

# Computer And Information Sciences (MS)

## Degree Requirements

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### Requirements For Master's Degree With Computer Science (CSC) Specialization

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

Computer Science Specialization majors must complete their Computer Science program 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):

- Performance Evaluation of Algorithms CSC 522
- Software Engineering Principles CS 527 or Information Systems Analysis Design ISC 560
- Computer Architecture CSC 520
- Data Security CSC 580 or MA 581 or Distributed Systems CSC 532
- CIS Research Methodologies CIS 518
- Data Mining CSC 526

#### Concentrations (18 Semester Hours):

Three concentrations of study are available to students who select the Computer Science Specialization in the SoC master's program. 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. A maximum of six (6) credit hours of non-CSC or non-CIS courses will be allowed.

### 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

## Department Information

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### Department of Computer Science Staff

Professor & Computer Science Chair

Dr. Todd Aniel

[Department of Computer Science website](https://www.southalabama.edu/colleges/soc/computerscience)

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Computer Science is a discipline that involves the understanding and design of computers and computational processes. In its most general form, it is concerned with the understanding of information transfer and transformation. Particular interest is placed on making processes efficient and endowing them with some form of intelligence. The discipline includes both advancing the fundamental understanding of algorithms and information processes in general, as well as the practical design of efficient, reliable software to meet given specifications. Courses offer students the opportunity to explore current trends in computing such as: cyber security, artificial intelligence, machine learning, big data, video game development, computer graphics and robotics.