

## COMPUTATIONAL PHYSICS Bachelor of Science (B.S.)

Effective Fall 2023

### Requirements for the Major

Each candidate is required to complete the University requirements for the B.S. degree (see page 2) and the following courses:

Course Number	Course Title	Credit Hours	When Offered
PS 103	Physics and Engineering Seminar I	1	Fall
PS 261 or PS 281	College Physics I or General Physics I	5	PS 261 – Fall PS 281 – Spring
PS 262 or PS 282	College Physics II or General Physics II	5	PS 262 – Spring PS 282 – Fall
PS 291	Elementary Computational Physics	2	Fall – Odd years
PS 303	Physics and Engineering Seminar II	1	Fall
PS 320	Electromagnetic Theory I	3	Spring – Even years
PS 330	Optics	3	Fall – Even years
PS 334	Thermodynamics	3	Spring – Even years
PS 335	Theoretical Mechanics I	3	Fall – Odd years
PS 340	Computer Interfacing and Instrumentation	3	Spring – Even years
PS 350	Modern Physics I	3	Spring – Odd years
PS 365	Introduction to Theoretical Physics	3	Spring – Odd years
PS 366	Introduction to Computational Physics	3	Fall – Even years
PS 368	Computational Physics Research	3	Fall/Spring
<b>Required correlated courses</b>			
CM 111	Introduction to Structured Programming	4	Fall/Spring
CM 245	Contemporary Programming Methods	3	Fall/Spring
CM 307	Data Structures and Algorithmic Analysis	3	Spring
CM 390	Special Topics in Computer Science	1-4	Fall/Spring
MA 151	Calculus and Analytic Geometry I	5	Fall/Spring
MA 152	Calculus and Analytic Geometry II	5	Fall/Spring
MA 253	Calculus and Analytic Geometry III	3	Fall/Spring
MA 206	Discrete Mathematics for Computing	3	Fall/Spring
MA 301	Linear Algebra	3	Fall
MA 331	Differential Equations	3	Spring

## University Requirements for the Bachelor of Science Degree

- ▶ 120 total credit hours, 84 of which must be graded.
- ▶ 45 upper division credit hours (300-400 level).
- ▶ A 30-credit-hour concentration chosen from the Natural Sciences, Mathematics, and Computer Information Sciences Division in departments other than the major, and with at least 20 of these credit hours in one department.
- ▶ 6 credit hours of English composition (EN 101 and EN 300).
- ▶ 3 credit hours of mathematics (MA 116 or higher).
- ▶ 3 credit hours of Washburn Experience (WU 101).
- ▶ 27 credit hours of General Education
  - ◆ 9 credit hours in Humanities (3 credit hours must be in Art, Music, or Theatre)
  - ◆ 9 credit hours in Natural Sciences, Mathematics and Statistics
  - ◆ 9 credit hours in Social Sciences

In each general education group, courses taken must be in at least two subject areas. Courses in the student's major discipline do not fulfill general education requirements.

<b>Humanities</b>	<b>Natural Sciences, Mathematics and Statistics</b>	<b>Social Sciences</b>
<ul style="list-style-type: none"> <li>• English</li> <li>• Philosophy</li> <li>• Religion</li> <li>• Music</li> <li>• Art</li> <li>• Communication</li> <li>• Modern Languages</li> <li>• Theatre</li> </ul>	<ul style="list-style-type: none"> <li>• Biology</li> <li>• Chemistry</li> <li>• Physics</li> <li>• Astronomy</li> <li>• Geology</li> <li>• Mathematics</li> </ul>	<ul style="list-style-type: none"> <li>• Political Science</li> <li>• History</li> <li>• Psychology</li> <li>• Economics</li> <li>• Sociology</li> <li>• Anthropology</li> <li>• Geography</li> </ul>
<i>Please consult the University Catalog for approved general education courses</i>		

- ▶ Cumulative grade point average of at least 2.0 and a grade of C or better in each course in the major, required correlated courses, English composition, WU 101, and MA 116.

*Please direct questions to:*

Dr. Karen Camarda, Chair

Department of Physics and Astronomy, Washburn University

• E-Mail: [karen.camarda@washburn.edu](mailto:karen.camarda@washburn.edu) • Phone: 785-670-2145

<http://www.washburn.edu/physics>

