

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

General Information

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Mission and Goals

The Department of Computer Science & Information Technology offers the following degree and minor programs:

- Bachelor of Science in Computer Science (BSCS)
- Bachelor of Information Technology (BIT)
- Bachelor of Science in Cybersecurity
- Associate of Applied Science in Information Technology (AASIT)
- Minor Program in Computer Science
- Minor Program in Information Technology
- Certificate in AI
- Certificate in Cybersecurity
- Master of Science in Cyber Technology (MSCT)
- Master of Science in Data Science (MSDS)

The Computer Science program prepares students for careers that require computational thinking and problem-solving skills, becoming ethical and contributing members of their communities.

Upon completion of the BSCS program, graduates will be able to:

- a. Solve complex and significant problems with professional skill by formulating efficient and effective algorithmic solutions to a wide variety of sophisticated problems normally encountered in computing and in academe
- b. Express algorithms clearly and correctly in a variety of programming languages
- c. Apply core concepts in computer science
- d. Apply professional and ethical standards to computing related disciplines
- e. Collaborate in teams to accomplish common goals
- f. Demonstrate an ability to acquire, interpret, and communicate results orally or in writing.

The Information Technology program prepares students to compete in the rapidly expanding job market, to contribute to the intellectual body of knowledge, and to engage with their communities.

Upon completion of the BIT program, graduates will be able to:

- a. Use and apply current IT discipline-related concepts and practices
- b. Identify and analyze problems or opportunities in the IT realm and define requirements for addressing them when an IT solution is appropriate
- c. Design and develop effective IT-based solutions and integrate them into user environment
- d. Create and implement effective project plans

- e. Identify and investigate current and emerging technologies and assess their applicability to address individual and organizational needs
- f. Analyze the impact of technology on individuals, organizations, and society
- g. Collaborate in teams to accomplish common goals
- h. Communicate effectively and efficiently
- i. Recognize the qualities necessary to succeed in a professional environment

The Bachelor of Science in Cybersecurity program is designed to provide students with an opportunity to study cybersecurity related knowledge, techniques, and skills comprehensively and pursue a professional career in cybersecurity. The program seeks to address the gap between the graduates of cybersecurity and the job market.

The BS Cybersecurity graduates will be able to:

- a. explain knowledge of the fundamental concepts of information technology systems,
- b. identify, analyze, formulate, and solve cybersecurity problems with appropriate measures by applying current knowledge, skills, and tools,
- c. apply concepts of best practices in cybersecurity to produce ethical and professional solutions to address societal needs, and
- d. collaborate in teams and communicate effectively in writing and verbally.

The Certificate in AI program provides an opportunity to prepare for an AI career for high school graduates, working adults, and other audiences who want to pursue a career in AI but not to require a bachelor's degree.

At the completion of the program, students will be able to

- a. Master skills in computational coding and applications
- b. Apply GenAI to real-world challenges in a broad range of application domains.
- c. Use machine learning tools to solve real world problems in various domains.

The Certificate in Cybersecurity program provides educational services to high school graduates, working adults, and other audiences who want to pursue a career in cybersecurity but not to require a bachelor's degree.

At the completion of the program, students will be able to

- a. Demonstrate skills and knowledge of fundamental coding, its applications, and cybersecurity
- b. Explain and apply ethics in cybersecurity
- c. Master skills for cybersecurity practices

The MSCT program is designed to enable both traditional students and working adults to pursue graduate education in the field of cyber technology.

Graduates of this program will be able to

- a. secure data using current software and hardware tools, and respond to threats that occur over the internet,
- b. design and implement risk analysis, security policies, and damage assessment,

- c. plan, implement and audit operating systems' security in a networked, multi-platform and cross platform environment, and
- d. provide contingency operations like administrative planning for incident response, disaster recovery, or business continuity planning within information security.

The MSDS program enables students to pursue advanced careers in Data Science addressing state and national workforce shortages and supporting the growth of the local knowledge-based economy.

Graduates of this program will be able to

- a. demonstrate a comprehensive understanding of data science,
- b. utilize advanced data science knowledge and skills to solve complex computing problems related to data science specialization,
- c. identify and analyze user needs, and integrate data science-based solutions into user environment, and
- d. possess skills in data science leadership and information management.

Student Organizations

Student organizations supporting the educational and professional development of students are the Student Chapter of the Association for Computing Machinery (ACM), Robotics Club, and the Organization for Women Interested in Science, Technology, Engineering, and Mathematics (Wi²STEM).

For more information on these student organizations, contact the College of Information and Mathematical Sciences at 678-466-4400.

Programs

The Department of Computer Science and Information Technology offers the following undergraduate options. Graduate degree programs can be found under the School of Graduate Studies (<https://catalog.clayton.edu/academic-catalog/graduate-studies/>).

Associate Programs

- Information Technology, AAS (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/information-technology-aas/>)

Baccalaureate Programs

- Bachelor of Science in Cybersecurity (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/cybersecurity-bs/>)
- Computer Science, BS (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/computer-science-bs/>)
- Information Technology, BIT (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/information-technology-bit/>)

Combined Degree Programs

- Bachelor of Information Technology (BIT) and Master of Science in Cyber Technology (MSCT) (https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/combined_degrees/bit_msct/)

- Bachelor of Information Technology (BIT) and Master of Science in Data Science (MSDS) (https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/combined_degrees/bit_msds/)
- Bachelor of Science (BS) in Computer Science and Master of Science in Cyber Technology (MSCT) (https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/combined_degrees/bscs_msct/)
- Bachelor of Science in Computer Science (BSCS) and Master of Science in Data Science (MSDS) (https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/combined_degrees/bscs_msds/)

Minor Programs

- Computer Science, Minor (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/computer-science-minor/>)
- Information Technology, Minor (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/information-technology-minor/>)

Certificate Programs

- Certificate in Artificial Intelligence (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/artificial-intelligence-certificate/>)
- Certificate in Cybersecurity (<https://catalog.clayton.edu/academic-catalog/information-mathematical-sciences/computer-science-information-technology/cybersecurity-certificate/>)

Faculty

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