PHYSICS (PHY/PHS)

The Department of Physics offers undergraduate programs leading to a Bachelor of Arts (B.A.) or a Bachelor of Science (B.S.) degree. The B.A. program is designed for students interested in a more general education in physics. The curriculum allows enough flexibility in electives to enable students to combine a physics major with another major in such areas as mathematics, biology, chemistry, computer science, engineering, business, and teacher education. The B.S. program is for students planning to pursue graduate studies in physics, applied science or engineering. For those students who desire additional capabilities in physics beyond the General Physics sequence, they may pursue a Minor in Physics.

At the graduate level, the Department of Physics offers three Master's degree programs (Master of Science in Physics, Master of Science in Applied Physics and Dual-Master Degrees in Physics and Engineering Science) and a Ph.D. degree program in Applied Physics.

Requirements for the Majors in Physics

Prerequisites (State Mandated Common Prerequisites)

Students wishing to transfer to USF should complete the A.A. degree at the community college. Some courses required for the major may also meet General Education Requirements thereby transferring minimum hours to the university. If students transfer without an A.A. degree and have fewer than 60 semester hours of acceptable credit, the students must meet the university's entering freshman requirements including ACT or SAT test scores, GPA, and course requirements.

The transfer student should also be aware of the immunization, foreign language, and continuous enrollment policies of the university.

Students should complete the following prerequisite courses listed below at the lower level prior to entering the university. If these courses are not taken at the community college, they must be completed before the degree is granted. Unless stated otherwise, a grade of "C-" is the minimum acceptable grade.

- CHM 1045/1045L General Chemistry I (with lab)
- CHM 1040 & CHM 1041 or CHM 1045C or CHM 1045E
- CHM 1046/1046L General Chemistry II (with lab) or CHM 1046C or CHM 1046E

Students must complete the prerequisite courses listed below prior to enrolling in upper-division courses as a major. Unless stated otherwise, a grade of "C-" is the minimum acceptable grade.

- MAC 2311 Calculus I or MAC X281
- MAC 2312 Calculus II or MAC X282
- MAC 2313 Calculus III or MAC X283
- PHY 2048 General Physics I or PHY 2048C
- PHY 2049/2049L General Physics I or PHY 2049C

Coursework for Majors in Physics

1. Physics Courses

B.A. PHYSICS (PHY) (34 cr. hrs.)

- PHY 2048 General Physics I (3)
- PHY 2048L General Physics I Lab (1)
- PHY 2049 General Physics II (3)
- PHY 2049L General Physics II Lab (1)
- PHY 3101 Modern Physics (3)
- PHY 3221 Mechanics I (3)
- PHY 3822L Intermediate Lab (2)
- PHY 3323C Electricity and Magnetism I (4)
- PHY 4222 Mechanics II (3)
- PHY 4930 Undergraduate Seminar (1)
- PHY 4324C Electricity and Magnetism II (4)
- PHY 4910 Undergraduate Research (1-4)
- PHY 4823L Advanced Laboratory (2)
- PHZ 4604 Intro. to Quantum Mechanics (3)

B.S. PHYSICS (44 cr. hrs.)

- PHY 2048 General Physics I (3)
- PHY 2048L General Physics I Lab (1)
- PHY 2049 General Physics II (3)
- PHY 2049L General Physics II Lab (1)
- PHY 3101 Modern Physics (3)
- PHY 3221 Mechanics I (3)
- PHY 3822L Intermediate Lab (2)
- PHY 3323C Electricity and Magnetism I (4)
- PHY 4222 Mechanics II (3)
- PHY 4930 Undergraduate Seminar (1)
- PHY 4324C Electricity and Magnetism II (4)
- PHY 4604 Intro. Quantum Mechanics (3)
- PHY 4910 Undergraduate Research (1-4)
- PHY 4823L Advanced Laboratory (2)
- PHZ 5405 Statistical Physics (3)

For information concerning the degree programs for secondary school teachers, see Teacher Education Programs this college; for junior college teachers, see USF Graduate Catalog.

2. Required Supporting Courses in Natural Sciences

- CHM 2045 General Chemistry I (3)
- CHM 2045L General Chemistry I Lab (1)
- CHM 2046 General Chemistry II (3)
- CHM 2046L General Chemistry II Lab (1)
- MAC 2311 or 2281 Calculus I (4)
- MAC 2312 or 2282 Calculus II (4)
- MAC 2313 or 2283 Calculus III (4)
- MAP 2302 Differential Equations (3)

3. Liberal Arts Requirements

[General Education Requirements (36 cr. hrs.); Exit Requirements (9 cr. hrs.).]

The student is required to complete the university's Liberal Arts Requirements.

4. Free Electives

Courses over and above required courses should be taken to complete a 120-hour program.

5. Residency Requirement

A minimum of 20 credit hours of physics courses (see 1 above) in residency.

6. D and F grades earned in attempting to satisfy major requirements will be used in calculating the major GPA.

Requirements for the Minor in Physics

A minor in Physics consists of 19 credit hours which includes:

- Required Courses
  - PHY 2048 or 2053 General Physics I (3)
  - PHY 2048L or 2053L General Physics I Lab (1)
  - PHY 2049 or 2054 General Physics II (3)
  - PHY 2049L or 2054L General Physics II Lab (1)
  - PHY 3101 Modern Physics (3)
  - PHY 3822L Intermediate Lab (2)

- Elective Courses (Pick two from list below) (6 cr. hrs.)
  - PHY 3221 Mechanics I (3)
  - PHY 3323C Electricity and Magnetism I (4)
  - PHY 3424 Optics (4)
  - PHY 3460 Intro. Quantum Mechanics (4)
  - PHZ 5115 Methods of Theoretical Physics I (3)
  - PHZ 5405 Solid States Physics (3)

Teacher Education Programs

For information concerning the degree programs for secondary school teachers, see Teacher Education Programs this college; for junior college teachers, see USF Graduate Catalog.