

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW/CHANGE PROGRAM REQUEST</b> <b>Undergraduate Programs</b>	UUPC Approval <u>3/25/24</u> UFS Approval _____ Banner _____ Catalog _____
	Department Mathematics and Statistics College Science	
<b>Program Name</b> Artificial Intelligence (AI) for Cybersecurity Certificate	<input checked="" type="checkbox"/> <b>New Program*</b> <input type="checkbox"/> <b>Change Program*</b>	<b>Effective Date</b> (TERM & YEAR) FALL 2024
<p><b>Please explain the requested change(s) and offer rationale below or on an attachment.</b></p> <p>A new certificate in AI for Cybersecurity is being proposed. This certificate will help students gain skills in a critical areas of cybersecurity with significant workforce needs. Students must complete 12 credits to receive the certificate. This certificate has two tracks: 1) CS track targeting students in the EECS Department and 2) Math Track, targeting students in the Mathematics Department.</p>		
<p><small>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</small></p>		
<b>Faculty Contact/Email/Phone</b> Shi Bai / sbai@fau.edu / (561) 297 3340	<b>Consult and list departments that may be affected by the change(s) and attach documentation</b> This is a joint certificate between EECS and (Mathematics and Statistics) departments.	
<b>Approved by</b> Department Chair _____ College Curriculum Chair _____ College Dean _____ UUPC Chair <u>Korey Sorge</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____	<b>Date</b> _____ _____ <u>3/14/24</u> <u>3/25/24</u> <u>3/25/24</u> _____ _____	

Email this form and attachments to [mjenning@fau.edu](mailto:mjenning@fau.edu) seven business days before the UUPC meeting.

# **Artificial Intelligence (AI) for Cybersecurity Certificate**

## **[Introduction and Rationale]**

Cybersecurity involves studying methods, tools, mathematical principles, and operational practices to safeguard the integrity of information, systems, and networks. Artificial Intelligence, leveraging its capacity to process extensive datasets, detect patterns, and dynamically respond to emerging threats in real-time, emerges as an indispensable tool for enhancing the security of information infrastructures, system functionalities, network architectures, and cryptographic protocols.

This program aims to equip students with knowledge and tools that leverage AI technologies to develop more robust and efficient cybersecurity solutions, allowing for proactive identification and response to cyber threats.

The program has two tracks, one offered by the Department of Electrical Engineering & Computer Science in the College of Engineering and Computer Science; and one offered by the Department of Mathematics and Statistics in the College of Science.

## 1. CS Track

The Department of Electrical Engineering & Computer Science offers the AI for Cybersecurity Certificate with a track in Computer Science (CS). This 12-credit certificate program allows students to expand their knowledge and skills to meet the needs of the cybersecurity field in the AI era. The certificate is available to degree-seeking students, non-degree students and working professionals.

The CS track certificate will be granted to a student who completes four 3-credit courses as follows: two core courses, one 3-credit courses from the cybersecurity elective list and one 3-credit course from the AI elective course list.

Admission: Open to students who satisfy the prerequisites required for each course in the program with the grade C or better. All four courses in the certificate must be completed with the grade C or better. All course materials are in English.

Core course (required):		
CNT 4403	Foundations of Cybersecurity	3
CAI 4825	AI for Cybersecurity	3
Elective courses: select 1 from the approved cybersecurity course list. Additional courses may be used as replacements with prior approval of the department.		
CDA 4321	Introduction to Cryptographic Engineering	3
COP 4623	Trustworthy AI	3
CNT 4411	Network and Data Security	3
CIS 4634	Applied Cryptography and Security	3
Elective courses: select 1 from the approved AI course list. Additional courses may be used as replacements with prior approval of the department.		
CAP 4630	Introduction to AI	3
CAP 4770	Introduction to Data Mining and Machine Learning	3
CAP 4613	Introduction to Deep Learning	3

## 2. Math Track

The Department of Mathematics and Statistics offers the AI for Cybersecurity Certificate with a track in Mathematics (Math). This 12-credit certificate program allows students to expand their knowledge and skills to meet the needs of the cybersecurity field in the AI era. The certificate is available to degree-seeking students, non-degree students and working professionals.

The Math track certificate will be granted to a student who completes four 3-credit courses as follows: one core course in AI and one core course in cryptography, and two 3-credit courses from the elective list.

Admission: Open to students who satisfy the prerequisites required for each course in the program with the grade C or better. All four courses in the certificate must be completed with the grade C or better. All course materials are in English.

Core course in Cryptology (required)		
CIS 4362	Cryptography and Information Security	3
Core course in AI (required)		
CAI 4825	AI for Cybersecurity	3
Elective courses (choose 2)		
CAP 4773	Introduction to Data Science and Analytics	3
CAP 5786	Introduction to Data Science	3
CAP 4776	Cryptography of Blockchain	3
MAD 4605	Introduction to Coding Theory	3
MAP 4190	Mathematics of Cybersecurity	3
MAS 4206	Mathematics for Cryptography	3
MAD 4475	Post-quantum Cryptography	3
STA 3100	Computational Statistics	3
STA 4032	Probability and Statistics for Engineers, or	3
STA 4442	Probability and Statistics 1	