The Physics Major – Secondary Education Specialization

The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

Introductory Physics Sequence (14 credits)
PHYS 171 (3): Introductory Physics: Mechanics and Relativity
PHYS 174 (1): Physics Lab Introduction
PHYS 272 (3): Introductory Physics: Fields
PHYS 275 (2): Experimental Physics I: Mechanics and Heat
PHYS 273 (3): Introductory Physics: Waves
PHYS 276 (2): Experimental Physics II: Electricity and Magnetism

Introductory Education Courses (3 credits)
TLPL101 (1): Inquiry Teaching of STEM in Elementary School
TLPL102 (2): Inquiry Teaching of STEM in Middle School

Supporting Mathematics/Mathematical Methods Courses (15 credits)
MATH 140 (4): Calculus I
MATH 141 (4): Calculus II
MATH 241 (4): Calculus III
PHYS274 (3): Mathematical Methods for Physics I

Upper-level Physics Requirements (16-17 credits)
PHYS371 (3): Modern Physics
PHYS373 (3): Mathematical Methods for Physics II
PHYS375* (3): Experimental Physics III: Waves, Optics and Modern
Physics PHYS410 (4): Classical Mechanics
or PHYS411 (4): Electricity and Magnetism
PHYS4XX (3-4): Advanced Physics Elective

Upper-level Education Courses Junior/Senior Required Education Courses (12 credits)
EDHD426 (3): Cognitive and Motivational Literacy Content
EDCI488M (3): Selected Topics in Teacher Education; Knowing and Learning
EDCI488P (3): Selected Topics in Teacher Education; Project Based Instruction
EDCI488W (3): Selected Topics in Teacher Education; Perspectives in Science

Suggested (not required) Computational Physics Course (3 credits)
PHYS165 (3): Introduction to Programming for the Physical Sciences
(students with computer programming experience may want to consider taking the more advanced PHYS474 (3): Computational Physics.)

*PHYS375 may be replaced by an additional, non-seminar 400-level approved Physics course of 3-4 credits.