FLORIDA ATLANTIC UNIVERSITY

NEW/CHANGE PROGRAM REQUEST
Undergraduate Programs

UUPC Approval 10-11-21
UFS Approval _____
Banner Posted _____
Catalog _____

Department Information Technology and Operations Management

College Business

Program Name

Minor/Certificate in Interdisciplinary Applications of Artificial Intelligence

☑ **New Program**

☐ **Change Program**

Effective Date
(TERM & YEAR)

Spring 2022

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

We propose a minor and a certificate program in Interdisciplinary Applications of Artificial Intelligence - that is offered by 4 colleges. The minor/certificate address the increasing demand by all stakeholders to educate students in Artificial Intelligence (AI), through various lenses and facets. The programs contain tracks from different disciplines. Each track offers a unique view and learning perspective that enriches the students in this very important field.

- Business Applications of Artificial Intelligence - offered by the Department of Information Technology and Operations Management (ITOM) in the College of Business (COB).
- Technology Applications of Artificial Intelligence - offered by the Department of Electrical Engineering and Computer Science (EECS) in the College of Engineering and Computer Science.
- Scientific Applications of Artificial Intelligence – offered by the Department of Mathematical Science in the Charles E. Schmidt College of Science
- Societal Applications of Artificial Intelligence – offered by the Department of Philosophy in the College of Arts and Letters

Faculty Contact/Email/Phone

Tamara Dinev/tdinev@fau.edu/297-3181

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

Dept of Electrical Engineering and Computer Science (EECS); Dept of Mathematical Science; Dept of Philosophy

Approved by		***Date***
Department Chair	[signature]	September 14, 2021
College Curriculum Chair	Ethlyn Williams	09/27/2021
College Dean	Paul Hen	9 - 28 - 2021
UUPC Chair	Daniel Meeroff	10-11-21
Undergraduate Studies Dean	Edward Pratt	10-11-21
UFS President		
Provost		

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

Minor/Certificate in Interdisciplinary Applications of Artificial Intelligence

The minor/certificate requires completion of four courses (12 credits) with grade C or better. Students must ensure that they have the necessary prerequisites for the selected courses. Waiver of prerequisites will be made on a case-by-case basis. Students cannot apply for both Minor and Certificate in Interdisciplinary Applications of AI. Students can apply to at most one track. The certificate is available to degree-seeking students, non-degree students and working professionals.

The minor is available to all undergraduate degree-seeking students and may be earned upon successful completion of the coursework below and the simultaneous completion of a bachelor's degree at FAU. For the minor, (i) at least 9 of the 12 credits must be earned from FAU, and (ii) at least 9 of the 12 credits must be upper-division credits.

Tracks

The program contains tracks from different disciplines. The program contains the following tracks:

- **Business Applications of Artificial Intelligence -** offered by the Department of Information Technology and Operations Management (ITOM) in the College of Business (COB).
- **Technology Applications of Artificial Intelligence -** offered by the Department of Electrical Engineering and Computer Science (EECS) in the College of Engineering and Computer Science.
- **Scientific Applications of Artificial Intelligence –** offered by the Department of Mathematical Science in the Charles E. Schmidt College of Science
- **Societal Applications of Artificial Intelligence** – offered by the Department of Philosophy in the College of Arts and Letters

TRACKS

- **Business Applications of Artificial Intelligence Track (12 credits)**

Artificial intelligence (AI) has captured the attention of business leaders, scientists, and engineers worldwide. Across industries, leaders are seeking ways to create value through AI, machine learning, and other frontier technologies. This program requires no prior, formal engineering or technical experience. It offers a business manager's level of understanding of AI and how it can be positioned to improve efficiency and effectiveness across the organization: what is the basket of AI tools that can be used in what business problems, how to customize available AI tools for the specific organizational problem and be successful, how to avoid caveats. Maximizing the business value of AI projects requires more than the ability to program or code. Effective communication, collaboration, and alignment between leaders and AI teams are essential elements ensuring that an organization's AI capabilities serve business objectives. The widespread rollout of AI hinges on ethical and governance considerations to ensure public safety and personal privacy protections.

Core Courses (6 credits) – Choose 2 courses from the following four courses. At least one of the two core courses must be ISM 4421 or ISM 4041.

Artificial Intelligence and Digital Transformation for Business	ISM 4421
Contemporary Issues of Digital Data Management	ISM 4041
Applications of Artificial Intelligence	CAP 2603
Applied Machine Learning and Data Mining	CAP 4612

Elective Courses (6 credits) – Select 2 courses from Table 1.

- **Technology Applications of Artificial Intelligence (12 credits)**

Over the past years, there has been dramatic progress in the rise of artificial intelligence (AI) and machine learning and their use in the development of systems that can reason and respond to increasingly complex situations. AI is everywhere and the changes enabled by this technology have just begun. AI is transforming every segment of American industry. It is making agriculture more precise and efficient, revealing new medical technologies and bringing the prospect of autonomous transportation and advanced manufacturing closer to reality. To become competitive, companies and corporations will have to embrace AI technological innovations to some extent. This program requires no prior formal engineering or technical experience. It provides students with knowledge and skills in the concepts, technologies and applications of artificial intelligence.

