Nanoscale Science and Technology - Minor

College of Sciences

Department of Physics,

Physical Sciences Building, Room: 403

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This minor is designed to offer students a working knowledge of nanoscience principles and industrial applications, and to understand the societal and technology issues that may impede the adoption of nanotechnology. In addition, students are expected to develop the ability to communicate effectively, work collaboratively, and identify paths and requisite knowledge and skills for nanotechnology careers. With the service learning component built into the three core courses, students completing the minor will only need a fourth SL-designated course of their choice to receive a UCF Service-Learning certificate.

Admission Requirements

- None

Minor Requirements

- A minimum GPA of 2.0 is required in all courses used to satisfy the minor.
- Grades below "C" (2.0) in lower level courses are not accepted.
- At least 12 hours used in the minor must be earned at UCF within the Department of Physics.

Prerequisite Courses

- Students must satisfy each course’s prerequisites before enrolling in the class. In addition, the students must have completed the following courses, which are taken by most science majors:

  Select 1:
  - PHY 2048C  Physics for Engineers & Scientists I or 4 hrs
  - PHY 2053C  College Physics I or 4 hrs

  Select 1:
  - PHY 2049C  Physics for Engineers and Scientists II or 4 hrs
  - PHY 2054C  College Physics II or 4 hrs
  - CHM 2045C  Chemistry Fundamentals I or 4 hrs
  - CHM 2046  Chemistry Fundamentals II or 4 hrs
  - COP 3223C  Introduction to Programming with C or 3 hrs

Required Courses (9 hrs)

- The three required courses include a 20-hour service learning component.

  PHZ 3462  Nanoscience I: The Science and Societal Impacts or 3 hrs
  PHZ 3464  Nanoscience II: Technological Applications or 3 hrs
  PHZ 3466  Nanoscience III: A Virtual Laboratory or 3 hrs

Restricted Electives (9 hrs)

- Select three courses from the following list. One course must be chosen from the listed from the Physics department. Other electives should be taken with approval of the program director.

  - PHY 3002L  Intermediate Physics Laboratory or 3 hrs
  - PHY 3101  Physics for Engineers and Scientists III or 3 hrs
  - PHZ 3151  Computer Methods in Physics or 3 hrs
  - BSC 3424  Nanobiotechnology or 3 hrs
  - OSE 3490  Nanophotonics or 3 hrs
  - PHY 5933  Selected topics in biophysics of macromolecules or 3 hrs
  - PHI 3626  Advanced Ethics in Science and Technology or 3 hrs
  - PHI 4690  Ethics in Nanoscience and Nanotechnology or 3 hrs
  - PHZ 5425C  Electron Solid Interactions or 3 hrs

Foreign Language Requirements

- None

Total Semester Hours Required

- 18