

Physics (BS) - Graduate School Prep

Degree Requirements

General Education Requirements (50-53 Hours)

Area I - Written Composition (2 Courses, 6 Hours)

- A. 3 hours: EH 101
- B. 3 hours: EH 102

Area II - Humanities & Fine Arts (5 Courses, 15 Hours)

No more than six hours from any one discipline.

- A. 3 hours: CA 110
- B. 3 hours from: EH 215, EH 216, EH 225, EH 226, EH 235, EH 236
- C. 3 hours from: ARH 100, ARH 103, ARH 123, ARS 101, DRA 110, MUL 101
- D. 6 hours from: AFR 101, ARH 100, ARH 103, ARH 123, ARH 203, ARS 101, CLA 110, DRA 110, EH 215, EH 216, EH 225, EH 226, EH 235, EH 236, JHS 101, JOU 252, LG 101, LG 102, LG 111, LG 112, LG 121, LG 122, LG 131, LG 132, LG 141, LG 142, LG 151, LG 152, LG 153, LG 171, LG 172, LG 173, LG 201, LG 202, LG 211, LG 212, LG 213, LG 221, LG 222, LG 231, LG 232, LG 234, LG 241, LG 242, LG 251, LG 252, LG 271, LG 272, LG 273, LGS 101, LGS 102, LGS 106, LGS 107, LGS 110, LGS 111, LGS 171, LGS 172, LGS 201, LGS 202, LGS 206, LGS 207, LGS 210, LGS 211, LGS 271, LGS 272, MUL 101, PHL 110, PHL 120, PHL 121, PHL 131, PHL 220, PHL 231, PHL 240, REL 100, REL 200, REL 201

Area III – Natural Sciences & Mathematics (3 Courses & Labs, 11-14 Hours)

- A. 3-4 hours from: MA 110, MA 112, MA 113, MA 115, MA 120, MA 125, MA 126, MA 227, MA 237, MA 238
- B. 8-10 hours from: AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L. Note: BLY 121 and BLY 122 are restricted to Arts and Sciences science majors, Allied Health science majors, Engineering majors, and Computer Science majors. Students cannot receive credit for both BLY 101 and BLY 121 or for both BLY 122 and BLY 102.

Area IV – History, Social & Behavioral Sciences (4 Courses, 12 Hours)

No more than six hours from one discipline.

- A. 3 hours from: HY 101, HY 102, HY 121, HY 122, HY 135, HY 136
- B. 9 hours from: AN 100, AN 101, CA 100, CA 211, CJ 105, ECO 215, ECO 216, GEO 114, GEO 115, GS 101, HY 101, HY 102, HY 121, HY 122, HY 135, HY 136, IS 100, IST 201, NAS 101, PSC 130, PSY 120, PSY 250, SY 109, SY 112

Area V (3 Courses, 9-10 Hours)

- A. Foreign Language. 6 hours from any one group:

LG 101 & LG 102, LGS 106 & LGS 107, LGS 110 & LGS 111, LG 111 & LG 112 or proficiency test or LG 113, LG 121 & LG 122, LG 131 & LG 132 or proficiency test or LG 134, LG 141 & LG 142, LG 151 & LG 152 or proficiency test or LG 153, LG 171 & LG 172 or LG 173, LGS 171 & LGS 172

Students may fulfill the foreign language requirement by passing a proficiency test offered by the Department of Modern Languages and Literature at the level equivalent to the second semester of the foreign language sequence, or by passing another test (e.g., AP (Advanced Placement) or CLEP (College Level Examination Program) at the equivalent level). Students who pass a proficiency test at the level equivalent to first semester of the foreign language sequence are required to complete only the second semester and will fulfill the foreign language requirement with 3 credit hours of course work.

B. Natural Sciences/Math. 3-4 hour lab science or math/stat course from:

AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L, ST 210, MA 113- MA 299 (except 201 and 202).

<https://www.southalabama.edu/departments/registrar/areav/>

Students must complete a 6 credit hour sequence either in literature (Area II – EH 215 & EH 216, EH 225 & EH 226, or EH 235 & EH 236) or history (Area IV – HY 101 & HY 102 or HY 135 & HY 136 or HY 121 & HY 122).

Major Requirements (46 Hours)

Physics (BS) - Grad School Prep Core (15 Courses, 46 Hours)

- A. 40 hours 13 courses): PH 107, PH 201, PH 202, PH 303, PH 348, PH 349, PH 366, PH 367, PH 385 (W), PH 411, PH 448, PH 449, PH 463
- B. 6 hours (2 courses) Physics electives from: PH 301, PH 311, PH 346, PH 354, PH 390, PH 494, PH 499
- C. 11 hours from (3 additional technical courses are required): CH 131, CH 132, CIS 210 or CIS 227
- D. 15 hours (4 mathematics courses) are prerequisites to upper division Physics courses: MA 125, MA 126, MA 227, MA 238

Minor Requirements (0 Hours)

A minor is not required for this degree program

Notes:

* Recommended Course

With the exception of PH 303 and PH 448, which are offered every year, all upper division Physics courses are offered every other year.

