

## The Physics Major – Secondary Education Specialization

The Physics Secondary Education specialization is intended primarily for students interested in teaching physics at the secondary level. Students who are considering pursuing this area of concentration are encouraged to enroll in EDCI 280—Looking Inside Schools and Classrooms, for a survey of education and teaching. 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 Physics Secondary Education specialization does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Physics Secondary Education specialization 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.

### Required Introductory Physics Sequence (14 credits)

PHYS 171 (3): Introductory Physics: Mechanics and Relativity

PHYS 174 (1): Physics Lab Introduction

PHYS 272 (3): Fields

PHYS 275 (2): Experimental Physics I: Mechanics and Heat

PHYS 273 (3): Waves

PHYS 276 (2): Experimental Physics II: Electricity and Magnetism

### Supporting Mathematics/Mathematical Methods Courses (18-19 credits)

MATH 140 (4): Calculus I

MATH 141 (4): Calculus II

MATH 241 (4): Calculus III

MATH 246 (3): Differential Equations

MATH 240 (4): Intro. to Linear Algebra *or* MATH461 *or* (3): Linear Algebra for Scientists and Engineers

### Physics Major – Upper Level Requirements (14 credits)

PHYS373 (3): Mathematical Methods for Physics II

PHYS375 (3): Experimental Physics III: Waves, Optics and Modern Physics

PHYS401 (4): Quantum Physics I

PHYS411 (4): Electricity and Magnetism

### Upper Level Education Courses Junior/Senior Required Education Courses (12 credits)

EDPS301 (3): Foundations of Education

EDHD413 (3): Adolescent Development

EDHD426 (3): Cognition and Motivation in Reading: Reading in Content Areas I

EDCI463 (3): Reading in the Secondary School

\*For students with experience with computer programming this can be satisfied by a new advanced level course PHYS 474 Computational Physics that will also count as one of the Advanced Physics Electives.

EDPS301 may be replaced by EDPL401: Educational Technology, Policy and Social Change (3 cr). PHYS401 may be replaced by PHYS420: Principles of Modern Physics (3 cr). PHYS375 may be replaced by one additional non-seminar 400-level Physics course of 3-4 credits.