Department of Computer and Information Sciences

Dr. Alberto LaCava, *Chairperson*

The Department of Computer and Information Sciences offers four programs leading towards the Bachelor of Science degree in Computer Science. Students may concentrate in Computer Information Systems, Cyber Security, Artificial Intelligence and Machine Learning or Computer Science. Transfer students who major in CS must complete a minimum of six CS and/or IS courses at the University for the Bachelor of Science degree. For students not majoring in Computer Science, we offer Minors in Computer Science and Cyber Security. For students majoring in Criminal Justice, the Department offers a concentration in Cyber Security and Computer Forensics.

Requirements for Computer Science Major/Computer Information Systems Option

Degree of Bachelor of Science

This option is designed for those who wish to become programmers or systems analysts. Application programming and business information systems are studied. Six of the required credits for the major count towards the Core Curriculum Requirements.

MA-123	Elementary Calculus I (Core Math)	3
MA-124	Elementary Calculus II (Core Math)	3
CS-177	Intr to Computer Science & Cybersecurity	3
CS-180	Introduction to Programming	3
CS-231	Software Engineering	3
CS-298	Cyber Security Virtual Internship	3
CS-332	Advanced Computing	3
IS-410	Total Business Info Systems	3
CS-370	Data Structures	3
Choose 4 of the following:		12
MA-212	Elementary Statistics	
MA-214	Mathematics of Finance	
MA-216	Computer Mathematics	
MA-218	Quantitative Methods for Business	
MA-222	Intermediate Statistics	
MA-247	Introductory Linear Algebra	
MA-250	Transition to Advanced Mathematics	
MA-316	Intermediate Discrete Mathematics	
MA-347	Topics in Linear Algebra	
CS-499	Capstone for Computer Science	
CS/IS-	CS or IS Electives (IS-230 or higher OR CS-300 or higher) [1]	
Total Credits		39

Special Note on Core Curriculum Requirements for Computer Science Major/Computer Information Systems Option

[1] Majors in CS/CIS may not use CS or IS courses for the Core Natural Science Requirement.

Special Notes on Major Requirements for Computer Science Major/Computer Information Systems Option

[1] A student must maintain a 2.0 average in the CS-231 and CS-332 sequence to continue as a computer science major.

[2] CS/CIS majors may be eligible for a minor in mathematics.

[3] CS/CIS majors are encouraged to study a commercially popular programming language such as Python and/or Java.

Requirements for Computer Science Major/Cyber Security Option

Degree of Bachelor of Science

This option is designed for those who wish to learn the technology and security architecture that is necessary to help protect and defend information systems from cyber-attacks.

MA-123	Elementary Calculus I (Core Math)	3
MA-124	Elementary Calculus II (Core Math)	3
MA-212	Elementary Statistics	3
CS-177	Intr to Computer Science & Cybersecurity	3
CS-190	Secure Software Development	3
CS-231	Software Engineering	3
CS-332	Advanced Computing	3
CS-260	Information Technology Ethics	3
CS-339	Computer Architecture & Operating System	3
IS-380	Database and Data Administration	3
IS-381	Cyber Security Planning and Risk Mgmt	3
IS-425	Disaster Recovery/Business Continuity	3
CS-489	Network Technology Protocols & Defense	3
CS-495	Cryptology	3
CS-496	Cybersecurity and Digital Forensics Lab	3
CS-499	Capstone for Computer Science	3
Total Credits		48

Special Notes on Core Curriculum Requirements for Computer Science Major/Cyber Security Option

[1] Majors in CS/Cyber Security may not use CS or IS courses for the Core Natural Science Requirement.

Special Note on Major Requirements for Computer Science Major/Cyber Security Option

[1] A student must maintain a 2.0 average in the CS-231 and CS-332 sequence to continue as a computer science major.

Requirements for Computer Science Major/Artificial Intelligence and Machine Learning

Degree of Bachelor of Science

This option is designed for those who wish to learn the technology and architecture that is necessary to use Artificial Intelligence and Machine Learning methods in the computing disciplines.

