

# CS 4033/5033: Machine Learning Fundamentals

Fall 2022

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**Class Time:** M/W/F: 11:00 AM – 11:50 AM  
M/F in person; W virtually guest lectures.  
**Office hours:** M/F: 9:45 AM – 11:45 PM  
**Class website:** OU Canvas

## Catalog Description

Explores the basic methods and techniques in machine learning and its applications to mining Internet of Things (IoT) data, Healthcare, Transportations, etc.

## Textbook:

Introduction to Machine Learning - Stanford AI Lab ([link](#))  
Introduction to Machine Learning with Python ([link](#))

## Student Learning Outcomes

Upon completion of this course, students will:

- Develop an appreciation for capabilities and limitations of machine learning techniques
- Understand the mathematical, statistical, and theoretical foundations of a wide variety of data mining algorithms
- Implement machine learning algorithms to analyze data in multiple domains, especially in IoT area, healthcare, transportation, etc.
- Evaluate the model performance

## Grading

Grades will be based on following:	Homework(5)	30%
	Midterm Exam	15%
	Final Exam	20%
	Guest Lecture Summaries(10)	30%
	Extra Credits	5%

Grades will be posted throughout the semester.

Grading is as follows:

A	A-	B+	B	B-	C+	C	C-	D	F
>90	90-85	85-80	80-75	75-70	70-65	65-60	60-55	55-45	<45

Graded assignments will be returned to you as soon as possible. It is your responsibility to check the grade summaries for posting errors.

- Any score issues must be identified to the instructor within a week after grade releases.
- If you fixed the problems in the assignment within a week, I would restore half of the points in order to encourage you to keep practicing.
- Scores are final after that.
- Late work will take 10% off for 24-hour period and 30% off for 48-hour period.

Two tests will be given during the semester. Each test will be somewhat comprehensive but will strongly emphasize material covered since the last test.

**Guest Lecture Summaries:** We will bring in 15 experts this semester who will talk about state-of-the-art research in machine learning and its applications. You will be required to write a *one-page* discussion of *10 of the 15* invited talks. The summaries are due the same Friday of the invited lecture. The submission page is under the Assignments tab on Canvas. The write-up will include:

- i. a summary of the talk and paper (if provided)
- ii. a discussion of how the work fits within the context of the materials being discussed in class
- iii. your ideas about how the speaker's work could be improved or extended in the future

## Academic Misconduct

Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the OU community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in OU assume the obligation to conduct themselves in a manner compatible with OU's function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy.

**ChatGPT:** I encourage you to use AI tools as a reference / guidance, then write / resolve the problems /question by yourself, to help with your work efficiency. However, I would not allow copy and paste

directly / content overlapping from ChatGPT or other resources. Please be aware that if you ever do that, it would count as misconduct.

**School of Computer Science Academic Integrity Policy**

Each student enrolled in a course offered by the School of Computer Science is expected to do his/her own work when preparing written or programming assignments, as well as, examinations. He/she must adhere to the academic integrity policy provided by his/her instructor and the university. It is also each student's responsibility to notify the instructor if he/she becomes aware of any activities that would violate the academic integrity policy of the class.

## **Academic Integrity Policy**

Each student is required to do his/her own work on examinations, written and programming assignments and exercises without outside assistance except as noted below. It is also each student's responsibility to notify the instructor if he/she becomes aware of any activities that would violate the academic integrity policy of the class.

Consequences of violating the academic policy:

- an Alleged Academic Misconduct Report will be completed, and a copy sent to the Office of Student Conduct
- 1st violation - student(s) will receive a grade of zero on the assignment/examination
- 2nd violation - a grade of F will be issued for the course; no further assignments/labs/exams can be completed for credit

## **Copyright**

The University requires all members of the University Community to familiarize themselves with and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at university websites.

## **Disability Resource Center (DRC)**

The OU Disability Resource Center provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the OU Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor before or after class to discuss your accommodation needs.

## **Religious Holidays**

Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit university websites.

## **Transparency in Learning and Teaching**

The University encourages application of the transparency method of constructing assignments for student success. Please see these information from university website.

## **Incomplete Grades**

The grade of I - Incomplete - can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable

to the instructor and the Department, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

### **OU Writing Center**

One-on-one or small group assistance with writing is available free of charge to OU students at the Writing Center. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or via website. For more information, please visit writing center website.

### **Final Examinations**

**May 9, 2025, F 1:30 - 3:30 pm**

The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule.