

Physics Education, B.S.

Prepares the student to teach high school physics and AP physics. The program allows for those interested to supplement their studies with extra courses in physics or other science through elective upper division credit. A seminar course provides the student with exposure to careers in physics.

Matriculation Requirements

1. Students are admitted directly to the Baccalaureate degree program in Physics Education upon acceptance to the Secondary Education Program.
2. Students must obtain the departmental Advisor's signature on an approved program plan prior to enrollment in their second semester of study.

Secondary Education Requirements

1. ENGL and MATH QL courses must have a grade C or higher.
2. GPA of 3.0 or higher with no grade lower than a C in content area courses.
3. Completion of all General Education requirements and 70% of content area courses.
4. Pass LiveScan Criminal Background Check.

Program Requirements

Code	Title	Credit Hours
Total Credit Hours		120
General Education Requirements		38 Credits
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC Literacies and Composition Across Contexts CC	3
ENGL 2010	Intermediate Academic Writing CC	3
MATH 1210 or PHYS 1100	Calculus I QL Introductory Math Techniques for Physics and Engineering	4
Complete one of the following:		3
HIST 1700	American Civilization AS (3)	
HIST 2700 & HIST 2710	US History to 1877 AS and US History since 1877 AS (6)	
HIST 1740	US Economic History AS (3)	
POLS 1000	American Heritage AS (3)	
POLS 1100	American National Government AS (3)	
Complete the following:		
PHIL 2050	Ethics and Values IH	3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE Fitness for Life TE	2
Distribution Courses:		
Biology		3
CHEM 1210	Principles of Chemistry I PP (To be taken with CHEM 1215)	4
CHEM 1220	Principles of Chemistry II PP (To be taken with CHEM 1225)	4
Humanities		3
Fine Arts		3
Social/Behavioral Science		3
Discipline Core Requirements ¹		77 Credits
CHEM 1215	Principles of Chemistry I Laboratory	1
CHEM 1225	Principles of Chemistry II Laboratory	1
HIST 4320	History of Scientific Thought	3
MATH 1220	Calculus II	4
MATH 2210	Calculus III	4
PHYS 2210	Physics for Scientists and Engineers I PP	4
PHYS 2215	Physics for Scientists and Engineers I Lab	1

PHYS 2220	Physics for Scientists and Engineers II PP	4
PHYS 2225	Physics for Scientists and Engineers II Lab	1
PHYS 3010	Physics Experiments for Secondary Education	1
PHYS 3110	Modern Physics I	3
PHYS 3115	Introduction to Experimental Physics I WE	2
Education Courses:		
EDSC 1010	Introduction to Education	2
EDSC 3000	Educational Psychology	3
EDSC 325G	Equitable Technology Integration GI	2
EDSC 4200	Classroom Management I	2
EDSC 4250	Classroom Management II	2
EDSC 4440	Content Area Literacies	3
EDSC 445G	Multicultural and Multilingual Education	3
EDSC 455G	Secondary Curriculum Instruction and Assessment GI	3
EDSC 4850	Student Teaching Secondary	8
EDSC 4990	Teacher Assessment Project	2
EDSP 340G	Exceptional Students GI	2
Complete the following set:		
SCIE 4210	Science Teaching Methods I	3
SCIE 4220	Teaching Methods in Science II	3
PHYSICS:		
PHYS 490R	Seminar (must be repeated two times)	1
Complete 9 credits from the following:		9
ASTR 3050	Astrophysics I (3)	
ASTR 3060	Astrophysics II (3)	
PHYS 1100	Introductory Math Techniques for Physics and Engineering (3)	
PHYS 2500	Elementary Fluids and Thermal Physics (3)	
PHYS 3120	Modern Physics II (3)	
PHYS 3125	Introduction to Experimental Physics II WE (2)	
PHYS 3230	Principles of Electronics for the Physical Sciences (3)	
PHYS 3300	Mathematical and Computational Physics I (3)	
PHYS 3400	Classical Mechanics (3)	
PHYS 3500	Thermodynamics (3)	
PHYS 3800	Energy Use on Earth GI (3)	
PHYS 4700	Acoustics (3)	
Elective Requirements		5
Complete 5 credits of upper division electives.		Credits 5

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Must be completed with a grade B- or higher.