Core Courses (6 credits):

Applications of Artificial Intelligence	CAP 2603
Applied Machine Learning and Data Mining	CAP 4612

Elective Courses (6 credits) – Select 2 courses from Table 1.

- **Scientific Applications of Artificial Intelligence (12 credits)**

Artificial Intelligence is revolutionizing scientific discovery. Scientists, who aspire to understand the workings of nature, people, and society, are using AI methods to process the large amounts of data now being generated in a wide range of scientific fields. This program will provide students, through hands-on experience, with an introduction to how AI impacts the analysis of scientific data to gain a better understanding of natural, physical, and social phenomena.

Core Courses (6 credits) – Choose 2 courses from the following 3 courses.

Applications of Artificial Intelligence	CAP 2603
RI: Introduction to Data Science	CAP 3786
Applied Machine Learning and Data Mining	CAP 4612

Elective Courses (6 credits) – Select 2 courses from Table 1. At least one course from the College of Science group in Table 1 needs to be taken for the minor/certificate to qualify for the Scientific Applications track

- **Societal Applications of Artificial Intelligence (12 credits)**

As artificial intelligence and machine learning become commonplace in industry, governance, medicine, service and transportation sectors media and technology production questions arise over the effect of this technology on society and particular populations. Issues of privacy, disruption of labor markets, equitable access to data, fair and equal treatment regardless of identity markers, impacts on social interaction and ethical concerns over the collection, storage and use of data raise questions of how the widespread utilization of artificial intelligence will transform society and its norms of culture, business,

political engagement and social interaction. This program provides students with a fundamental awareness of how artificial intelligence operates, an understanding of how AI is utilized and comprehension of the consequences of those applications in various societal domains. The program requires no prior formal engineering or technical expertise.

Core Courses (6 credits) – Choose 2 courses from the following four courses. At least one of the two core courses completed for the Societal Applications track must be PHI 2681 or AMH 3372

Ethics and Artificial Intelligence	PHI 2681
History of American Technology	AMH 3372
Applications of Artificial Intelligence	CAP 2603
Applied Machine Learning and Data Mining	CAP 4612

Elective Courses (6 credits) – Select 2 courses from Table 1.

Table 1. Electives (Select 2 courses)

College of Business courses	
Artificial Intelligence and Digital Transformation for Business	ISM 4421
Introduction to Business Analytics and Big Data	ISM 3116
Contemporary Issues of Digital Data Management	ISM 4041
Healthcare Information Systems	ISM 4381
Blockchain: Business Implications	ISM 4451
Project Management	MAN 4583
Digital Marketing	MAR 4721
Technology in Healthcare Organizations	HSA 3191
Business Analytics for Marketing and Customer Relationship Management	MAR 4615
Revenue Management and Predictive Analytics in the Hospitality and Tourism Industry	HFT 4881
College of Engineering and Computer Science courses	
Tools for Data Science	CAP 2751
Applications of Artificial Intelligence	CAP 2603
Introduction to Artificial Intelligence	CAP 4630
Applied Machine Learning and Data Mining	CAP 4612
Introduction to Data Mining and Machine Learning	CAP 4770
Introduction to Deep Learning	CAP 4613
Introduction to Data Science and Analytics	CAP 4773
Trustworthy Artificial Intelligence	CAP 4623

Robotic Applications	EEL 4930
College of Arts and Letters courses	
History of American Technology	AMH 3372
New Media and Civic Discourse	COM 4603
Media, Culture and Technology	MMC 4263
Science Fiction	LIT 3313
Psycholinguistics	LIN 4701
Ethics and Artificial Intelligence	PHI 2681
Philosophy of Mind	PHI 3320
Research Methods in Political Science	POS 3703
Information Technology in Public Administration	PAD 3820
Technology and Society	SYP 4421
College of Social Work and Criminal Justice courses	
Artificial Intelligence for Social Good	CCJ 3071
Crime Analysis	CJE 4663
Computer Crime	CJE 4668
College of Science courses	
Shared and Automated Transport: Current Trends	URP 4712
Spatial Data Analysis	GEO 4167C
Photogrammetry and Aerial Photograph Interpretation	GIS 4021C
Applications of Geographic Information Systems	GIS 4048
Geospatial Databases	GIS 4118
Computational Physics	PHZ 3151C
Solar System Astronomy	AST 3110
Mathematical Methods in Physics	PHZ 4113
Practical Cell Neuroscience	PCB 4843C
Laboratory Methods in Biotechnology	BSC 4403L
Epidemiology of Infectious Diseases	MCB 4276
Concepts in Bioinformatics	BSC 4434C
RI: Industrial Problems in Applied Math	MAP 4913
Topology for Data Science	MTG 4325
Mathematics of Data Science	MAP 2192
Introduction to Biostatistics	STA3173
Applied Statistics 1	STA 4234
Computational Statistics	STA 3100
RI: Introduction to Data Science	CAP 3786