

CON Applied Physics Applied Physics

Under Review | Fall 2024

Proposal Information

Workflow Status

In Progress

Faculty Senate, Faculty Senate

expand ▲

Waiting for Approval | Faculty Senate Approval

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Proposal Information

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College

College of Arts & Sciences

Department

Physics & Astronomy

Campus

Main Campus

Effective Term and Year

Proposed Effective Term and Year

Fall 2024

Justification

Concentration Justification

We request to replace our current three concentrations with a more flexible 'Applied Physics' concentration. Students are taking 62 credits of core courses, plus 21 credits specific to the Applied Physics concentration (83 credits in total for the major).

This new concentration has been designed to be flexible so that any student focus regime, including but not limited to biophysics, earth- and planetary sciences, and optics, can easily fit under this umbrella. Most importantly, we do not set the elective courses in stone. Instead, we require students to work out a plan with their faculty advisor. This approach addresses issues related to changes in course offerings over time within departments and ensures that students can select courses that facilitate timely graduation.

The concentration incorporates a focus on the laboratory courses providing hands on experience with equipment and practice in measurements and analysis. In addition, by removing the requirement of the second semesters of Analytical Mechanics, Electricity and Magnetism, and Quantum Mechanics, time is opened for in total six elective courses. We note these courses are to be STEM courses, many of which can be selected from the current set of courses provided by the P&A department. However, they may also include courses in other specialty regimes. Finally, we note students are still eligible for graduate studies in physics with this concentration.

Associated Forms

Select any associated course forms that exist

Select any associated program forms that exist

Program Information

Degree Name

BS Phys - Bachelor of Science in Physics

Degree Type

Bachelor of Science

Program Type

Undergraduate

Program Description

No Parent Selected

Degree Hours

120

Minimum Major Hours

Degree Requirements

- Complete all of the following
 - Complete the following:
 - PHYS2415 - Computational Physics (3)
 - PHYS301 - Thermodynamics and Statistical Mechanics (3)
 - PHYS307L - Junior Laboratory (3)
 - PHYS304 - Analytical Mechanics II (3)
 - PHYS306L - Junior Laboratory (3)
 - PHYS307L - Junior Laboratory (3)
 - PHYS330 - Introduction to Modern Physics (3)
 - PHYS366 - Mathematical Methods of Physics (4)
 - PHYS405 - Electricity and Magnetism I (3)
 - PHYS406 - Electricity and Magnetism II (3)
 - PHYS491 - Intermediate Quantum Mechanics I (3)
 - PHYS492 - Intermediate Quantum Mechanics II (3)
 - PHYS493L - Contemporary Physics Laboratory (3)
 - Earned at least 3 credits from PHYS 300 - 499
 - Complete the following:
 - CHEM1215 - General Chemistry I for STEM Majors (3)
 - CHEM1215L - General Chemistry I for STEM Majors Laboratory (1)
 - CHEM1225L - General Chemistry II for STEM Majors Laboratory (1)
 - CHEM1225 - General Chemistry II for STEM Majors (3)
 - MATH314 - Linear Algebra with Applications (3)
 - MATH316 - Applied Ordinary Differential Equations (3)
 - PHYS 451, *452, and 456 cannot be substituted for the 3-credit hour elective course numbered above 300.
 - No minor is required for the B.S. in Physics, although an optional minor or second major may be selected.
 - Earn at least 63 credits from the following types of courses:

Completed at least 63 credits from the following types of courses: In addition to the program-specific requirements outlined here, all undergraduate students are required to fulfill UNM's General Education Program requirements. In some instances, courses included in an undergraduate degree program's requirement may also fulfill a General Education requirement. Please review the General Education Program in this Catalog for General Education information. Students within the College of Arts and Sciences must also complete 1) a major and a minor; or 2) two majors; or 3) one of the special curricula of the College that requires no minor.

Grand Total Credits: 120

Concentration Information

Concentration Title

Applied Physics

Program Level

Undergraduate

Concentration Requirements

- Complete all of the following
 - Complete the following:
 - Complete at least 1 of the following:
 - PHYS302L - Optics Lab (3)
 - PHYS307L - Junior Laboratory (3)
 - Complete the following:
 - Earn at least 18 credits from the following types of courses:
12 credit hours chosen from STEM field classes at Any Level (excluding problems and research courses).
CHEM 1225 + 1225L or introductory computer programming recommended depending on background and end-goals. 6 credit hours chosen from Upper Division STEM courses (3 credit hours of these may be from a problems or research course). All electives should be approved in consultation with the Physics and Astronomy faculty advisor.

Grand Total Credits: 21

Concentration Description

The B.S. Physics with Applied Physics concentration is designed to be tailored to a student's interests, be they focused on entering the scientific/engineering workforce following their B.S. or going on to graduate study. This concentration is very flexible in the electives, allowing for student-focused career preparation.