Graduation Requirements

1. Completion of a minimum of 120 semester credits with a minimum of 40 upper-division credits.
2. Overall Grade of 3.0 (B) or above with no grade lower than a C or better in major required content courses and no grade lower than a B- in Licensure and Methods courses.
3. Residency hours -- minimum of 30 credit hours through course attendance at UVU, with at least 10 hours earned in the last 45 hours.
4. Completion of GE and specified departmental requirements.
5. A minimum of 52 credit hours must be in the major with a minimum of 20 credits taken at UVU. A minimum of 24 chemistry and physics credits must be upper-division.
6. Successful completion of at least one Global/Intercultural course.

Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track (<http://www.uvu.edu/wolverinetrack/>).

First Year

Semester 1		Credit Hours
EDSC 1010	Introduction to Education	2
ENGL 1010	Introduction to Academic Writing CC	3
MATH 1210 or PHYS 1100	Calculus I QL or Introductory Math Techniques for Physics and Engineering	4
Americal Institutions		3
PHIL 2050	Ethics and Values IH	3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE or Fitness for Life TE	2
Credit Hours		17

Semester 2

ENGL 2010	Intermediate Academic Writing CC	3
MATH 1220	Calculus II	4
PHYS 2210	Physics for Scientists and Engineers I PP	4
PHYS 2215	Physics for Scientists and Engineers I Lab	1
Biology Distribution		3
Credit Hours		15

Second Year

Semester 3

MATH 2210	Calculus III	4
PHYS 2220	Physics for Scientists and Engineers II PP	4
PHYS 2225	Physics for Scientists and Engineers II Lab	1
CHEM 1210	Principles of Chemistry I PP	4
CHEM 1215	Principles of Chemistry I Laboratory	1
Humanities Distribution		3
Credit Hours		17

Semester 4

CHEM 1220	Principles of Chemistry II PP	4
CHEM 1225	Principles of Chemistry II Laboratory	1
Physics Electives		6
Fine Arts Distribution		3
Credit Hours		14

Third Year

Semester 5

HIST 4320	History of Scientific Thought	3
Social/ Behavioral Science Distribution		3
EDSC 3000	Educational Psychology	3
EDSC 325G	Equitable Technology Integration GI	2
PHYS 490R	Seminar	0.5
SCIE 4210	Science Teaching Methods I	3
Credit Hours		14.5

Semester 6

EDSC 4440	Content Area Literacies	3
PHYS 3010	Physics Experiments for Secondary Education	1
EDSC 445G	Multicultural and Multilingual Education	3
Upper Division Elective		3
SCIE 4220	Teaching Methods in Science II	3
Credit Hours		13

Fourth Year

Semester 7

EDSC 4200	Classroom Management I	2
EDSP 340G	Exceptional Students GI	2
EDSC 455G	Secondary Curriculum Instruction and Assessment GI	3
PHYS 490R	Seminar	0.5
Upper Division Electives		2

PHYS 3110	Modern Physics I	3
PHYS 3115	Introduction to Experimental Physics I WE	2
Credit Hours		14.5
Semester 8		
EDSC 4850	Student Teaching Secondary	8
EDSC 4250	Classroom Management II	2
EDSC 4990	Teacher Assessment Project	2
Physics elective		3
Credit Hours		15
Total Credit Hours		120

Program Learning Outcomes

1. Demonstrate how to teach about how science and physics work in practice by correctly using evidence, experiment and observation, interpretation, physical concepts, etc.
2. Learn to apply and teach about fundamental physical concepts including conservation laws, forces, fields, energy, optics, thermal and statistical physics, relativity, and quantum mechanics.
3. Use mathematics and mathematical models correctly to solve physics problems.
4. Follow practices necessary for safely using laboratory equipment.
5. Demonstrate understanding of the role of computation in physics and appropriate computer skills.
6. Communicate effectively about physics in writing and in presentations, in both formal and informal settings.
7. Demonstrate physics research skills and use ethical research practices.