

Graduate Computer Science Cybersecurity Certificate

Degree Requirements

The School of Computing is responding to its industry need for a skilled workforce in Cybersecurity.

Cybersecurity requirements for critical infrastructure continues to be vital for the US national defense and health of our national economy. Continued attacks, such as ransomware, against these systems requires advanced educational training to stay ahead of such threats. The goal of the graduate computer science cybersecurity certificate is to ensure educational relevancy in the identification and defense of current cyber threats to critical infrastructure. The certificate includes course options in Artificial Intelligence (AI) and Machine Learning (ML) as these have been deemed critical to the advancement of cybersecurity, to include using AI/ML for cybersecurity as well as the security of the AI/ML systems themselves. The included courses delve into the theory and mathematical foundations as well as hands-on components focused on security at both a software and hardware level.

This certificate can be completed by both graduate-level degree and non-degree seeking students that have completed an appropriate computer science or computer engineering undergraduate degree. We provide a choose five-of-eight approach as some of these courses may have been previously taken as cross-listed undergraduate courses and the proposed graduate certificate requires 15 graduate credits.

Choose 5 of the following courses (15 credits)

Graduate Computer Science Certificate in Cybersecurity	Course Title	Credit Hours
CSC 510	Compilers	3 hrs
CSC 516	Artificial Intelligence	3 hrs
CSC 526	Data Mining	3 hrs
CSC 550	Surreptitious Software	3 hrs
CSC 560	Security of Hardware Implementations	3 hrs
CSC 582	Network Security	3 hrs
CSC 585	Cyber Physical Systems	3 hrs
MA 581 or CSC 580	Cryptography Data Security	3 hrs

Department Information

Department of Computer Science Staff

Professor & Computer Science Chair

Dr. Todd Andel

Department of Computer Science website
<https://www.southalabama.edu/colleges/soc/computerscience>

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.