FLORIDA ATLANTIC UNIVERSITY

NEW/CHANGE PROGRAM REQUEST
Graduate Programs

UGPC Approval _____
UFS Approval _____
Banner Posted _____
Catalog _____

Department Electrical Engineering and Computer Science

College Engineering and Computer Science

Program Name
M.S. in Artificial Intelligence

☐ **New Program**

☐ **Change Program**

Effective Date
(TERM & YEAR)
Summer 2025

Please explain the requested change(s) and offer rationale below or on an attachment

We would like to modify the core courses so that they align with those at other major institutions and better prepare students for careers in AI, which is a new and rapidly evolving field. The current core curriculum is limited and does not provide students with the specialized knowledge needed for careers in AI.

Specifically, we would like to modify the core courses in the following way:

1) Require that students take five core courses (15 credits) that are designed to provide a structured and focused curriculum in AI.

2) Remove CAP 6673 Data Mining and Machine Learning, as students already obtain a foundation in this area by taking another core course, CAP 5625 Computational Foundations of AI.

3) Add three courses important for AI careers: CAP 6619 Deep Learning, CAP 6629 Reinforcement Learning, and one course in computer vision or natural language processing (CAP 6415 or CAP 6618 or CAP 6640).

Faculty Contact/Email/Phone

Dr. Masoud Jahandar Lashaki, Graduate Program Direc

Consult and list departments that may be affected by the change(s) and attach documentation

n/a

Approved by		***Date***
Department Chair	Hai Kalva	1/15/2025
College Curriculum Chair	Francisco Presuel-Moreno	1/21/2025
College Dean	Raquel Assis	1/21/2025
UGPC Chair		03/14/2025
UGC Chair		03/14/2025
Graduate College Dean		03/15/2025
UFS President		
Provost		

Email this form and attachments to UGPC@fau.edu one week before the UGPC meeting so that materials may be viewed on the UGPC website prior to the meeting.

ARTIFICIAL INTELLIGENCE
MASTER OF SCIENCE (M.S.)

The Master of Science (M.S.) with Major in Artificial Intelligence provides a comprehensive curriculum, consisting of foundation and theory of artificial intelligence and elements of computer vision, data analytics and algorithms, knowledge management and reasoning, machine learning and applications. Both thesis and non-thesis options of the M.S. in Artificial Intelligence require a minimum of 30 credits. The thesis option consists of a minimum of 24 coursework credits and 6 thesis credits.

With approval of the advisor, substitution can sometimes be made among similar courses. See the Department of Electrical and Computer Science website for updates.

Admission Requirements
Applicants for admission to the master's program are approved by the University upon the recommendation of the department. All applicants must submit with their applications the official transcripts from previous institutions attended. Applications for admission are evaluated on an individual basis. At a minimum, applicants are expected to meet the following requirements.

1. Have obtained a bachelor's degree from an accredited institution. Students are expected to have taken Calculus 1 or Methods of Calculus and a statistics course, to be proficient in programming, and to be knowledgeable in data structures and algorithm analysis. Students can gain this knowledge through undergraduate classes or learn it through work experience. The admissions committee will evaluate the application holistically to determine applicant suitability using several factors, such as academic performance, GPA, background and experience. The admission committee may assign remedial courses on a case-by-case basis. In some cases, prerequisite courses may be taken after admission to the graduate program.
2. At least a 3.0 (of a 4.0 maximum) GPA in the last 60 credits attempted prior to graduation; and
3. International students from non-English-speaking countries must be proficient in written and spoken English as evidenced by a score of at least 500 (paper-based test) or 213 (computer-based test) or 79 (Internet-based test) on the Test of English as a Foreign Language (TOEFL) or a score of at least 6.0 on the International English Language Testing System (IELTS).

Submission of Plan of Study
Students are required to submit a Plan of Study when they have completed between 9 and 15 credits of coursework with a minimum cumulative GPA of 3.0. All courses must be approved by the student's advisor. A student may not register for thesis credits prior to submitting a Plan of Study.

Degree Requirements
The M.S. in Artificial Intelligence program offers both thesis and non-thesis options. Both options require a minimum of 30 credits, as specified in the table.

