Orientation: Syllabus

CSCE 3201 - Applied Artificial Intelligence

Course Information

Course	CSCE 3201 - Applied Artificial Intelligence
Instructor	Dr Lotfi ben Othmane <lotfi.benothmane@unt.edu>
Meeting time	The course is online
Office hours	Take an appointment using Calendly links on Thursdays, 12:00 to 1:00 p.m.
Teaching Assistant	Fahmid Shahriar Iqbal <FahmidShahriarIqbal@my.unt.edu>

Note: The information in this syllabus is subject to change in extenuating circumstances. Changes to the course syllabus will be provided in writing and announced via course-wide announcements.

Instructor and IAs information are available HERE.

Course Description

Core concepts and terminology in artificial intelligence will be introduced to understand the taxonomy of AI applications and the relationships between the tools and frameworks available for intelligent, data-driven decision making. This will include a demo-driven introduction to machine learning, with general principles of powerful predictive models discussed and the role of unsupervised and semi-supervised learning techniques in powering many state-of-the-art decision systems. This course is for non-CSE majors.

Prerequisites

- MATH 1650: Pre-Calculus, or permission of instructor.
- Experience with Python is helpful, as it is used extensively in the course, but significant prior programming experience with any language will be sufficient.

Course Format

The course will be delivered online.

We will have practice exercises. The instructor will review submissions and provide feedback on a randomly selected portion of these.

Course Goals and Learning Objectives

The course aims to provide students with the knowledge and first-hand experience they need to design and develop Machine Learning models. Students will become familiar with the foundations of AI and use Python for developing machine learning models from data.

At the end of the course, students will be able to:

- Identify what artificial intelligence and machine learning are.
- Determine the most common artificial intelligence use cases and applications.
- Understand how to use Python programming for artificial intelligence applications.
- Identify how to build a machine learning pipeline.
- Identify the differences between supervised and unsupervised learning.
- Describe the most recent advances and tools offered for AI development in the cloud.

- Understand the ethical issues and impacts of artificial intelligence.

Course Materials

Artificial Intelligence with Python: Your complete guide to building intelligent apps using Python 3, Second Edition, by Alberto Artasanchez and Prateek Joshi, Packt Publishing, 2020, ISBN: 9781839219535. This text is also available as an accessible PDF.

Students will subscribe to *Azure Foundry Services* for a short period of time; the cost is about $20.

Students are also encouraged to consult the following online sources, which will be referenced throughout the course:

- The Python 3 tutorial documentation.
- The scikit-learn documentation.

Other references and resources will be provided in each module individually to support the topics covered in this class.

Learning Activities and Assessments

Learning Activities

To successfully complete this course, students will do the following:

- Attend the lectures or watch the recorded lectures.
- Participate in discussion topics.
- Complete quizzes and exams.
- Complete the project.

Assessments

Practice exercises - There will be frequent practice exercises and online participation activities. Students will submit their attempts to get grades, and the answers will be discussed in class. The activity counts for 10% of the grade. Grades are based on attempts, not correct answers.

Quizzes - There will be a set of quizzes with equal weights, almost one quiz for each module. The quizzes count for 30% of the final grade. Quiz dates will be announced as the semester progresses. The quizzes will include questions from the paper presentations.

Assignments - There will be four practice assignments with equal weights. The assignments count for 30% of the final grade.

Project - Each student group, with a maximum of five students per group, will apply its knowledge and skills to develop a machine learning model using a public dataset, as well as a mini Agentic AI application that communicates with the model. The project accounts for 30% of the final grade.

Submission policy: Assignments and project work must be submitted before the due date through Canvas. Email submissions will be ignored.

Grading Policies

The grading scheme is:

Grade	From	To
A	100%	90.0%
B	< 90.0%	80.0%
C	< 80.0%	70.0%
D	< 70.0%	60.0%

F	< 60.0%	0.0%

Grade Appeal Process

If you become concerned about class management, please communicate your concerns with your instructor. Concerns sometimes relate to grading methods, paper turnaround time, and course policies, as examples.

Students have 7 days after grades are returned to contest their scores. Requests submitted after 7 days will be ignored.

Course Policies

Feedback

All graded assessments will be returned with feedback within 10 days of the due date, when possible. Personalized feedback will be provided for each assignment and reflection. In addition, responses to common questions and unclear content will be posted at the conclusion of each module.

Missed and Late Coursework

It is important to keep up with the pace of this course; therefore, late submissions will be reduced by a penalty of 5% for each late day, up to 5 days.

Make sure to keep careful track of submission deadlines for all your work in this class.

Integrity and Student Conduct

All department policies on Academic Integrity and Student Conduct apply for this course. These are available at the following link: http://cse.unt.edu/resources/cse_integrity_policy.html. Any exceptions to this policy are noted explicitly in the syllabus.

Use of Generative AI: In this course, Generative AI (GenAI) tools may only be used for purposes such as improving written text, clarifying concepts, or gaining additional knowledge about the topics covered. Using GenAI to complete assessments or practice activities is strictly prohibited. Any other use requires explicit permission, proper citation, and must reflect the student's own original work.

Attendance

Attendance is not required.

Expectations

- Each student should have a laptop that they can use for in-class activities.
- Students are expected to focus on the lecture during the course sessions.

Course Calendar

1. Introduction to Artificial Intelligence
2. Fundamental Use Cases for Artificial Intelligence
3. Introduction of Python Programming for Artificial Intelligence
4. Machine Learning Pipelines
5. Classification and Regression Using Supervised Learning
6. Detecting Patterns with Unsupervised Learning
7. Artificial Intelligence on the Cloud
8. Artificial Intelligence and Society