Physics (B.S.)
College of Sciences
Department of Physics, Physical Sciences, Room: 430
http://www.physics.ucf.edu

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Physics majors can select from five distinct specializations to earn their physics degree, as described below in Section 4. Core Requirements, Advanced. While the various specializations share a common core of courses, they also enable students to prepare specifically for certain career paths. Students should consult their faculty advisors when deciding among these tracks.

Admission Requirements
- None

Degree Requirements
- Students who change degree programs and select this major must adopt the most current catalog.
- Grades below "C" (2.0) in any required physics or mathematics courses are not acceptable; they must be repeated with a higher grade.
- Departmental Residency Requirement consists of at least 15 semester hours of regularly scheduled 3000–4000 level courses taken from the UCF Department of Physics.
- Physics majors are discouraged from taking courses as a transient student at a Florida College System institution, except in situations where one semester of a two semester sequence has already been taken at the Florida College System institution.
- All prerequisites of courses taught within the College of Sciences will be enforced.
- Courses designated in 2 (Common Program Prerequisites) are usually completed in the first 60 hours.
- AA transfer students are expected to have completed the following courses before enrolling as a Physics major.

These classes are prerequisites for advanced science classes and students entering without these classes will be unable to register for most of the advanced courses.

1. UCF General Education Program (GEP) (38 hrs)
- Required of all specializations.
- In addition to those courses specified in the Common Program Prerequisites, students also must complete the following.

Core: Required, satisfies the CPP
- CHM 2045C Chemistry Fundamentals I 4 hrs
- or CHM 2040 Chemistry Fundamentals IA and 3 hrs
- or CHM 2041 Chemistry Fundamentals IB 3 hrs

Core: Additional requirements
- MAP 2302 Ordinary Differential Equations I 3 hrs
- PHY 3101 Physics for Engineers and Scientists III 3 hrs
- PHZ 3113 Introduction to Theoretical Methods of Physics 3 hrs
- PHY 3320 Mechanics I 3 hrs
- PHY 3313 Thermal and Statistical Physics 3 hrs
- PHY 3323 Electricity and Magnetism I 3 hrs
- PHY 4324 Electricity and Magnetism II 3 hrs
- PHY 4604 Wave Mechanics I 3 hrs
- PHY 4605 Wave Mechanics II 3 hrs
- PHY 4912 Directed Independent Research (in area of specialization) 3 hrs

And either
- PHY 3752C Physics of Scientific Instruments or 3 hrs
- PHY 3722C Physics Laboratory-Electronics 3 hrs

4. Core Requirements: Advanced Level
- Select one specialization

4.1. General Physics Specialization 18 hrs
- PHY 4803L Advanced Physics Laboratory 3 hrs

- Restricted Electives: 6 hrs
Select from upper division PHY, PHZ, or AST courses 6 hrs

- Directed Electives: 9 hrs
Select courses at a 3000 level or higher, approved by the Physics Department. Courses must be chosen in Physics, Mathematics, Chemistry, Computer Science, or Engineering.

4.2. Materials Physics Specialization 18 hrs
- Select 1 3 hrs
- Select 3 9 hrs
- Select 3 9 hrs
- Directed Electives: 6 hrs
  Select courses at a 3000 level or higher, approved by the Physics Department. Courses must be chosen in Physics, Mathematics, Chemistry, Computer Science, or Engineering.

4.3. Optics and Lasers Specialization 18 hrs
  PHY 4424 Optics 3 hrs
  - Select 2 6 hrs
    EEL 4440 Optical Engineering or 3 hrs
    PHY 4445 Lasers or 3 hrs
    OSE 5203 Geometrical Optics and Imaging Systems or 3 hrs
    OSE 5312 Light Matter Interaction or 3 hrs
    OSE 5414 Fundamentals of Optoelectronic Devices 3 hrs
  - Directed Electives: 9 hrs
    Select courses at a 3000 level or higher, approved by the Physics Department. Courses must be chosen in Physics, Mathematics, Chemistry, Computer Science, or Engineering.

4.4. Computational Physics Specialization 19 hrs
  PHY 3151 Computer Methods in Physics 3 hrs
  COP 3502C Computer Science I 3 hrs
  COP 3503C Computer Science II 3 hrs
  COP 4500 Numerical Calculus 3 hrs
  - Directed Electives 6 hrs
    Select courses at a 3000 level or higher, approved by the Physics Department. Courses must be chosen in Physics, Mathematics, Chemistry, Computer Science, or Engineering.

4.5. Astronomy Specialization 18 hrs
  AST 2002 Astronomy 3 hrs
  - Select one 3 hrs
    AST 4700 Experimental Methods in Astronomy or 3 hrs
    AST 4702C Astronomical Data Analysis or 3 hrs
    AST 5765C Advanced Astronomical Data Analysis 3 hrs
  - and 6 hrs
    Select from upper division AST courses
  - Directed Electives: 6 hrs
    Select courses at a 3000 level or higher, approved by the Physics Department. Courses must be chosen in Physics, Mathematics, Chemistry, Computer Science, or Engineering.

