

Physics

Professors: Richard Hyde; Associate Professors: Robert Knapik (Chair); Assistant Professors: K. Tabetha Hole and Arthur Pallone; Lecturer Elisabeth Atems

Physics is a mathematical science and as such is rigorous and demanding. It presents a challenge found in few other disciplines. At Norwich University, the Bachelor of Science in Physics is offered to students desiring an excellent schooling in the fundamentals of physics. The program encompasses a complete curriculum comprised of classical and quantum physics ranging from the properties of particles to the dynamics of the universe. All disciplines in science and engineering turn to physics to address the foundation of their fields.

Hallmarks of a Norwich education include experiential learning and leadership development. The Department of Physics therefore not only accentuates laboratory work but also insists upon peer collaboration throughout the curriculum. Physics majors, having the advantage of a 3-to-1 student-to-faculty ratio, develop close working relationships with their faculty mentors culminating in original research conducted in a faculty laboratory. Physics majors regularly present the results of their research at regional and national conferences. Currently, the research interests of the faculty include particle physics, material science, astrophysics and geophysical fluid dynamics.

Goals:

- The Department is committed to developing the maximum potential of every individual majoring in physics. It is devoted to the proposition that physics majors will, upon graduation, have a well-founded understanding of the physics that underlies all aspects of the physical universe. Such an education will insure that Norwich graduates have open to them and are successful in a full range of satisfying career opportunities.

Outcomes:

- Graduates understand fundamental physical processes from classical mechanics, quantum mechanics, electricity and magnetism, and statistical mechanics and thermodynamics.
- Graduates are able to apply and interpret the mathematics used in modeling physical situations.
- Graduates are able to apply sound research methods to address questions they develop and those posed by others.
- Graduates function as effective communicators, both in spoken and written words.
- Graduates are prepared for successful employment in physics and related fields or for entry into graduate and professional schools.
- Graduates are prepared to function as members of inter- and cross-disciplinary teams that formulate and execute solutions to complex, open-ended problems.

Careers for this Major:

- Industry
- Government
- Graduate work in physics and other physical sciences
- Military

Major

B. S. in Physics - Curriculum Map 2018-2019 Catalog

Print PDF Curriculum Map (http://catalog.norwich.edu/residentialprogramscatalog/collegeofscienceandmathematics/physics/phys_1532376935845.pdf)

Course	Cr.Comp	Course	Cr.Comp.
FRESHMAN			
Fall		Spring	
CH 103 General Chemistry I (General Education Lab Science)	4	CH 104 General Chemistry II (General Education Lab Science)	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 121 Calculus I (General Education Math)	4	MA 122 Calculus II (General Education Math)	4
PS 107 Solar System Astronomy	4	PS 108 Stellar and Galactic Astronomy	4
Fall Semester Total Cr.:		Spring Semester Total Cr.:	
15		15	
SOPHOMORE			
Fall		Spring	
General Education Ethics (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3	General Education History (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3
General Education Leadership (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	1-3	General Education Social Science (http://catalog.norwich.edu/archives/2018-19/residentialprogramscatalog/generaleducationgoals)	3
MA 223 Calculus III	4	MA 224 Differential Equations	4
PS 211 University Physics I	4	MA 241 Mathematical Computation and Modeling	3

General Education Literature (http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals)	3	PS 212 University Physics II	4
Fall Semester Total Cr.:	15-17	Spring Semester Total Cr.:	17
JUNIOR			
Fall		Spring	
General Education Arts & Humanities (http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals)	3	Mathematics Elective ²	3
Mathematics Elective ²	3	PS 334 Classical Mechanics ¹ or 356 Thermal & Statistical Physics	3
PS 341 Modern Physics ¹ or 426 Electricity and Magnetism	3	PS 374 Junior Laboratory II	2
PS 373 Junior Laboratory I	2	PS 444 Quantum Physics ¹ or 428 Electrodynamics & Optics	3
Free Elective	3	Free Elective	3
Free Elective	3		
Fall Semester Total Cr.:	17	Spring Semester Total Cr.:	14
SENIOR			
Fall		Spring	
PS 426 Electricity and Magnetism ¹ or 341 Modern Physics	3	PS 356 Thermal & Statistical Physics ¹ or 334 Classical Mechanics	3
PS 451 Seminar I	1	PS 428 Electrodynamics & Optics ¹ or 444 Quantum Physics	3
PS 473 Senior Laboratory I	3	PS 452 Seminar II	1
Free Elective	3	PS 474 Senior Laboratory II (Capstone)	3
Free Elective	3	Free Elective	3
Free Elective	3		
Fall Semester Total Cr.:	16	Spring Semester Total Cr.:	13
TOTAL CREDITS FOR THIS MAJOR: 122-124			

¹ This course is offered in alternate years. Both courses listed are required. For the years these courses are offered, see Course Descriptions.

² The approval of the Department of Physics is required.

Minor

Physics Minor Curriculum Map 2018-2019 Catalog

PS 211	University Physics I	4
PS 212	University Physics II	4
PS Elective		3
PS Elective		3
PS Elective (300 level or higher)		3
PS Elective (300 level or higher)		3
Total Cr.		20