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 General Physics Using Calculus I or 4 hrs
  - PHY 2053C College Physics I 4 hrs

  **Select 1:**
  - PHY 2049C General Physics Using Calculus II or 4 hrs
  - PHY 2054C College Physics II 4 hrs

  **Select 1:**
  - CHM 2045C Chemistry Fundamentals I or 4 hrs
  - CHS 1440 Principles of Chemistry 4 hrs

Suggested Courses
- EGN 3211 Engineering Analysis and Computation 3 hrs
- COP 3223C Introduction to Programming with C 3 hrs

Required Courses (9hrs)
- The three required courses include a 20-hour service learning component.
  - PHZ 3462 Nanoscience I: The Science and Societal Impacts 3 hrs
  - PHZ 3464 Nanoscience II: Technological Applications 3 hrs
  - PHZ 3466 Nanoscience III: A Virtual Laboratory 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 3802L Intermediate Physics Laboratory 3 hrs
  - PHY 3101 General Physics Using Calculus III 3 hrs
  - PHZ 3151 Computer Methods in Physics 3 hrs
  - BSC 3424 Nanobiotechnology 3 hrs
  - OSE 3490 Nanophotonics 3 hrs
  - PHY 5933 Selected topics in biophysics of macromolecules 3 hrs
  - PHY 4604 Wave Mechanics I 3 hrs
  - PHY 4605 Wave Mechanics II 3 hrs
  - CHM 3410 Physical Chemistry I 4 hrs
  - CHM 5450 Polymer Chemistry 3 hrs
  - CHM 4610 Inorganic Chemistry 3 hrs

Foreign Language Requirements
- None

Total Semester Hours Required
- 18

Other Requirements
- No credit by exam (TSD, Military credit) may be used.
- Internship, Co-op, or Independent Study credit cannot be used toward the minor.
- Note: To obtain a Service-Learning certificate, four UCF-approved service-learning courses must be completed. Service-Learning courses are designated with an “SL” and can be accessed under “special groups” in the class schedule.