

Year	FALL	WINTER	SPRING
1	<p>(5) PHYS 161 Physics w/Calculus I w/lab (M124 or M134 or M138 or concurrent)</p> <p>(5) MATH 124 Calculus I</p>	<p>(5) PHYS 162 Physics w/Calculus II w/lab (P161, M124 or M134 and M125 or M135 or concurrent, or M138)</p> <p>(5) MATH 125 Calculus II</p> <p>(4) CSCI 141 Programming I w/lab or CSCI 140 Programming in C++ w/lab; can also be taken Spring → or Fall of year 2 (but no later)</p>	<p>(5) PHYS 163 Physics w/Calculus III w/lab (P162, M124 and M125, or M134 and M135 or M138)</p> <p>(5) MATH 224 Multivariable Calculus and Geometry I</p> <p>(1) PHYS 190 Explore Physics/Astronomy <i>(optional, meets 1 hour/week, S/U grading)</i></p>
2	<p>(4) PHYS 220 Physics w/Calculus IV w/lab (P163, M124 and M125, or M134 and M135, or M138)</p> <p>(4) MATH 204 Elementary Lin Algebra (M125 or M135, M224 recommended)</p> <p>(3) ASTR 315 Solar System <i>(P114-116 or P161-163)</i> <i>can also be taken in Fall of year 3</i></p>	<p>(3) PHYS 224 Modern Physics I (P163, P220, M204)</p> <p>(3) PHYS 326 Tools & Data Analysis (P163, M224, M204, CS140 or 141)</p> <p>(4) MATH 331 Ordinary Differential Equations (M204, M224 recommended or concurrent)</p> <p>(3) **ASTR 316 Stars and Galaxies (A315, P114-115 or P161-163) <i>can also be taken Winter of year 3</i></p>	<p>(3) PHYS 225 Modern Physics II (P224, M331)</p> <p>(4) PHYS 322 Fundamentals of Electronics w/lab (P163, P326, CS140 or 141)</p> <p>(4) MATH 304 Linear Algebra (M204, M224)</p> <p>(3) **ASTR 320 Cosmology (A316) <i>Can also be taken Spring of year 3</i></p>
3	<p>(4) PHYS 363 Classical Mechanics (P163, P326, P225 or GEOL 352, M304 and M331, Phase II Majors)</p> <p>(4) PHYS 365 Mathematical Physics (P363 or concurrent, M224, M304 and M331)</p> <p>(3) **PHYS 444 Special Topics - Relativity (P225)</p>	<p>(3) PHYS 368 Electromagnetism I (P163, P365, M224, M304 and M331)</p> <p>(3) PHYS 475 Solids & Materials I (P225)</p> <p>(3) PHYS 391 Junior Lab or in Spring ----→ (P225, P322, P326)</p>	<p>(3) PHYS 339 Optics (P163, P368)</p> <p>(3) PHYS 369 Electromagnetism II (P368, M331)</p> <p>(3) PHYS 391 Junior Lab ←---- or in Winter (P225, P322, P326)</p> <p>(3) **PHYS 476 Solids and Materials II (P475)</p>
4	<p>(4) PHYS 335 Statistical & Thermal Physics (P220, P225, M224, Phase II Majors)</p> <p>(3) PHYS 455 Quantum Mechanics I (P225, P363, P369, M304 and M331)</p>	<p>(3) PHYS 419 Professional Writing for Physicists (WP3) (P391, PHYS 455, or GEOL 352)</p> <p>(3) PHYS 456 Quantum Mechanics II (P455)</p>	<p>(3) PHYS 486 Computational Physics (P326, P363, P369, CSCI140 or 141)</p> <p>(3) **PHYS 444 Special Topics (P363, P368)</p>

Students may **postpone PHYS 161 until winter quarter** in order to complete the pre-requisite for Calculus I (MATH 124) before starting the physics plan of study. Note that PHYS 162 will also be delayed such that **PHYS 162 and PHYS 163 will need to be taken concurrently in the spring of the freshman year.**

**** Choose at least two of the following department electives:**

(3) ASTR 315: Solar System

(3) ASTR 316: Stars & Galaxies

(3) ASTR 320: Cosmology

(ASTR 315, 316 and 320 to complete the Astronomy Minor)

(3) PHYS 444: Special Topics

(3) PHYS 476: Solids II

(3) Second quarter of PHYS 391: Junior Lab

(3) PHYS 497 Science Communications

Admission and Declaration Process

Admission to the Physics BS is a two-step process. Students are classified as Phase I majors until they have completed PHYS 161, 162, 163, 224, 225, 220; and MATH 124, 125, 224; and MATH 204, 304 and 331. Admission to Phase II is based on students' academic performance in the Phase I courses. Students with a cumulative grade point average of 3.0 or higher in the Phase I courses will be given preferential admission to Phase II, while students with a cumulative grade point average below 3.0 in the Phase I courses will be considered for admission on a case by case basis. Note, however, that neither completion of the prerequisites nor attainment of any specific GPA guarantees admission to Phase II.

Students may obtain Phase I major status by contacting the Physics/Astronomy department, Communications Facility 385, and completing the major declaration form. At this time students will be assigned an academic adviser from the physics faculty.

The application to Phase II includes an application form and a transcript, and should be submitted to the department main office by the end of the 5th week of spring quarter during the sophomore year of the major program. Phase II major status will be granted by the beginning of fall quarter of the junior year.

Independent Research

Students may take Independent Research PHYS 291/491, with variable credit from 1-3, with permission of a faculty. This course provide students the opportunity to perform original research under faculty supervision. It is advised that interested students contact potential faculty supervisors during their junior year.

Physics Minor - 48 credits

PHYS 161, 162, 163, 220, 224 and 225 and MATH 124 and 125 or MATH 134 and 135 or MATH 138 and MATH 204, 224 and 331.

Astronomy Minor - 24-28 credits

PHYS 114, 115 and 116 or PHYS 161, 162, 163 and ASTR 315, 316 and 320.

Math Minor - 35 credits

The math courses required in the physics major meet most of the requirements for the Math Minor. After completion of MATH 204, 304 and 331 you will need an additional 4 credits of approved math electives.

Recommended math courses that are of considerable value to physics majors are MATH 225 Multivariable Calculus and Geometry, MATH 226 Limits and Infinite Series, MATH 430 Fourier Series and Partial Differential Equations, MATH 432 Systems of Differential Equations, and MATH 438 Introduction to Complex Variables.

Materials Science Minor – 39-42 credits

Physics Majors completing the Materials Science Minor may substitute one year of Chemistry for the department electives.

For advising and to declare the minor contact: AMSEC - Advanced Materials Science and Engineering Center, ES 131, 650-6522