MA-123	Elementary Calculus I (Core Math)	3
MA-124	Elementary Calculus II (Core Math)	3
MA-212	Elementary Statistics	3
CS-177	Intr to Computer Science & Cybersecurity	3
CS-180	Introduction to Programming	3
CS-231	Software Engineering	3
CS-241	Python Programming for Comp Scientists	3
CS-332	Advanced Computing	3

CS-346	Machine Learning I	3
CS-370	Data Structures	3
CS/MA-337	Statistical Computing With R	3
CS-415	Robotics Fundamentals and Programming	3
CS-446	Machine Learning II	3
CS-470	Introduction to Artificial Intelligence	3
CS or IS Elective		3
CS-499	Capstone for Computer Science	3
Total Credits		48

Special Notes on Core Curriculum Requirements for Computer Science Major/Artificial Intelligence and Machine Learning Option

[1] Majors in CS/Artificial Intelligence and Machine Learning may not use CS or IS courses for the Core Natural Science Requirement.

Special Note of Major Requirements for Computer Science Major/Artificial Intelligence and Machine Learning Option

[1] A student must maintain a 2.0 average in the CS-231 and CS-332 sequence to continue as a computer science major.

Requirements for Computer Science Major/Computer Science Option

Degree of Bachelor of Science

This option is designed for those who wish to study the theory of programming. Any student who wishes to go to graduate school in Computer Science should consider taking this option.

Six or eight of the required credits for the major count towards the Core Curriculum Requirements.

MA-143	Differential Calculus (Core Math)	4
MA-144	Integral Calculus (Core Math)	4
CS-177	Intr to Computer Science & Cybersecurity	3
CS-180	Introduction to Programming	3
CS-231	Software Engineering	3
CS-332	Advanced Computing	3
CS-339	Computer Architecture & Operating System	3
CS-355	Found of Programming Systems	3
CS-370	Data Structures	3
MA-247	Introductory Linear Algebra	3
MA-250	Transition to Advanced Mathematics	3
MA-273	Multivariable Calculus I	4
Choose 1 course		3
MA-222	Intermediate Statistics	
MA-316	Intermediate Discrete Mathematics	
MA-335	Probability Theory	
MA-336	Mathematical Statistics	
MA-347	Topics in Linear Algebra	
MA-389	Topics in Statistics	
Two Natural Science Laboratories [1]		2
One STEM Laboratory [2]		
CS-499	Capstone for Computer Science	3
CS-	CS Electives: choose 2 courses from CS-237 or CS-300-level	6

CS/IS-	CS/IS Electives: choose 2 courses from CS-300-level or IS-400-level	6
Total Credits		59

[1] Taken with Natural Science courses for Core Requirements.

[2] Taken with STEM courses for Core Requirements.

Special Notes on Core Curriculum Requirements for Computer Science Major/Computer Science Option

[1] Students who have taken MA-123 Elementary Calculus I/MA-124 Elementary Calculus II, may fulfill the requirement by taking MA-125 Intermediate Calculus. These courses may not be taken on a Pass/Fail basis.

[2] Majors in CS/CS may not use CS or IS courses for the Core Natural Science Requirement. Laboratories must be taken with the two courses chosen to satisfy the Core Natural Science Requirement.

Special Notes on Major Requirements for Computer Science Major/Computer Science Option

[1] A student must maintain a 2.0 average in the CS-231 and CS-232 sequence in order to continue as a computer science major.

[2] CS/CS majors may be eligible for a minor in mathematics.

[3] CS/CS majors are encouraged to study a commercially popular programming language such as Visual BASIC and/or JAVA.

Requirements for Criminal Justice Major with a Concentration in Cyber Security and Computer Forensics

For details about this program see the Criminal Justice Department.

Requirements for Minor in Cyber Security

Students Majoring in Computer Science are not eligible for this minor

IS-381	Cyber Security Planning and Risk Mgmt	3
CS-489	Network Technology Protocols & Defense	3
CS-496	Cybersecurity and Digital Forensics Lab	3
CS	CS Electives	9
Total Credits		18

Requirements for Minor in Computer Science

Students majoring in Computer Science are not eligible for this minor

CS	CS Electives	15
CS or IS	CS or IS Elective	3
Total Credits		18