

**COMPUTATIONAL PHYSICS**  
**Bachelor of Science (B.S.)**  
**2016-2017**

**Requirements for Major:** At least 39 credit hours in the department, including:

PS 261 College Physics I & PS 262 College Physics II <u>or</u> PS 281 General Physics I & PS 282 General Physics II
PS 291 Elementary Computational Physics
PS 320 Electromagnetic Theory I
PS 330 Optics
PS 334 Thermodynamics
PS 335 Theoretical Mechanics I
PS 340 Electronics
PS 350 Modern Physics I
PS 365 Introduction to Theoretical Physics
PS 366 Introduction to Computational Physics
PS 368 Computational Physics Research

Correlated courses – The following 15 courses:

CM 111 Introduction to Structured Programming	MA 152 Calculus & Analytic Geometry II
CM 113 Visual Programming	MA 153 Calculus & Analytic Geometry III
CM 170 FORTRAN Programming	MA 206 Discrete Mathematics for Computing
CM 244 The C Programming Language	MA 241 Differential Equations
CM 245 Contemporary Programming Methods	MA 301 Linear Algebra
CM 307 Data Structures and Algorithmic Analysis	MA 343 Applied Statistics
CM 390 Special Topics in Computer Science	MA 376 Numerical Analysis
MA 151 Calculus & Analytic Geometry I	

Required minor – 30 credit hours:

The B.S. degree also requires a 30-hour minor to be chosen from the Natural Sciences (Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, or Computer Information Science). This minor must be in departments other than the major, and must have at least 20 hours in one department.
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Notes:

All majors must pass a written (Major Field Test) examination
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**General Education Distribution Requirements (BS):**

Humanities (9) (GEHU/GECPA) (Max 6 hours/ discipline)	Course Number	Social Sciences (9) (GESS) (Max 6 hours/ discipline)	Course Number	Natural Sciences/ Mathematics (9) (GENS) (Max 8 Hours or 2 Courses/Discipline)
Fine Arts (3)		Soc. Science 1 (3)		MA 151 (5)
Humanities 2 (3)		Soc. Science 2 (3)		Natural Science 2 (3-5)
Humanities 3 (3)		Soc. Science 3 (3)		Natural Science 3 (3-5)

**Core University/BS-Specific Requirements:**

WU 101 (3)* C or Better		Natural Science Minor (30 – 20 in one Discipline)	
EN 101 (3) C or Better		Hours Outside Major (76)	
EN 300 (3) C or Better		Upper Division (300 and above) (45)	
MA 112 or MA 116 (3)** C or Better		Hours Within Arts and Sciences (99)	
>= 2.0 Overall Cumulative GPA		>= C Grade All Major and Correlated Courses	
		Total Hours (124)	

*\*Students transferring with 24 or more credit hours completed at an accredited post-secondary institution (after graduating from High School) with a GPA of 2.0 or higher are exempt from this requirement*

*\*\*May be waived if the student successfully places into a higher-level mathematics course with an ACT score of 25 or higher and then successfully completes that course with a grade of C or higher or if a student presents an ACT score in mathematics of at least 28 (SAT of at least 640).*

## Sample 4-Year Schedule for Computational Physics Major

### Bachelor of Science

### 124 Hours

Curriculum for students starting 2016-2017 Academic Year  
Students starting in different academic years should contact their advisor.

<b>Freshman</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
MA 151 – Calculus I	5	MA 152 – Calculus II	5
CM 111 – Intro to Structured Programming	4	PS 281 – General Physics I	5
EN 101 – English Composition	3	CM 113 – Visual Programming	3
WU 101 – Washburn Experience	3	MA 206 – Discrete Mathematics for Computing	3
Humanities General Education	3		
<b>TOTAL</b>	<b>18</b>	<b>TOTAL</b>	<b>16</b>
<b>Sophomore</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
MA 153 – Calculus III	3	PS 335 – Theoretical Mechanics I	3
PS 282 – General Physics II	5	CM 244 – C Programming	3
CM 170 – FORTRAN Programming	3	MA 241 – Differential Equations	3
PS 291 – Elementary Computational Physics	2	Soc Sci General Education	3
AR/MU/TH General Education	3	Natural Science General Education	4
		Humanities General Education	3
<b>TOTAL</b>	<b>16</b>		<b>19</b>
<b>Junior</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CM 245 – Contemporary Programming Methods	3	MA 343 – Applied Statistics	3
MA 301 – Linear Algebra	3	CM 307 – Data Structures and Algorithmic Analysis	3
MA 376 – Numerical Analysis	3	PS 320 – Electromagnetic Theory I	3
PS 365 – Intro to Theoretical Physics	3	PS 334 – Thermodynamics	3
PS 366 – Intro to Computational Physics	3	PS 340 - Electronics	3
<b>TOTAL</b>	<b>15</b>	<b>TOTAL</b>	<b>15</b>
<b>Senior</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CM 390 – Special Topics in Computer Science	3	PS 368 – Computational Physics Research	3
PS 330 - Optics	3	EN 300 – Advanced Composition	3
PS 350 – Modern Physics I	3	Soc Sci General Education	3
Soc Sci General Education	3	Electives	4
<b>TOTAL</b>	<b>12</b>		<b>13</b>