

# COMPUTER SCIENCE: CYBER SECURITY, B.S.

## Program Learning Outcomes

*Graduates of the program will be able to:*

- write correct and robust software.
- use well-known algorithms and computational techniques to solve problems.
- analyze the interaction between hardware and software.
- apply their technical knowledge and critical thinking to solve problems.
- speak about their work with precision, clarity and organization.
- write about their work with precision, clarity and organization.
- identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- collaborate effectively in teams.
- understand and create arguments supported by quantitative evidence.
- understand the professional, ethical, and social issues and responsibilities with the implementation and use of technology.

Code	Title	Units
<b>Lower-Division Requirements</b>		
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
CSC 1054 and CSC 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
CSC 2054 and CSC 2054L	Data Structures and Algorithms and Data Structures and Algorithms Lab	4
MTH 1064 and MTH 1064L	Calculus I (GE) and Calculus I Lab (GE) <sup>1</sup>	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2003	Introduction to Statistics <sup>2</sup>	3
<b>Upper-Division Requirements</b>		
CSC 3014	Operating Systems	4
CSC 3023	Software Engineering	3
CSC 3094	Programming Languages	4
CSC 3102	Security+ Exam Preparation	1-2
CSC 4054	Computer Architecture and Assembly Language	4
CSC 4081	Senior Seminar in Computer Science	1
ISS 3073	Networking and Security	3
ISS 3092	Topics in Cyber Security	2
ISS 4003	Information and Computer Security	3
ISS 4012	Topics in Information Security	2
ISS 4014	Data Base Systems and Web Integration	4
MTH 3043	Discrete Mathematics	3
Choose one (1) sequence from the following:		2-3
CSC 4102 and CSC 4121	Independent Research in Computer Science I and Independent Research in Computer Science II	
CSC 4133	Service Learning in Computer Science	

HON 4098 and HON 4099	Honors Project I and Honors Project II	
ISS 4072	Internship in Information Systems <sup>3</sup>	
<b>Elective Courses</b>		
Choose three (3) or four (4) units from the following: <sup>3</sup>		3-4
CSC 3003	Python and UNIX	
CSC 3011	Machine Learning and Multivariate Modeling in R	
CSC 3021	Computational Tools	
CSC 3031	Data Visualization and Communication with R	
CSC 3112	Network+ Exam Preparation	
CSC 4012	Topics in Computer Science	
CSC 4091	Independent Studies in Computer Science	
CSC 4093	Software Project	
CSC 4102	Independent Research in Computer Science I	
CSC 4121	Independent Research in Computer Science II	
CSC 4133	Service Learning in Computer Science	
EGR 2024 and EGR 2024L	Circuit Analysis and Circuit Analysis Lab	
EGR 3053 and EGR 3053L	Analog Electronics and Analog Electronics Lab	
EGR 3093 and EGR 3093L	Digital Electronics and Digital Electronics Lab	
EGR 4043 and EGR 4043L	Embedded Systems and Robotics and Embedded Systems and Robotics Lab	
EGR 4103	Electrical Signals and Systems	
HON 4098	Honors Project I	
HON 4099	Honors Project II	
ISS 3042	Project Management and Quality Assurance	
ISS 4072	Internship in Information Systems	
MTH 2033	Linear Algebra	
MTH 2074	Calculus III	
MTH 4162	Project for Data Analytics Minors I	
MTH 4171	Project for Data Analytics Minors II	
<b>Total Units</b>		<b>61-64</b>

<sup>1</sup> MTH 1044 may substitute for MTH 1064.

<sup>2</sup> MTH 3063 or MTH 3083 may substitute for MTH 2003.

<sup>3</sup> Four (4) elective units required if ISS 4072 is chosen.

**Total Units for the Degree: 59 (plus 4 units of GE)**