

PHYSICS - COMPUTATIONAL PHYSICS

The computational physics concentration provides a thorough study of computer science and computational physics as well as a solid background in physics and mathematics. Graduates from this program have gone on to graduate programs in physics and computer science while others have found career opportunities in technical fields.

Bachelor of Arts - Physics; Computational Physics Concentration

College Humanities & Sciences

Degree Specific Credits: 73

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umd.edu/academics/general-education-requirements>) of the catalog.

Summary

Lower Division Physics Core	10
College Physics	
Physics with Calculus	
Upper Division Physics	18
Physics Elective	3
Math Requirements	19
Computer Science Requirements	20
Computer Science Core Courses	
Computer Science Electives	
Advanced College Writing Requirement	3
Total Hours	73

Lower Division Physics Core

Rule: Must complete all of the courses in one of the two sequences:

College Physics

Select one of the following Physics sequences: 10

Algebra- and Trigonometry-based:

PHSX 205N College Physics I
& PHSX 206N and College Physics I Laboratory

PHSX 207N College Physics II
& PHSX 208N and College Physics II Laboratory

Calculus-based (strongly recommended):

PHSX 215N Fund of Physics w/Calc I
& PHSX 216N and Physics Laboratory I w/Calc

PHSX 217N Fund of Physics w/Calc II
& PHSX 218N and Physics Laboratory II w/Calc

Total Hours 10

Minimum Required Grade: C-

Upper Division Physics

Rule: Complete the following courses

PHSX 301	Intro Theoretical Physics	3
PHSX 311	Oscillations and Waves	2
PHSX 320	Classical Mechanics	3
PHSX 333	Computational Physics	3
PHSX 343	Modern Physics	3
PHSX 423	Electricity & Magnetism I	3
PHSX 499	Senior Capstone Seminar	1

Total Hours 18

Minimum Required Grade: C-

Physics Elective

Select one of the following: 3

PHSX 141N	Einstein's Relativity
PHSX 323	Intermediate Physics Lab
PHSX 327	Optics
PHSX 330	Communicating Physics
PHSX 425	Electricity & Magnetism II (strongly recommended)
PHSX 444	Advanced Physics Lab
PHSX 446	Thermodyn & Stat Mech
PHSX 461	Quantum Mechanics I (strongly recommended)
PHSX 462	Quantum Mechanics II

Total Hours 3

Minimum Required Grade: C-

Math Requirements

Rule: Complete the following courses

Note: M 307, STAT 341, and STAT 458 are recommended as well

M 171	Calculus I	4
M 172	Calculus II	4
M 221	Introduction to Linear Algebra	4
M 225	Introduction to Discrete Mathematics	3
M 273	Multivariable Calculus	4
Total Hours		19

Minimum Required Grade: C-

Computer Science Requirements

Rule: Complete the following subcategories of courses

20 Total Credits Required

Computer Science Core Courses

Rule: Must complete all of the following courses

CSCI 135	Fund of Computer Science I	3
CSCI 136	Fund of Computer Science II	3
CSCI 232	Data Structures and Algorithms	4
CSCI 332	Design/Analysis of Algorithms	3
Total Hours		13

Minimum Required Grade: C-

Computer Science Electives

Select 7 credits from any CSCI course numbered 200 and above, the following are recommended: 7

CSCI 205	Programming Languages w/ C/C++	
CSCI 250	Computer Mdlng/Science Majors	
CSCI 361	Computer Architecture	
CSCI 477	Simulation	
Total Hours		7

Advanced College Writing Requirement

Rule: Must take the following course

Note: May substitute another advanced writing course as approved by the department chair.

PHSX 330	Communicating Physics	3
Total Hours		3

Minimum Required Grade: C-