

Physics (B.S., Astrophysics Concentration)

About the Program

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

Nearly 20% of the students beginning graduate work in U.S. physics programs each year will choose to do their thesis work in astrophysics, making it among the largest sub-disciplines in physics. PhD granting institutions like Cincinnati can offer the best preparation for graduate work in astrophysics because of the high level of physics and astrophysics already available in coursework and because of the access to cutting edge research opportunities.

Required physics courses of all astrophysics B.S. majors (46 Credits):

	<u>Credits</u>
¹ College Physics for Physics Majors I, II (PHYS 2005, 2006)	8
¹ College Physics for Physics Majors Lab I, II (PHYS 2005L, 2006L)	2
Intermediate Physics I, II (PHYS 3001C, 3002C)	10
Advanced Topics in Astronomy (PHYS 3041)	3
Mechanics (PHYS 3010)	4
Electricity & Magnetism I, II (PHYS 3020, 3021)	6
Thermal Physics (PHYS 3030)	4
Intro to Astrophysics I (PHYS 4025)	3
Advanced Laboratory (PHYS 5011)	3
Physics Capstone (PHYS 4099)	3

Math Requirements (15 credits):

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

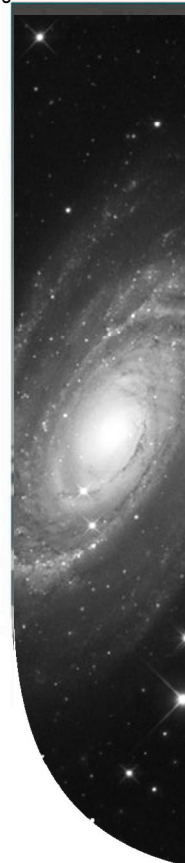
Additional Astronomy Requirements (6 credits):

Astronomy (PHYS 1020,1021) (BoK NS)	6
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Recommended Electives for students applying to graduate school:

- Intro to Astrophysics II (PHYS 4026), Linear Algebra (MATH 2076)
- Intro to Quantum Mechanics I, II (PHYS 6010, 6011)
- 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 Astrophysics 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 on to discuss departmental requirements and plan their schedules. BoK* courses can be taken in any order and 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 (1061, 1062)	8
‡ * Astronomy (1020, 1021)	6
* Humanities/Literature or Fine Arts	3
* English Composition (ENGL1001)	<u>3</u>
Total	30 cr hrs

Second Year

Intermediate Physics I, II (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
Advanced Topics in Astronomy (3041)	3
* Behavioral & Social Sciences	6
* History	6
* Humanities/Literature or Fine Arts	3
Electives	<u>2</u>
Total	30 cr hrs

Fourth Year

Thermal Physics (3030)	4
Intro Astrophysics I (4025)	3
Advanced Lab (5011)	3
Physics Capstone (4099)	3
Elective: Intro Astrophysics II (4026)	3
Electives	<u>14</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 contact us, the Department of Physics, 400 Geology Physics Building, 513-556-0501, physics.dept@uc.edu, our website <http://www.physics.uc.edu/>

