, ASTR, CHEM, GEOG, GEOL, GPHY, METR, or PHYS ¹	3-4
Core Area III: Social Science (6 hours)		
P SC 1113	American Federal Government	3
	Choose one course from the General Education Social Science list	3
Core Area IV: Humanities (18 hours)		
<i>Understanding Artistic Forms</i>		

Choose one course from the General Education Artistic Forms list	3
<i>Western Civilization and Culture</i>	
HIST 1483 United States, 1492 to 1865 or HIST 1493 United States, 1865 to the Present	3
Choose one course from the General Education Western Civilization & Culture list ³	3
<i>Non-Western Culture</i>	
Choose one course from the General Education Non-Western Culture list	3
<i>Additional Core IV Upper-Division Humanities courses</i> ⁴	
Choose one course from Understanding Artistic Forms, Western Civilization & Culture, or Non-Western Culture ¹	3
Choose one course from Understanding Artistic Forms, Western Civilization & Culture, or Non-Western Culture ¹	3
Core Area V: Senior Capstone Experience (3 hours)	
Choose one General Education Capstone course	3
Total Credit Hours	56

¹ College of Arts and Sciences Requirements: College requirements are not automatically fulfilled by a previous degree.

² One course at the intermediate level or demonstrated competency at that level

³ Excluding HIST 1483 and HIST 1493

⁴ 6 upper-division hours, 2 courses, at the 3000- 4000-level. **Must be outside the major.**

Free Electives

Electives to bring total applicable hours to the minimum total required for the degree including 48 upper-division hours.

Information Concerning General Rules, Regulations and Minimum Requirements

Arts and Sciences Hours: At least 80 semester hours of liberal arts and sciences courses are required for a BA degree. At least 55 semester hours of liberal arts and sciences courses are required for a BS degree.

Pass/No Pass Enrollment: A maximum of 16 semester hours of free elective credit may be attempted under this option.

Individual Studies (e.g., courses titled "Independent Study"): A maximum of 12 total semester hours may be counted toward graduation, excluding Honors Reading and Honors Research.

P.E. Courses: No physical education activity courses will be counted toward the 120 semester hours of acceptable credit for graduation.

Senior Institution Hours: A minimum of 60 semester hours applied toward graduation must be earned at senior (4-year) institutions.

Residency:

- At least 15 of the final 30 hours applied toward the degree or at least 50 percent of the hours required by the institution in the major field must be satisfactorily completed at the awarding institution.
- At least 15 semester hours of upper-division major work must be completed in residence at OU.
- OU correspondence courses are **not** considered resident credit.

Grade Point Averages: Students must earn a minimum over all 2.00 for each of the following: Combined Retention GPA (all college grades), OU Retention GPA, GPA for all major courses, and GPA for all major courses

taken at OU. Some schools and departments of the College have higher minimum grade point averages required for their students.

Special Degrees: Students may qualify for an Honors degree (cum Laude, Magna cum Laude, or Summa cum Laude) by completing specific requirements of the Honors College. A degree will be earned with Distinction if the student completes at least 60 semester hours at OU with at least a 3.60 combined retention GPA and OU retention GPA. A degree will be earned with Special Distinction if the student completes at least 60 semester hours at OU with at least a 3.90 combined retention GPA and OU retention GPA.

Suggested Semester Plan of Study

This plan shows one possible grouping of courses that would allow students to graduate in four years. Please refer to the front of the degree checklist for official requirements. Students must consult with College of Arts and Sciences and/or Department of Physics and Astronomy academic advisors to verify that courses selected each semester fulfill the recommended plan and satisfy university, College of Arts and Sciences, and Physics major requirements.

Course	Title	Credit Hours
Freshman		
First Semester		
ENGL 1113	Principles of English Composition (Core I)	3
MATH 1823	Calculus and Analytic Geometry I (Core I) ¹	3
PHYS 1205	Introductory Physics I for Physics Majors	5
Beginning Foreign Language (Core I)		5
Credit Hours		16
Second Semester		
ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3
MATH 2423	Calculus and Analytic Geometry II ¹	3
PHYS 1215	Introductory Physics II for Physics Majors	5
Beginning Foreign Language continued (Core I)		5
Credit Hours		16
Sophomore		
First Semester		
MATH 2433	Calculus and Analytic Geometry III ¹	3
PHYS 2203	Introductory Physics III: Modern Physics	3
PHYS 2303	Electronics	3
Intermediate Foreign Language		3
Biological Science without lab (Core II)		3
Credit Hours		15
Second Semester		
CHEM 1315	General Chemistry	5
HIST 1483 or HIST 1493	United States, 1492 to 1865 (Core IV) or United States, 1865 to the Present	3
MATH 2443	Calculus and Analytic Geometry IV ¹	3
MATH 3413	Physical Mathematics I	3
PHYS 3043	Physical Mechanics I	3
Credit Hours		17
Junior		
First Semester		
MATH 3423	Physical Mathematics II	3

PHYS 3053	Physical Mechanics II	3
PHYS 3183	Electricity and Magnetism I	3
PHYS 3302	Advanced Lab I	2
Understanding Artistic Forms (Core IV)		3
Credit Hours		14
Second Semester		
MATH Support Elective, upper-division (3000-4000-level)		3
PHYS 3312	Advanced Lab II	2
PHYS 3803	Introduction to Quantum Mechanics I	3
PHYS Major Elective, 4000-level		3
Western Civilization & Culture (Core IV)		3
Credit Hours		14
Senior		
First Semester		
PHYS 4153	Statistical Physics and Thermodynamics	3
PHYS 4300	Senior Research Project (Capstone)	2
PHYS Major Elective, 4000-level		3
Humanities, upper-division, outside major (Gen. Ed.)		3
Non-Western Culture (Core IV)		3
Free Elective, upper-division (3000-4000-level)		3
Credit Hours		17
Second Semester		
PHYS 4300	Senior Research Project (Capstone)	2
P SC 1113	American Federal Government (Core III)	3
Humanities, upper-division, outside major (Gen. Ed.)		3
Social Science (Core III)		3
Free Elective, upper-division (3000-4000-level)		3
Credit Hours		14
Total Credit Hours		123

¹ Students may substitute MATH 1914, MATH 2924, and MATH 2934 calculus sequence instead of MATH 1823, MATH 2423, MATH 2433, and MATH 2443.