Students must satisfy all of the University graduate requirements. In addition, the following requirements must be met. The coursework credits must satisfy the following constraints:

1. No more than 3 credits of directed independent study may be taken.
2. No course can be counted toward the degree that is more than 10 years old at the time the degree is awarded.
3. At least one-half of the credits must be at the 6000 level or above.
4. The student must have a GPA of 3.0 (out of 4.0) or better.
5. All courses in the degree program must be completed with a grade of "C" or better.

Transfer Credits
Any transfer credits toward the requirements for an M.S. in Artificial Intelligence must be approved by the ~~department~~Department, the College and the University. The transfer credits must correspond to equivalent requirements and performance levels expected for the degree. Normally no more than 6 credits of coursework (that have not been applied to a degree) can be transferred from another institution.

Core Courses (~~6~~ 15 credits)			
Students in both thesis and non-thesis options complete ~~the~~ five c~~C~~ore c~~C~~ourses. ~~Select two courses from the following three courses.~~			
Computational Foundations of Artificial Intelligence	CAP 5625	3	
Artificial Intelligence	CAP 6635	3	
~~Data Mining and Machine Learning~~	~~CAP 6673~~		
Deep Learning	CAP 6619	3	
Reinforcement Learning	CAP 6649	3	
One of the following courses:			
Computer Vision	CAP 6415	3	**or**
Machine Learning for Computer Vision	CAP 6618	3	**or**
Natural Language Processing	CAP 6640	3	

Thesis Option (30 credits)		
Master's Thesis ~~- Artificial Intelligence~~ (may be taken over multiple terms)	CAP 6974	6
In addition to the c~~C~~ore c~~C~~ourses and the t~~T~~hesis credits, students complete ~~six~~ three Electrical Engineering and Computer Science elective courses (~~18~~9 credits) with the following constraints: ~~Two AI electives. M~~minimum of 3 credits of 6000-level courses and maximum of 3 credits of Directed Independent Study, COT 6900 or COT 6905.		

Non-Thesis Option (30 credits)

In addition to the cCore cCourses, students complete ~~eight~~five Electrical Engineering and Computer Science elective courses (15~~24~~ credits) with the following constraints: ~~Four AI electives. M~~minimum of 6~~9~~ credits of 6000-level courses and maximum of 3 credits of Directed Independent Study, COT 6900 or COT 6905.

~~**AI Electives**~~

~~Select 12 credits for Non-Thesis option and 6 credits for Thesis option.~~

~~***Computer Vision***~~	
~~Foundations of Vision~~	~~CAP 6411~~
~~Computer Vision~~	~~CAP 6415~~
~~Machine Learning for Computer Vision~~	~~CAP 6618~~
~~Visual Information Retrieval~~	~~COP 6728~~
~~***Data Analytics and Algorithms***~~	
~~Computational Foundations of Artificial Intelligence~~	~~CAP 5625~~
~~Introduction to Data Science~~	~~CAP 5768~~
~~Social Networks and Big Data Analytics~~	~~CAP 6315~~
~~Data Mining for Bioinformatics~~	~~CAP 6546~~
~~Artificial Intelligence~~	~~CAP 6635~~
~~Computer Performance Modeling~~	~~CEN 6405~~
~~Analysis of Algorithms~~	~~COT 6405~~
~~Randomized Algorithms~~	~~COT 6446~~
~~***Knowledge Management and Reasoning***~~	
~~Natural Language Processing~~	~~CAP 6640~~
~~Information Retrieval~~	~~CAP 6776~~
~~Web Mining~~	~~CAP 6777~~
~~Semantic Web Programming~~	~~COP 5859~~
~~***Machine Learning***~~	
~~Introduction to Neural Networks~~	~~CAP 5615~~
~~Evolutionary Computing~~	~~CAP 6512~~
~~Sparse Learning~~	~~CAP 6617~~
~~Deep Learning~~	~~CAP 6619~~
~~Reinforcement Learning~~	~~CAP 6629~~
~~Data Mining and Machine Learning~~	~~CAP 6673~~
~~Advanced Data Mining and Machine Learning~~	~~CAP 6778~~
~~***Applications***~~	
~~Artificial Intelligence in Medicine and Healthcare~~	~~CAP 6683~~
~~Computational Advertising and Real-Time Data Analytics~~	~~CAP 6807~~
~~Robotic Applications~~	~~EEL 5661~~

~~***EECS Electives:** Select four courses from the graduate courses offered by the EECS department. Course substitution is allowed with the prior approval of the advisor.~~