



Course ITSS 4382.001
Course Title Applied Artificial Intelligence Machine Learning
Instructor Dr. Lidong Wu
Term Spring 2024
Meetings Tu 1:00pm - 3:45pm @ JSOM 2.801

Contact Information

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**Note: The TA is your first contact for questions regarding Assignments/Grades.*

General Course Information

<i>Course Modality</i>	Face-to-Face.
<i>Required Textbook</i>	No required Textbook. Resources will be posted on eLearning.
<i>Required Software</i>	Python 3.5 or later, Jupyter Notebook.
<i>Pre-requisites</i>	ITSS 3312 O-O Programming or ITSS 4381 O-O Programming with Python
<i>Course Description</i>	This course covers a broad introduction to machine learning, data mining, and statistical pattern recognition. Topics include: (i) Regression (ii) Clustering (iii) Classification (iv) Recommendation. In this class, students will learn about the most effective machine learning techniques, and gain practice applying them to analyze business data. A number of in-class, hands-on exercises will be created to help students understand how to apply those techniques to solve some real-world business problems.
<i>Learning Outcomes</i>	<ol style="list-style-type: none">1. Obtain a general understanding of AI/ML concepts;2. Understand effective machine learning techniques;3. Become comfortable with using Python for Machine Learning;4. Understand the strengths and limitations of various machine learning methods;5. Apply proper machine learning methods to real-world problems;

Grading Policy

Weighting Scheme	Scale			
Exam I - 20%	96 – 100%	A+	66- 69.99%	C
Exam II - 20%	90 – 95.99%	A	60.0 - 65.99%	D
Project - 20%	86 – 89.99%	A-	Below 60%	F
Homework - 20%	80 – 85.99%	B+		
Quizzes, Attendance, and Participation - 20%	76 – 79.99%	B		
	70 – 75.99%	B-		

Accessing Grades:

Students can check their grades by clicking “My Grades” on the course menu after the grade for each assessment task is released.

Exams:

- There are three exams. All the exams are scheduled at the [UTD Testing Center](#).
- Review the [Student Guidelines](#) before taking your first exam at the center and register for all three exams early in advance, at the beginning of the semester, or no later than 48 hours prior to exam appointment time.
- Everything that is on the slides or the notes to the slides is up for testing.
- There might be some minor coding, but mostly conceptual questions and multiple choice.
- **No makeup exams will be given.**

Homeworks:

- All homework assignments must be submitted electronically via eLearning.
- **Late submissions will not be accepted under any circumstances.** To ensure fairness and maintain a structured course schedule, it's crucial that you submit your work by the specified deadlines.
- Turn in what is completed by the deadline for partial credit.
- The last commit before the deadline will be counted as your submission.
- All code is expected to run on Python 3.5 or later.

Projects:

- There will be one semester-long project.
- All code and files required for the projects must be submitted electronically via eLearning.
- In addition to the programming project, each student will give a brief in-class presentation demonstrating the final project.
- Your goal should be to make it easy for us to see how great you did. If we make a couple of good-faith attempts but fail to get your program running, we will try once to contact you to help us. If we still cannot get your work to compile, it will receive a zero grade.
- **Late submissions will not be accepted under any circumstances.** To ensure fairness and maintain a structured course schedule, it's crucial that you submit your work by the specified deadlines.

Quizzes, Attendance, and Participation:

- Weekly quizzes are given to assess your understanding of the material covered. These quizzes are designed to reinforce your learning and provide you with feedback on your progress. Quiz dates and specific details will be announced in advance.
- **No makeup quiz will be given.**
- Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty.
- Class participation is documented by faculty. If attendance is low, the instructor reserves the right to administer pop quizzes for credit, to be determined.
- If you missed a class, then please ask your classmate about what was covered in class. There is no need to let the instructor know if you are going to miss a class.
- Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Course Policies:

- It is imperative that all coursework, including assignments and projects, is submitted by the specified deadlines. **Late submissions will not be accepted**, and it is the responsibility of each student to ensure timely submission.
- You **MUST** communicate with the instructor via your UTD email account only (for privacy and FERPA purposes). Remember to **write the course number and your purpose in the subject line** of the email. Please do not use any personal email account (e.g., Gmail, Hotmail, Yahoo, QQ, etc.), it will not be answered.
- This class will involve extensive use of Python programming technologies. You may set up your own personal computer for building environments, so you can work at your convenience outside of the lab (this is recommended). Tutorials will be provided to aid in your setup.
- Laptop is needed for developing projects during the class.
- You are expected to do your own work. You may assist each other with general concepts, but direct assistance with a particular assignment or any attempts to gain an unfair academic advantage will not be tolerated. Please do not share code between submissions or submission groups. **Any indication of cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved.** For more information about academic dishonesty, please visit [Academic Dishonesty](#).

Technical Requirements:

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the [Getting Started with eLearning](#) webpage.

Course Access and Navigation:

The course can be accessed using your UT Dallas NetID account on the [eLearning](#) website. Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information.

To become familiar with the eLearning tool, please see [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day/7 days a week. The [eLearning Support Center](#) includes services that include a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication:

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the [Student eLearning Tutorials](#) webpage for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Server Unavailability or Other Technical Difficulties:

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time-sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

COVID-19 Guidelines and Resources:

The information contained in the following link lists the University's COVID-19 resources for students and instructors of record. Please see <http://go.utdallas.edu/syllabus-policies>.

Class Recordings:

If there is any provision for asynchronous Learning, the instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student Access Ability has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student Access Ability accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Suggested Readings:

Introduction to Machine Learning, fourth edition, Ethem Alpaydin, The MIT Press (March 24, 2020)
ISBN-10: 0262043793, ISBN-13: 978-0262043793

Introduction to Machine Learning with Python: A Guide for Data Scientists, 1st edition, by Andreas Müller & Sarah Guido, Publisher: O'Reilly Media. ISBN-10: 1449369413; ISBN-13: 978-1449369415

List of the forums:

- <https://www.analyticsvidhya.com>
- <https://towardsdatascience.com>
- <https://www.quora.com>
- <https://stats.stackexchange.com>
- <https://stackoverflow.com>

Tentative Schedule

*Note that the following schedule is subject to change as the course progresses.

*Quizzes are not listed in the following table.

Week	Dates	Lecture Topics	Assignments
01	1/16	Syllabus Course Introduction	Pre-course Survey
02	1/23	Python Basics	
03	1/30	Python Basics	
04	2/6	Supervised and Unsupervised Learning Basics	
05	2/13	Model Selection and Cross-Validation	
06	2/20	Regression	HW 1 due
07	2/27	Exam I	
08	3/5	Advanced Regression	
09	3/12	No classes: Spring break	Project Proposal due
10	3/19	Classification Model I	
11	3/26	Classification Model II	
12	4/2	Classification Model III	
13	4/9	Unsupervised Learning Basics	HW 2 due
14	4/16	Clustering Model	
15	4/23	Exam II	
16	4/30	Final Project Presentation	Final Project due

**This syllabus is subject to change at any time at the discretion of the instructor.*