

# CS 4900/5900: Machine Learning Fall 2017

**Class Meetings:** Tue, Thu 10:30–11:50am, ARC 212

**Instructor:** Razvan Bunescu

**Office:** Stocker 341

**Office Hours:** Tue, Thu 12:00–12:30pm, or by email appointment

**Email:** bunescu @ ohio edu

**Class Website:** <http://ace.cs.ohio.edu/~razvan/courses/ml4900>

## **Prerequisites:**

The students are expected to be comfortable with programming and familiar with basic concepts in linear algebra and statistics.

## **Textbook:**

There is no textbook for this class. Slides and supplementary materials will be made available on the course website.

## **Supplementary Texts:**

*Machine Learning: The Art and Science of Algorithms that Make Sense of Data*

by Peter Flach, Cambridge University Press, 2012

*A Course in Machine Learning* [free online]

by Hal Daume III

*Machine Learning*

by Tom Mitchell. McGraw Hill, 1997

*Pattern Recognition and Machine Learning*

by Christopher Bishop. Springer, 2007

*Pattern Classification*

by Richard O. Duda, Peter E. Hart, & David G. Stork. Wiley-IS, 2001

*The Elements of Statistical Learning: Data Mining, Inference, and Prediction*

by T. Hastie, R. Tibshirani, & J. H. Friedman. Springer Verlag, 2009

## **Course Description:**

This course will give an overview of the main concepts, techniques, and algorithms underlying the theory and practice of machine learning. The course will cover the fundamental topics of classification, regression and clustering, and a number of corresponding learning models such as perceptrons, logistic regression, linear regression, Naive Bayes, nearest neighbors, and Support Vector Machines. The description of the formal properties of the algorithms will be supplemented with motivating applications in a wide range of areas including natural language processing, computer vision, bioinformatics, and music analysis. The topics covered in this course will also prepare students for taking more advanced courses in data mining and deep learning.

**Grading:**

50%: Homework Assignments  
20%: Midterm Exam (Oct 12, in class)  
30%: Final Exam (Dec 12, 10:10am – 12:10pm)

**Grading Scale:**

A (> 92%) A–(> 90%) B+(> 87%) B(> 83%) B–(> 80%)  
C+(> 77%) C(> 73%) C–(> 70%) D+(> 67%) D(> 63%) D–(> 60%)

**Important Dates:**

Friday, Sep 1: Last day to add class.  
Tuesday, Oct 10: Reading Day, no class.  
Friday, Nov 3: Last day to drop class.  
Thursday, Nov 23: Thanksgiving break, no class.  
Thursday, Dec 7: Last day of this class.

**Course and Attendance policies:**

**Assignments:** All homework assignments are due before the class. No late submissions will be accepted without prior approval.

**Attendance:** It is in your best interest to attend the lectures. Some of the material will not be found in the supplementary text or on the slides. Extra credit will be awarded for class activity. Also, be sure to check your OU email for important announcements on a regular basis.

**Academic Dishonesty Policy:**

All work must be the student's own. All external references used in reports must be properly cited. No credit will be given for duplicate or plagiarized work. Additional measures may be imposed by the University Judiciaries, when conditions warrant. Students may appeal academic sanctions through the grade appeal process. The OU Student Code of Conduct Policy is available online at:

<http://www.ohio.edu/communitystandards/academic/students.cfm>

**Disability-based Accommodation:**

Any student who suspects s/he may need an accommodation based on the impact of a disability should contact the class instructor privately to discuss the student's specific needs and provide written documentation from the Office of Student Accessibility Services. If the student is not yet registered as a student with a disability, s/he should contact the Office of Student Accessibility Services.

**Other Policies:**

Be sure to notify the professor of any exam conflicts or other extenuating circumstances well in advance. No missed exams will be made up without prior approval. Medical excuse forms need to explicitly mention that the student could not have attended the exam at the specified time due to health concerns.