

Degree Type – Bachelor of Science (BS)
Degree Title – Physics
Concentration: Educational Physics

A Physicist has a solid understanding of fundamental laws, which in turn can be applied to a wide area of scientific and engineering fields. It is an exciting career that requires discipline and significant amount of work. It also requires development of mathematical, experimental, theoretical, and computational skills. As a result of the Physicist's solid and broad background, Physicists can apply to a wide range of job opportunities, including National Laboratories and Research Centers, Industry, and Academia.

A – GENERAL EDUCATION CORE – 42 HOURS

Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education core requirements.

Required

020 - Mathematics – 3 hours

MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

030 - Life and Physical Sciences* – 6 hours

PHYS 2425 Physics for Scientists and Engineers I three-hour lecture

PHYS 2426 Physics for Scientists and Engineers II three-hour lecture

*Note: it is mandatory for students pursuing a BS in Physics to take face-to-face (onsite) lecture sections for PHYS 2425/2426.

090 - Integrative/Experiential Learning Option – 6 hours

CSCI 1380 Computer Science I

PHYS 2425 Physics for Scientists and Engineers I (one-hour lab)

PHYS 2426 Physics for Scientists and Engineers II (one-hour lab)

Any additional course of 1 credit or more that satisfies General Education Core “Integrative/Experiential Learning Option” Requirements.

B – MAJOR REQUIREMENTS – 75 HOURS (61 advanced)

1 – Physics Core Courses – 30 hours (27 advanced)

PHYS 2327 Physics for Scientists and Engineers III

PHYS 3305 Classical Mechanics

PHYS 3303 Thermodynamics

PHYS 3304 Optics

PHYS 3402 Modern Physics

PHYS 3411 Math Methods in Physics I

PHYS 4305 Statistical Mechanics

PHYS 3301 Electromagnetic Theory I

PHYS 4303 Quantum Mechanics I

PHYS 4101 Senior Laboratory Research

2 – Capstone Course – 3 hours (3 advanced)

PHYS 4300 Undergraduate Research Project

3 – Mathematics – 12 hours (3 advanced)

MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture

MATH 2414 Calculus II (or MATH 2488 Honors)

MATH 2415 Calculus III

MATH 3341 Differential Equations

4. Educational Physics required courses- 30 hours (28 advanced)

i. Educational Physics – 6 hours (6 advanced)

PHYS 4392 Research Methods

PHYS 3330 Functions & Modeling

ii. UTeach Certification – 24 hours (22 advanced)

Area of Certification: Physics/Mathematics (7-12)

UTCH 1101 Inquiry Approaches to Teaching

UTCH 1102 Inquiry-Based Teaching Design

UTCH 3301 Knowing and Learning in Mathematics and Science

UTCH 3302 Classroom Interactions

UTCH 3303 Project-Based Instruction

UTCH 4601 Apprentice Teaching

UTCH 4101 Apprentice Teaching

READ 4305 Content Area Literacy Seminar

MATE 3317 Perspective in Mathematics and Science (or PHIL 3317)

C – FREE ELECTIVES – 3 HOURS

TOTAL CREDIT HOURS FOR GRADUATION UNDER EDUCATION OPTION – 120 HOURS

TOTAL ADVANCED HOURS – 61 HOURS