

Physics (Bachelor of Science)

About the Program

The physics BS program is designed to give students a sound foundation in the principles of physics necessary to enter into physics graduate school. The program includes lecture courses in all major fields of physics (including current research areas) as well as experience in modern laboratory and computer techniques. Students also have opportunities to participate in research projects.

Physics PhD granting institutions like Cincinnati can offer the best preparation for graduate work in physics because of the high level of physics already available in coursework and because of the access to cutting edge research opportunities.

Required courses of all students seeking the B.S. in Physics (46 credits):

| | Credits |
|--|---------|
| ¹ College Physics for Physics Majors I, II (PHYS 2005, 2006) (BoK NS) | 8 |
| ¹ College Physics for Physics Majors Lab I, II (PHYS 2005L, 2006L) | 2 |
| Intermediate Physics I, II (PHYS 3001C, 3002C) | 10 |
| Mechanics (PHYS 3010) | 4 |
| Electricity & Magnetism I, II (PHYS 3020, 3021) | 6 |
| Thermal Physics (PHYS 3030) | 4 |
| Advanced Laboratory (PHYS 5011) | 3 |
| Physics Capstone Project (PHYS 4099) | 3 |
| Intro to Quantum Mechanics I (PHYS 6010) | 3 |
| Physics Elective in 3000-or-higher-level course in physics, or by approval outside of physics. | 3 |

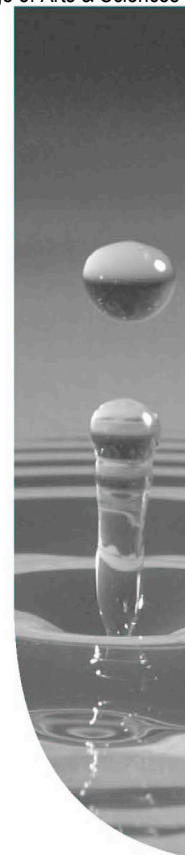
Math Requirements (15 credits):

| | |
|---|---|
| Calculus I, II (MATH 1061, 1062) (BoK QR) | 8 |
| Multivariable Calculus (MATH 2063) | 4 |
| Differential Equations (MATH 2073) | 3 |

Recommended Electives for students applying to physics graduate school:

Advanced Topics in Astronomy (3041), Intro to Quantum Mechanics II (PHYS 6011)
 Linear Algebra (MATH 2076), General Chemistry & Lab I, II (CHEM 1040, 1041, 1040L, 1041L), Physical Chemistry I, II (CHEM 3020, 3021)

¹College Physics (Calculus-based) for non-majors (PHYS 2001, 2002 and lab PHYS 2001L, 2002L) may be substituted with special permission from the Director of Undergraduate Programs in Physics.



Suggested Four Year Schedule for the Physics BS

The model schedule below is a guide for planning only. Transfer, part-time, or other students who depart from a four-year program, cannot follow it precisely. Majors should see a departmental adviser early to discuss departmental requirements and plan their schedules. BoK* courses can be taken in any order or at any time.

First Year

| | | |
|-----|---|-----------|
| ‡ * | College Physics for Physics Majors I, II (2005, 2006) | 8 |
| ‡ * | College Physics for Physics Majors Lab I, II (2005L, 2006L) | 2 |
| ‡ * | Calculus I, II (MATH 1061, 1062) | 8 |
| * | History | 6 |
| * | Humanities/Literature or Fine Arts | 3 |
| * | English Composition (ENGL phys1001) | <u>3</u> |
| | Total | 30 cr hrs |

Second Year

| | | |
|---|--------------------------------------|-----------|
| | Intermediate Physics (3001C, 3002C) | 10 |
| | Multivariable Calculus (MATH 2063) | 4 |
| | Differential Equations (MATH 2073) | 3 |
| * | Foreign Language | 10 |
| * | Intermediate Composition (ENGL 2089) | <u>3</u> |
| | Total | 30 cr hrs |

Third Year

| | | |
|---|--|-----------|
| | Mechanics (3010) | 4 |
| | Electricity & Magnetism I, II (3020, 3021) | 6 |
| | Thermal Physics (3030) | 4 |
| * | Social Sciences | 6 |
| | Free Electives | <u>10</u> |
| | Total | 30 cr hrs |

Fourth Year

| | | |
|---|--|-----------|
| | Intro Quantum Mechanics I (6010) | 3 |
| | Advanced Lab (5011) | 3 |
| | Physics Capstone Project (4099) | 3 |
| | Recommended Physics Elective: Intro QM II (6011) | 3 |
| * | Humanities/Literature or Fine Arts | 3 |
| | Free Electives | <u>15</u> |
| | Total | 30 cr hrs |

* Fulfills BoK College Requirements as outlined in the A&S Checklist. Approved course lists are available at the A&S Office of Student Affairs and Advising, (2nd Floor French Hall) or on the A&S website (www.artsci.uc.edu).

‡ Satisfy BoK NS and QR requirements and are required for field of concentration.

Additional credits of free electives may need to be taken to fulfill the college requirements of 120 total credits. For further information, please consult the Department of Physics, 400 Geology-Physics Building, 513-556-0501, physics.dept@uc.edu or visit the website at <http://www.physics.uc.edu/>.

