

CAIC - COMPUTING ARTIFICIAL INTELLIGENCE LECTURE/LAB

CAIC 2100 Machine Learning Foundations

Credit Hours: 3

Prerequisites: COP 2047 or COP 2334 with a grade of 'C' or higher

Lab Fee: Yes

This course introduces students to the fundamental concepts and applications of machine learning (ML). Students explore how machines learn from data to make predictions, discover patterns, and improve performance over time. Topics include data acquisition and preparation, supervised learning, unsupervised learning, and reinforcement learning. The course explores widely used machine learning techniques, including decision trees and other predictive algorithms, to uncover patterns and relationships within data. Students will gain hands-on experience with each stage of the machine learning pipeline—from data collection and preparation, through model selection, to performance evaluation.

CAIC 2300 Introduction to Natural Language Processing

Credit Hours: 3

Prerequisites: CAIC 2100 with a grade of "C" or higher

Lab Fee: Yes

Course introduces students to the fundamental concepts and applications of natural language processing (NLP). In this course, students will learn the fundamental concepts that apply to both Natural Language Processing (NLP) and text processing. In addition, focus will be on knowledge and skills necessary to create a language recognition application.

CAIC 2820 AI Applications Solutions 1

Credit Hours: 3

Prerequisites: CAI 1001 and either COP 2047 or COP 2334, both courses with a grade of "C" or higher

Lab Fee: Yes

Students will demonstrate competence to scope, acquire/explore data, model, evaluate, and deploy an AI/machine learning solution in a team environment. Students will create and present a code or no-code AI solution. Must be taken during the last semester before graduation.

CAIC 2840 Introduction to Computer Vision

Credit Hours: 3

Prerequisites: CAI 1001 and COP 2047, both courses with a grade of "C" or higher

Lab Fee: Yes

Introduces fundamental concepts and techniques in Computer Vision (CV). Topics include image formation, basic image processing, feature detection, object recognition, and visual classification. Students will use open-source Python libraries to implement algorithms and build practical applications.

CAIC 3821 Computational Methods & Applications 1

Credit Hours: 3

Prerequisites: CAIC 2100, COP 2047, MAC 1105, and STA 2023 with grade "C" or higher

Lab Fee: Yes

Computational data analysis is an essential part of artificial intelligence (AI). This course is designed to help students develop programming skills for AI applications. Students will learn core concepts of computational methods to solve data analysis problems, AI algorithmic methodologies, and how to test AI models.

CAIC 3822 Computational Methods & Applications 2

Credit Hours: 3

Prerequisites: CAIC 3821 with grade "C" or higher

Lab Fee: Yes

This course is designed for students to acquire a deeper understanding of computational methods used in the applications of artificial intelligence (AI) with programming. The topics of this course will be a continuation of those covered in Computational Methods and Applications for Artificial Intelligence I, with added emphasis on case studies using machine learning.