Master of Science – Applied Computer Science
2025-2026

DEGREE REQUIREMENTS

Admission Requirements

Candidates must satisfy all of the following:
1. **Grade point average of 3.0** (on a 4.0 scale) from all undergraduate coursework. Those with a GPA below 3.0 must contact the College of Computing for advising.
2. **Resume** detailing work experiences and accomplishments.
3. **Recommendations:** submit acceptable recommendations from at least two individuals attesting to the likelihood of the candidate's successful completion of the program.

Degree Requirements

All candidates for the degree must complete 33 credits as indicated below. All courses are 3 credits each.

Core Requirements (9 credits)

Students are required to complete one course in three of the following categories.

Data Engineering:
- CIS 660 Data Engineering*
- CIS 673 Principles of Database Design*

Networking:
- CIS 654 Computer Networking*
- CIS 656 Distributed Systems*

Management of Systems Development:
- CIS 641 Systems Analysis and Design*
- CIS 642 IS Project Management*

Software Engineering:
- CIS 518 Secure Software Engineering*
- SE 512 Requirements Specification*
- SE 513 Software Testing*
- SE 522 Software Architecture and Design

Elective Requirements (9 - 12 credits)

Any 500- or 600-level CIS course can be used as an elective toward the M.S. ACS degree, except CIS 500.

Capstone Requirements (3 or 6 credits)

Each candidate must complete either the project course or the thesis two-course option.

- CIS 693 Master's Project

OR

- CIS 690 Thesis Research Preparation **AND**
- CIS 695 Master's Thesis

Badge Requirements (9 credits)

All candidates are required to complete at least one of the badges shown in the next column.

*overlaps with 1 or more badge requirements

BADGE REQUIREMENTS

Biomedical Informatics:
- CIS 661 Introduction to Medical and Bioinformatics
- CIS 665 Clinical Information Systems
- **AND** one of the following:
  - CIS 635 Knowledge Discovery and Data Mining
  - CIS 660 Data Engineering*
  - CIS 671 Information Visualization

Cybersecurity:
- CIS 615 Information Security Principles
- **AND** two of the following:
  - CIS 518 Secure Software Engineering*
  - CIS 553 Ethical Hacking
  - CIS 555 Applied Cryptography
  - CIS 616 Data Security and Privacy
  - CIS 617 Digital Forensics and Investigations
  - CIS 619 Data Analytics for Cybersecurity

Data Analytics:
- CIS 635 Knowledge Discovery and Data Mining
- CIS 671 Information Visualization
- **AND** one of the following:
  - CIS 677 High-Performance Computing
  - CIS 678 Machine Learning

Database Management:
- CIS 673 Principles of Database Design
- **AND** two of the following:
  - CIS 635 Knowledge Discovery and Data Mining
  - CIS 660 Data Engineering*
  - CIS 665 Clinical Information Systems
  - CIS 671 Information Visualization
  - CIS 676 Database Architecture
  - CIS 679 Special Topics in Database Management

Distributed Computing:
- CIS 654 Computer Networking*
- CIS 656 Distributed Systems*
- CIS 658 Web Architectures

Information Systems Management:
- CIS 641 Systems Analysis and Design*
- CIS 642 IS Project Management*
- CIS 643 Information Systems Policy and Strategy

Software Design and Development:
- SE 511 Introduction to Software Engineering
- **OR** CIS 641 Systems Analysis and Design*
- CIS 657 Mobile Application Development
- **OR** CIS 658 Web Architectures
- CIS 660 Data Engineering
- **OR** CIS 673 Principles of Database Design*

Software Engineering:
Choose three of the following:
- CIS 518 Secure Software Engineering*
- SE 511 Introduction to Software Engineering
- SE 512 Requirements Specification*
- SE 513 Software Testing*

Web and Mobile Computing:
- CIS 655 Cloud Application Development
- CIS 657 Mobile Application Development
- CIS 658 Web Architectures

*overlaps with 1 or more core requirements