

# COMPUTER SCIENCE (MS)

## Degree Requirements

### Requirements for Master's of Science in Computer Science Degree

Students must satisfactorily complete thirty-six (36) graduate credit hours for the Master's of Science in Computer Science degree and a comprehensive exam. Required prerequisite courses are prescribed by the Computer Science Chair after reviewing prior academic work.

Students must complete their program of study with a minimum grade of "B" in required courses, and an overall GPA of 3.0. The thirty-six (36) graduate semester hours consisting of eighteen (18) semester hours of **required** courses, and eighteen (18) semester hours of approved elective courses according to the selected concentration option.

### Required Courses

(18 Semester Hours):

Code	Title	Hours
CSC 522	Performance Eval of Algorithms	3
CSC 527 or ISC 560	Software Engineering Princ Info Systems Analysis-Design	3
CSC 520	Computer Architecture	3
Select one of the following:		3
CSC 580	Data Security	
MA 581	Cryptography	
CSC 532	Distributed Systems	
CIS 518	CIS Research Methodologies	3
CSC 526	Data Mining	3
<b>Total Hours</b>		<b>18</b>

### Concentrations

(18 Semester Hours)

Three concentrations of study are available. These are **thesis**, **project**, and **course-only** concentrations.

### Thesis Concentration

#### Research Development

A minimum of three (3) semester credit hours of CIS 595, Computer and Information Sciences Research Development, are required. A Thesis Concentration student must be enrolled in CIS 595 in the semester during which they defend their thesis prospectus. A grade of "C" or lower in CIS 595 will result in the dismissal of the student from the Thesis Concentration. Students may only enroll in CIS 595 after successfully completing CIS 518.

#### Thesis

A minimum of three (3) semester credit hours of CIS 599, Computer and Information Sciences Thesis, must be applied towards the degree for the Thesis Concentration. Students may only enroll in CIS 599 after successfully defending their thesis prospectus (minimum grade of "B" in CIS 595). A Thesis Concentration student must be enrolled in CIS 599 in the semester during which they defend and/or submit their thesis.

### Elective Course Work

Twelve (12) semester hours of additional electives are required. (A maximum of three (3) semester hours of CIS 594 Directed Study courses may be applied to the degree for the Thesis Concentration.) A list of Pre-Approved Computer Science courses and a list of Special Permission courses are given at the end of this section.

### Comprehensive Examination

All students in the Thesis Concentration must pass an oral comprehensive examination administered after the thesis committee accepts the thesis. The School of Computing Comprehensive Examination Policies and Procedures document and the Comprehensive Examination Application form are available at <https://www.southalabama.edu/colleges/soc/essentialstudentlinks.html>.

### Project Concentration

#### Research

A minimum of three (3) semester credit hours of CSC 595, Computer Science Project Proposal Development are required. A Project Concentration student must be enrolled in CSC 595 in the semester during which they defend their project prospectus. A grade of "C" or lower in CSC 595 will result in the dismissal of the student from the Project Concentration. Students may only enroll in CSC 595 after successfully completing CIS 518.

#### Project

A minimum of three (3) semester credit hours of CSC 598, Computer Science Project, must be applied towards the degree for the Project Concentration. Students may only enroll in CSC 598 after successfully defending their project prospectus (minimum grade of "B" in CSC 595). A Project Concentration student must be enrolled in CSC 598 in the semester during which they defend and/or submit their project.

### Elective Course Work

Twelve (12) semester hours of additional approved electives are required. (A maximum of three (3) semester hours of CIS 594 Directed Study courses may be applied to the degree for the Project Concentration.) A list of Pre-Approved Computer Science courses and a list of Special Permission courses are given at the end of this section.

### Comprehensive Exam

All students in the Project Concentration must pass an oral comprehensive examination administered after the project committee accepts the project. The School of Computing Comprehensive Examination Policies and Procedures document and the Comprehensive Examination Application form are available at <https://www.southalabama.edu/colleges/soc/essentialstudentlinks.html>

### Course Only Concentration

For the Course Only Concentration, eighteen (18) semester hours of elective course work are required.

### Elective Course Work

Eighteen (18) semester hours of approved electives are required. (A maximum of 3 semester hours of CIS 594 Directed Study and a max of 3 hours in CSC 595 or CIS 595 may be applied to the degree for the Course Only Concentration.) No credits from CIS 599 or CSC 598 may be applied to the Course Only Concentration. A list of Pre-Approved Computer Science courses and a list of Special Permission courses are given at the end of this section.

### **Comprehensive Examination**

Students in the Course Only Concentration must pass a written examination. Students wishing to sit for the examination must apply on-line to the Director of SoC Graduate Studies by the Friday of the first week of classes in the semester in which the examination is to be taken. The comprehensive examination is offered twice a year. The School of Computing Comprehensive Examination Policies and Procedures document and the Comprehensive Examination Application form are available at <https://www.southalabama.edu/colleges/soc/essentialstudentlinks.html>

### **Computer Science Electives**

A list of Pre-Approved Computer Science elective courses and a list of Special Permission courses are given below. All other courses must be approved by the Computer Sciences Chair.

#### **Pre-Approved Computer Science Electives**

- Artificial Intelligence and Heuristic Programming
- Artificial Intelligence Theory and Programming
- Big Data Analytics
- Communications and Network Analysis
- Compiler Design and Construction
- Computer Graphics
- Computer Language Design
- Computer Vision and Robotics
- Cyber Physical Security
- Data Mining
- Data Warehousing
- Digital Forensic Analysis
- Game Development
- Image Processing
- Information Assurance and IT Auditing
- Information Systems Database Management
- Introduction to Bioinformatics
- Modeling and Simulation
- Network Security
- Numerical Analysis
- Real-Time Software Systems
- Security in Hardware
- Surreptitious Software
- Web Technologies and Knowledge Modeling