

Degree Type – Bachelor of Science (BS)
Degree Title – Physics
Concentration: Pure & Applied 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 (54 advanced)

1 – Physics Core Courses – 42 hours (39 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 3412 Math Methods in Physics II

PHYS 4305 Statistical Mechanics

PHYS 3301 Electromagnetic Theory I

PHYS 3302 Electromagnetic Theory II

PHYS 4303 Quantum Mechanics I

PHYS 4304 Quantum Mechanics II

Choose:

PHYS 4101 Senior Laboratory Research (taken three times)

or

PHYS 4306 Advanced Physics Lab

2 – Capstone Course – 3 hours (3 advanced)

PHYS 4300 Undergraduate Research Project

3 – Mathematics – 12 hours (3 advanced)

MATH 2413 Calculus I (one hour lab)

MATH 2414 Calculus II

MATH 2415 Calculus III

MATH 3341 Differential Equations

4 – Pure & Applied Physics Concentration – 18 hours (9 advanced minimum)

i. Advanced Physics Electives – 9 hours (9 advanced)

Choose any advanced Physics courses.

ii. Approved Science Electives – 9 hours

Science electives need to be accepted and approved to be suitable by the department chair of the physics department. Any courses with the prefix ASTR, BIOL, CSCI, CHEM, ELEE, ENGR, ENGT, ENST, ENVR, GEOG, GEOL, MARS, MATH, MECE, PHYS, or PSCI can be used for this requirement. PHYS 1401/1402 and PSCI 1421/1422 cannot be used to satisfy this requirement.

C – FREE ELECTIVES – 3 HOURS

TOTAL CREDIT HOURS FOR GRADUATION – 120 HOURS

TOTAL ADVANCED HOURS – 54