

# COMPUTER SCIENCE, B.S.

The Computer Science major program consists of 52 credits in Computer Science and 6 credits in Mathematics and Physics. The requirement for admission to this degree track is a minimum grade of C in MATH 165 or MATH 175 or its equivalent. To graduate with the B.S. in Computer Science, a student must maintain a 2.5 minimum average in all courses credited toward the major. For all major courses, including MATH 192 and MATH 193, grade has to be C or above in order to be credited for graduation.

Code	Title	Credits
<b>Required</b>		
CS 101	Computer Science I	3
CS 102	Computer Science II	3
CS 202	Discrete Structures I	3
CS 203	Discrete Structures II	3
CS 204	Computer Organization	3
CS 206	Concepts of Operating Systems	3
CS 209	Data Structures	3
CS 300	Computer Architecture	3
CS 306	Data Base Design	3
CS 350	Software Engineering I	3
CS 351	Software Engineering II	3
<b>Collateral Requirements</b>		
MATH 192	Calculus and Analytic Geometry I	4
(Choose one from the list below.)		
MATH 193	Calculus and Analytic Geometry II	4
MATH 140	Statistics I	3
PHYS 240	Digital Techniques and Applications	3
<b>Advanced Major Electives</b> <sup>1</sup>		
Select 12 credits from among the following:		
CS 302	Programming Languages	3
CS 304	Operating System Design	3
CS 355	Visual Programming	3
CS 360	Computer Graphics	3
CS 365	Advanced Java Programming	3
CS 401	Introduction to Algorithms	3
CS 402	Compiler Design	3
CS 404	Artificial Intelligence	3
CS 405	Theory of Computability	3
CS 407	Introduction to Unix/Linux System Administration and Shell Programming	3
CS 408	Introduction to Cryptography	3
CS 409	Introduction to Data Science	3
CS 410	Telecommunications & Networks	3
CS 417	Object-Oriented Methodologies	3
CS 420	Cloud Security with Artificial Intelligence	3
CS 430	Internet Multimedia Programming	3
CS 599	Data Mining	3
SPFD XXXX	Seminar in Cooperative Education	3

<b>Freshman</b>		
<b>Semester 1</b>		
ENGL 101 or ESL 101	English Composition I or English Composition I for English as a Second Language Students	4-6
MATH 175 or MATH 165	Enhanced Precalculus or Pre Calculus	3-4
CS 120	Computers and Information Technology <sup>1</sup>	3
CS 101	Computer Science I	3
General Education Tier I Course		3
Credits		16-19
<b>Semester 2</b>		
ENGL 102 or ESL 102	English Composition II or	4 - 6
MATH 192	Calculus and Analytic Geometry I <sup>2</sup>	4
INTD 180	Computers Tools for Science and Math <sup>1</sup>	3
CS 102	Computer Science II	3
CS 202	Discrete Structures I <sup>2</sup>	3
Credits		17-19
<b>Sophomore</b>		
<b>Semester 1</b>		
CS 203	Discrete Structures II	3
CS 209	Data Structures	3
PHYS 204 or PHYS 240 or MATH 193	Digital Electronics and Applications ( ) or Digital Techniques and Applications or Calculus and Analytic Geometry II	3 - 4
General Education Tier I Course		3
General Education Tier II Course		3
Credits		15-16
<b>Semester 2</b>		
CS 204	Computer Organization <sup>2</sup>	3
CS 306	Data Base Design	3
General Education Tier II Course		3
General Education Tier II Course		3
Minor or Elective Course		3
Credits		15
<b>Junior</b>		
<b>Semester 1</b>		
CS 206	Concepts of Operating Systems	3
CS 214	Business Applications on the Microcomputer I <sup>2</sup>	3
Computer Science Elective 3XX or 4XX		3
General Education Tier II Course		3
General Education Tier II Course		3
Credits		15
<b>Semester 2</b>		
CS 215 or CS 252	Business Applications on the Microcomputer II or TEMP Programming for All in Python and Computer Science Principles	3
CS 300	Computer Architecture	3
Elective or Minor Course		3
Elective or Minor Course (or Co-Op)		3

Elective or Minor Course (or Co-Op)	3
Credits	15
<b>Senior</b>	
<b>Semester 1</b>	
CS 350 Software Engineering I	3
Computer Science Elective 3XX or 4XX	3
Computer Science Elective 3XX or 4XX	3
General Education Tier III Course	3
Credits	12
<b>Semester 2</b>	
CS 351 Software Engineering II	3
Computer Science Elective 3XX or 4XX	3
Minor or Elective Course	3
Minor or Elective Course	3
Minor or Elective Course	3
Credits	15
Total Credits	120-126

<sup>1</sup> These courses are being used to satisfy General Education Tier I courses.

<sup>2</sup> These courses are being used to satisfy Tier II Scientific and Quantitative Inquiries for Computer Science majors.

#### Student Learning Outcomes

Upon completion of the Computer Science BS program, students will be able to:

1. Analyze, design and develop a web-based real-life large scale software systems
2. Demonstrate the ability to orally communicate ideas and concepts
3. Create written documentation to illustrate clear system and user documents
4. Apply knowledge of software Engineering principles in the modeling, design and development of software projects
5. Recognize key ethical issues affecting computer science and their responsibility as computer science professionals.