

PHYSICS, B.S.

Program Learning Outcomes

Graduates of the program will demonstrate:

- an ability to identify, formulate, and solve complex problems by applying principles of science and mathematics.
- an ability to apply physical principles, mathematical reasoning, and computational techniques to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- an ability to communicate effectively with a range of audiences.
 - Students will effectively communicate complicated technical information in writing.
 - Students will effectively communicate complicated technical information orally.
 - Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- an ability to recognize ethical and professional responsibilities and make informed judgments, which must consider the impact of scientific solutions in global, economic, environmental, and societal contexts.
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use scientific judgment to draw conclusions.
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

| Code | Title | Units |
|------------------------------------|--|-------|
| Lower-Division Requirements | | |
| CHE 1052 and CHE 1052L | General Chemistry I (GE) and General Chemistry I Lab (GE) | 5 |
| EGR 1003 and EGR 1003L | Introduction to Engineering I and Introduction to Engineering I Lab | 3 |
| EGR 1023 and EGR 1023L | Introduction to Engineering II and Introduction to Engineering II Lab | 3 |
| EGR 1043 and EGR 1043L | Introduction to Computer Programming and Introduction to Computer Programming Lab | 3 |
| MTH 1064 and MTH 1064L | Calculus I (GE) and Calculus I Lab (GE) | 4 |
| MTH 1074 and MTH 1074L | Calculus II and Calculus II Lab | 4 |
| MTH 2074 | Calculus III | 4 |
| PHY 2044 and PHY 2044L | University Physics I (GE) and University Physics I Lab (GE) | 4 |
| PHY 2054 and PHY 2054L | University Physics II and University Physics II Lab | 4 |
| Upper-Division Requirements | | |
| MTH 3033 | Differential Equations | 3 |
| PHY 3003 and PHY 3003L | Modern Physics and Modern Physics Lab | 3 |
| PHY 3043 | Analytical Mechanics: Dynamics | 3 |
| PHY 3062 | Electricity, Magnetism, and Waves I | 2 |

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| PHY 3083 | Electricity, Magnetism, and Waves II | 3 |
| PHY 4013 | Thermodynamics | 3 |
| PHY 4053 | Quantum Mechanics | 3 |
| PHY 4063 | Solid State Engineering | 3 |
| Choose one (1) of the following: | | 3-4 |

HON 4098 Honors Project I
and HON 4099 and Honors Project II

PHY 4072 Senior Project I
and PHY 4082 and Senior Project II

Elective Courses

Complete one (1) of the following courses and the associated lab: 4

EGR 2014 Engineering Mechanics: Statics
and and Engineering Mechanics: Statics Lab
EGR 2014L

EGR 2024 Circuit Analysis
and and Circuit Analysis Lab
EGR 2024L

Total Units 64-65

Recommended:

| Code | Title | Units |
|---------------------------|--|-------|
| CHE 1053 and CHE 1053L | General Chemistry II and General Chemistry II Lab | 4 |
| CHE 2094 and CHE 2094L | Organic Chemistry I and Organic Chemistry I Lab | 4 |
| EGR 3003 | Python and UNIX | 3 |
| MTH 2033 | Linear Algebra | 3 |