5. Restricted Electives
  None

6. Capstone Requirements
  None

7. Foreign Language Requirements
  Admissions
  Two years high school, or one year college language (or equivalent proficiency exam) prior to graduation.
  Graduation
  None

8. Electives
  Select primarily from upper level courses after meeting with a departmental advisor. Courses may be outside the department.

9. Additional Requirements
  None

10. Required Minors
  None

11. Departmental Exit Requirements
  Students must have at least a 2.0 GPA in all courses counted toward the major.
  Students will be required to take a nationally normed test in Physics during their last semester.
  Students will have an exit interview in their last semester with a representative of the Physics Undergraduate Committee.

12. University Minimum Exit Requirements
  - A 2.0 UCF GPA
  - 60 semester hours earned after CLEP awarded
  - 48 semester hours of upper division credit completed
  - 30 of the last 39 hours of course work must be completed in residency at UCF.
  - A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted.
  - Complete the General Education Program, the Gordon Rule, and nine hours of Summer credit.

Total Semester Hours Required
- 120

Honors In Major
- None

Related Programs
- Mathematics - Engineering/Physics Track
- Mathematics - Applied Track
- Mathematics - Pure Track
- Electrical Engineering
- Mechanical Engineering

Certificates
- None

Related Minors
- Mathematics
- Physics
- Astronomy

Advising Notes
- None

Transfer Notes
- Lower division courses do not substitute for upper division courses.
- Courses transferred from private and out-of-state schools must be evaluated for equivalency credit. The student must provide all supporting information.

Acceptable Substitutes for Transfer Courses
- The following substitutions for common program prerequisites are acceptable if taken prior to transferring to UCF:
  - CHM 2045C: may use CHM 1040 plus CHM 1041 or CHM 2040C plus CHM 2041C

Plan of Study
- This is one of numerous possible plans of study.
- See program description for all requirements. Consult a departmental advisor for alternate, new or more appropriate selections.
- Prior to enrolling in Chemistry, take Chemistry Placement Test ~ http://knightsource.sdes.ucf.edu/placement
- Prior to enrolling in Math, take Math Placement Test ~ http://utc.sdes.ucf.edu/math/
- Although all classes are listed during the academic year, you may be required to complete 9 hours of them during the Summer. Consult with an advisor to determine if you are exempt.

Freshman Year - Fall 14 hrs
  MAC 2311C Calculus with Analytic Geometry I 4 hrs
  CHM 2045C Chemistry Fundamentals I 4 hrs
  GEP 3 hrs
  GEP 3 hrs

Freshman Year - Spring 15 hrs
  PHY 2048C Physics for Engineers & Scientists I 4 hrs
  MAC 2312 Calculus with Analytic Geometry II 4 hrs
  CHM 2046 Chemistry Fundamentals II 3 hrs
  CHM 2046L Chemistry Fundamentals Laboratory 1 hr
  Note: Lab may be taken later if seats are not available.
  GEP 3 hrs

Sophomore Year - Fall 17 hrs
  PHY 2049C Physics for Engineers and Scientists II 4 hrs
  MAC 2313 Calculus with Analytic Geometry III 4 hrs
  COP 3502C Computer Science I 3 hrs
  GEP 3 hrs
  GEP 3 hrs

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UCF Degree Programs

Sophomore Year - Spring 15 hrs

PHY 3101  Physics for Engineers and Scientists III  3 hrs
PHY 3113  Introduction to Theoretical Methods of Physics  3 hrs
MAP 2302  Ordinary Differential Equations I  3 hrs
GEP  3 hrs
GEP  3 hrs

Junior Year - Fall 15 hrs

PHY 3802L  Intermediate Physics Laboratory  3 hrs
PHY 3323  Electricity and Magnetism I  3 hrs
PHY 3513  Thermal and Statistical Physics  3 hrs
Core Course  3 hrs
Restricted Elective  3 hrs

Junior Year - Spring 15 hrs

PHY 3220  Mechanics I  3 hrs
PHY 4324  Electricity and Magnetism II  3 hrs
Restricted Elective  3 hrs
Restricted Elective  3 hrs
GEP  3 hrs

Senior Year - Fall 15 hrs

PHY 4604  Wave Mechanics I  3 hrs
PHY 4912  Independent Research  3 hrs
Restricted Elective  3 hrs
Restricted Elective  3 hrs
Free Elective  3 hrs

Senior Year - Spring 14 hrs

PHY 4605  Wave Mechanics II  3 hrs
Restricted Elective  3 hrs
GEP  3 hrs
Free Elective  2 hrs
Free Elective  3 hrs

Physics Test-Nationally normed

Program Academic Learning Compacts

- Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at: http://www.o eas.ucf.edu/academiclearningcompacts.html

Equipment Fees

- Part-Time Student: $12.40 per term
- Full-Time Student: $24.80 per term