

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)

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
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	F, S, SS	4
PHY2048L	General Physics Lab I	N/A	F, S, SS	1
PHY2049	Physics W/Calculus II	Pre- or Co-requisite: MAC2312 Pre-requisite: PHY 2048	F, S, SS	4
PHY2049L	General Physics Lab II	Pre-requisite: PHY 2048L	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)
- 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.

Mathematics Progression Milestone Requirements

Students in the BS in Physics must meet the following mathematics progression milestone:

- Students are required to enroll in a mathematics course in both the Fall and Spring terms and in the Summer term as needed to remain on track with program milestones.
- Students admitted in the Fall or Summer terms must successfully complete MAC1105 with a grade of C or better by the end of their first Spring term and complete MAC1147 with a grade of C or better by the end of their second Fall term.
- Students admitted in the Spring term must successfully complete MAC1105 with a grade of C or better by the end of their first Fall term and complete MAC1147 with a grade of C or better by the end of their second Spring term.

- No more than two attempts in either course is permitted.

Students who do not meet this mathematics progression milestone will be redirected to a more appropriate academic program

Success Markers are guideposts that help students remain on track for graduation. The Physics Department has identified important courses in the major that indicate you are on track for successful degree completion.

- 15 credits - PHY 1033 (1), PHY 2048 (4), PHY 2048L (1), MAC 2311 (3)
- 30 credits - PHY 2049 (4), PHY 2049L (1), MAC 2312 (4),
- 45 credits - PHY 3106 (3), PHY 3802L (3), PHY 3513 (3), MAP 2302 (3), MAC 2313 (4)
- 60 credits - CHM 1045 (3), CHM 1045L (1), PHZ 3113 (3)
- 75 credits - CHM 1046 (3), CHM 1046L (1), PHY 4323 (3), PHY 4604 (3), PHY 4221 (3)
- 90 credits - PHY 4324 (3), PHY 4605 (3)
- 105 credits - PHY 4821L (3)

In cases where students are not making good progress, a change of major may be required.