

Bachelor of Science with Honors in Physics

The Honors program in Physics provides outstanding students with the opportunity to do original research with a faculty sponsor. To graduate with Honors, the student must carry out a research project, write up the project as an Honors Thesis, and present the research results in a departmental seminar.

Admission to the Program

To be admitted to the track, a student must:

- Be admitted to the BS Physics program with a lower division GPA of at least 3.5 in science and math courses and an overall GPA of at least 3.2.
- Have completed at least 12 hours of physics courses.
- Have arranged to be sponsored by a faculty researcher.
- Submit a letter to the Physics Department requesting permission to pursue the honors course of study.

Graduation Requirements

1. Completion of all requirements for the BS Physics degree with a minimum GPA of 3.5 in science and math courses and overall GPA of 3.2. 2. Completion of honors research project in collaboration with a faculty advisor. The results of the research project must be written in the form of an honors thesis which is written in American Physical Society-style publication format. The faculty advisor and curriculum committee must judge the thesis as suitable in style and content. 3. Submission of two completed and approved copies of the Honors Thesis must be presented to the Physics department office; one copy is to be kept in the department and the second copy is to be housed in the University library. 4. The results of the research project must be presented orally to an audience of peers and faculty members in a departmental seminar.

**Course Availability: This is when courses are typically offered and is subject to change:
F (Fall), S (Spring), SS (Summer) F = Fall, S = Spring, SS = Summer**

Common Prerequisites (34 credits)

Complete all of the following with a grade of “C” or better (16 credits)

| Course | Description | Pre-requisites | Term offered | Units |
|----------|------------------------|---|--------------|-------|
| MAC 2311 | Calculus I | Grade of “C” or higher in MAC 1147 or MAC 1140 + MAC 1114 (or placement score without prior coursework) | F, S, SS | 4 |
| MAC 2312 | Calculus II | MAC 2311 | F, S, SS | 4 |
| MAC 2313 | Multivariable Calculus | MAC 2312 | F, S, SS | 4 |
| MAP 2302 | Differential Equations | MAC 2312 | F, S, SS | 3 |
| PHY 1033 | Physics Pathways | N/A | F,S | 1 |

Complete all of the following with a grade of “C” or better (18 credits)

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|-----------|-------------------------|---|----------|---|
| CHM 1045 | General Chemistry I | “C” grade or higher in MAC 1105 or appropriate placement score (if no prior coursework in Math/Chem) Co-requisite: CHM 1045L | F, S, SS | 3 |
| CHM 1045L | General Chemistry I Lab | Co-requisite: CHM 1045 | F, S, SS | 1 |

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|-----------|--------------------------|---|----------|---|
| CHM 1046 | General Chemistry II | Pre-requisite: CHM 1045 Co-requisite: CHM 1046L | F, S, SS | 3 |
| CHM 1046L | General Chemistry II Lab | Co-requisite: CHM 1046 | F, S, SS | 1 |
| PHY2048 | Physics W/Calculus I | Pre- or Co-requisite: MAC2311 Co-requisite: PHY 2048L | F, S, SS | 4 |
| PHY2048L | General Physics Lab I | Co-requisite: PHY 2048 | F, S, SS | 1 |
| PHY2049 | Physics W/Calculus II | Pre- or Co-requisite: MAC2312 Pre-requisite: PHY 2048 Co-requisite: PHY 2049L | F, S, SS | 4 |
| PHY2049L | General Physics Lab II | Co-requisite: PHY 2049 | F, S, SS | 1 |

Required Courses (40 credits)

Complete all of the following with a grade of "C" or better (31 credits)

| Course | Description | Pre-requisites | Term offered | Units |
|-----------|----------------------------------|--|--------------|-------|
| PHY 3106 | Modern Physics I | PHY 2049 | F, S | 3 |
| PHY 3802L | Intermediate lab | Co-requisite PHY 3106 | F, S | 3 |
| PHY 3513 | Thermodynamics | PHY 2049, Pre or Co-requisite MAC 2313 | F, S | 3 |
| PHZ 3113 | Methods in Theoretical Physics | MAC 2313 | S | 3 |
| PHY 4604 | Quantum Mechanics I | PHY 3106, MAC 2313 and MAP 2302 | F | 3 |
| PHY 4605 | Quantum Mechanics II | PHY 4604 | S | 3 |
| PHY 4323 | Intermediate Electromagnetism I | PHY 2049, MAC 2313, Pre or co-requisite MAP 2302 | F | 3 |
| PHY 4324 | Intermediate Electromagnetism II | PHY 4323 | S | 3 |
| PHY 4221 | Classical Mechanics I | PHY 2049, MAC 2313 | F | 4 |
| PHY 4821L | Advanced Physics Lab | MAC 2313, PHY 3802L | F, S | 3 |

Complete three upper division Physics courses with a grade of "C" or better (9 credits)

May include but not limited to courses below

| Course | Description | Pre-requisites | Term offered | Units |
|----------|-------------------------|---------------------------------|--------------|-------|
| PHY 3107 | Modern Physics II | PHY 3106 | S | 3 |
| AST 3213 | Modern Astrophysics | PHY 2048, PHY 2049 | F | 3 |
| AST 3722 | Observational Astronomy | PHY 2049, AST 3722L Recommended | S | 3 |

Electives must be chosen in consultation with assigned academic advisor

Graduation Requirements:

- University Core Curriculum (UCC)
- Minimum of a 2.0 GPA
- 45 credits of Upper Division hours (3000-4000 level)
- 120 credit hours required for graduation
- Foreign Language requirement (FLENT/FLEX)
- Global Learning (GL) requirement
- Civic Literacy requirement

Students interested in Secondary Teacher Certification should contact the College of Arts, Sciences & Education Center for Advising & Student Success at (305) 348-2978