

ARTIFICIAL INTELLIGENCE AND CLOUD COMPUTING (AIC)

AIC 101 - Careers in Artificial Intelligence, Machine Learning, and Cloud Computing (2 Credits)

2 lecture, 0 lab, 2 total contact hours

Navigates students through the complexity of artificial intelligence (AI), machine learning (ML), and cloud computing careers. Provides an overview of major categories of work and job classifications, and an understanding of required credentials and existing programs of study to prepare for the workforce or transfer.

AIC 110 - Introduction to Artificial Intelligence (AI) (3 Credits)

3 lecture, 0 lab, 3 total contact hours

Basic concepts and applications of artificial intelligence (AI), including AI project cycles. Focus on issues surrounding AI including ethics, bias, culture, regulations, and professional expectations.

AIC 120 - Introduction to Machine Learning (3 Credits)

2 lecture, 2 lab, 4 total contact hours

Introduction to machine learning concepts and Python applications, including data acquisition, supervised and unsupervised learning, and data modeling.

AIC 130 - Applied Math for Artificial Intelligence (3 Credits)

3 lecture, 0 lab, 3 total contact hours

Covers the basic concepts and topics relevant to develop an appreciation for the role mathematics plays in AI. In this application-based course, students will learn to apply the concepts of statistics, linear algebra, and probability to the AI Project Cycle.

AIC 140 - Python Programming for AI (3 Credits)

2 lecture, 2 lab, 4 total contact hours

Provides comprehensive introduction to Python programming. Covers fundamental programming concepts, advanced data structures, and essential libraries and frameworks with emphasis on those directly applicable to AI. Students will gain practical experience in writing efficient Python code, developing algorithms, and utilizing Python for data analysis, and AI/machine learning computing applications. Students will be well-equipped to apply Python programming skills to real-world computing problems with an emphasis on AI/machine learning.

AIC 150 - Introduction to Generative AI (2 Credits)

2 lecture, 0 lab, 2 total contact hours

This course introduces students to fundamental principles, strategies, and practices necessary for working with and developing generative AI. Prerequisite: AIC 110 and AIC 120.

AIC 210 - Natural Language Processing (3 Credits)

2 lecture, 2 lab, 4 total contact hours

Covers the fundamental concepts in Natural Language Processing (NLP) and text processing. Focuses on the knowledge and skills necessary to create a language recognition application. Prerequisite: AIC 120 or AIC 140.

AIC 220 - Applications of Artificial Intelligence (2 Credits)

1 lecture, 2 lab, 3 total contact hours

This course is a project-based course that focuses on the application of AI/machine learning concepts, principles learned to solving one or more specific AI case study problems. Students will demonstrate competence to scope, acquire/explore data, model, evaluate, and deploy one or more AI/machine learning solutions in a team environment. Students will create and present code or no-code AI solutions.

AIC 230 - Fundamentals of Azure (2 Credits)

1 lecture, 2 lab, 3 total contact hours

Students will learn the administration skills and knowledge required to implement, manage, and monitor identity, governance, storage, and compute virtual networks in the Microsoft Azure cloud environment. Aligns with Microsoft Certified Azure Associate.

AIC 240 - Amazon Web Services Cloud (2 Credits)

1 lecture, 2 lab, 3 total contact hours

Provides a basic introduction to cloud computing using Amazon Web Services (AWS), aligning with the AWS Certified Cloud Practitioner certification. Students will gain practical knowledge and skills needed to understand and work with AWS, covering fundamental concepts, core services, security, pricing, and management tools. The course combines theoretical instruction with hands-on labs to prepare students for the AWS Certified Cloud Practitioner exam.

AIC 250 - Data-Centric Artificial Intelligence (3 Credits)

3 lecture, 0 lab, 3 total contact hours

The two pillars of artificial intelligence (AI) are code and data. Students will primarily focus on the data aspect of AI. They will learn how to work with data (statistical, text, and visual) and how continuous improvements to datasets improve AI solutions. Students will then learn how to integrate and manage data pipelines with Machine Learning Operations (MLOps). Prerequisite: AIC 120 and AIC 220.

AIC 260 - Artificial Intelligence for Computer Vision (3 Credits)

3 lecture, 0 lab, 3 total contact hours

Fundamental concepts in Computer Vision (CV) and image processing, including introduction to necessary Python libraries like OpenCV, OpenVINO, Keras. Focuses on knowledge and skills necessary to create a computer vision application. Prerequisite: AIC 120.

AIC 290 - Artificial Intelligence (AI) Capstone (2 Credits)

1 lecture, 2 lab, 3 total contact hours

Students will demonstrate competence to scope, acquire/explore data, model, evaluate, deploy, and present an AI/Machine Learning solution in a team environment. Students will create and present an AI solution. Guidance and support are provided along with graded evaluation and feedback from their faculty throughout the semester. Must be taken during the last semester before graduation.