All Physics majors will be required to take an assessment exit exam, at no cost to the student, and an exit interview before graduation as directed by the department.

General Comments

- PH 114 and PH 115 with either PH 201 or PH 202 may be substituted for PH 201 and PH 202 with the prior approval of the physics department chair.
- The sequences PH 114/PH 115 and PH 201/PH 202 may not both be taken for credit.

Additional Information

Graduation Plan

Physics (BS): Grad School Prep (120 Total Hours)

First Year - Fall Semester

Course ID	Course Description	Hours
CAS 100	First Year Experience	2

PH 107	Contemporary Topics in Physics	1
CH 131/CH 131L	General Chemistry I with Lab	4
MA 125	Calculus I	4
EH 101	English Composition I	3
Total Hours		14

First Year - Spring Semester

Course ID	Course Description	Hours
EH 102	English Composition II	3
PH 201/PH 201L	Calculus-based Physics I	4
CH 132/CH 132L	General Chemistry II with Lab	4
MA 126	Calculus II	4
Total Hours		15

Second Year - Fall Semester

Course ID	Course Description	Hours
History	**Area IV, A	3
MA 227	Calculus III	4
PH 202/PH 202L	Calculus-based Physics II	4
CIS 210 or CIS 227	Introduction to C++ Programming or Numerical Computation I	3
Total Hours		14

Second Year - Spring Semester

Course ID	Course Description	Hours
English Literature	**Area II, B	3
Fine Arts	**Area II, C or D	3
CA 110	Public Speaking	3
PH 303/PH 303L	Modern Physics with Lab	4
MA 238	Differential Equations I	3
Total Hours		16

Third Year - Fall Semester

Course ID	Course Description	Hours
Social/Behavioral	**Area IV	3

Humanities/Fine Art	**Area II	3
PH 366	Physical Mechanics I	3
PH 385 (W)	Experimental Physics with Lab	3
Physics Elective	PH 301, PH 311, PH 346, PH 354, PH 390, PH 494, or PH 499	3
Total Hours		15

Third Year - Spring Semester

Course ID	Course Description	Hours
Humanities/Fine Arts	**Area II	3
Social/Behavioral	**Area IV	3
PH 367	Physical Mechanics II	3
PH 411	Computational Methods in Physics	3
Elective		4
Total Hours		16

Fourth Year - Fall Semester

Course ID	Course Description	Hours
Foreign Language	**Area V, A	3
HY/Social/Behavioral	**Area IV	3
PH 348	Electricity and Magnetism I	3
PH 448	Elementary Quantum Mechanics I	3
Physics Elective	PH 301, PH 311, PH 346, PH 354, PH 390, PH 494, or PH 499	3
Total Hours		15

Fourth Year - Spring Semester

Course ID	Course Description	Hours
Foreign Language	**Area V, A	3
Elective		3
PH 349	Electricity and Magnetism II	3
PH 499	Elementary Quantum Mechanics II	3
PH 463	Thermodynamics and Statistical Mechanics	3
Total Hours		15

Notes

*Recommended Course

**See Degree Requirements

Department Information

Department of Physics website
<https://www.southalabama.edu/physics/>

The curriculum in the Department of Physics serves three groups of students: those preparing for careers in physics, those pursuing professional fields such as medicine and engineering, and those electing physics and astronomy as part of the natural science requirement for Bachelor of Arts or Bachelor of Science Degrees. The degree program in physics allows for flexibility to the extent that the serious student can select related courses in biology, chemistry, geology, computer science, and engineering to prepare for a career in such interdisciplinary areas as biophysics, geophysics, oceanography, and environmental science. Three options for a Bachelor of Science degree in Physics are offered. One option (the Premedical Option) is for those students pursuing medicine as a career. Links to sample programs and requirements for each option are given in the degree General Comments sections of each Area of Study. Students pursuing a degree in Physics also must have a minor in another discipline. In addition, the Department of Physics offers a double major with the Meteorology program within the Department of Earth Sciences.

All first-time freshmen must successfully complete CAS 100: First Year Experience, as a degree requirement. Students must enroll during their first term at USA, except for summer-entry students who must enroll in the fall semester following entry.

The Physics Pre-Medical Option requires a minimum of 129 hours, while the other Physics options require a minimum of 120 hours.