

Machine Learning Syllabus

CS425/528, Fall 2010

Class web page: <http://web.eecs.utk.edu/~parker/Courses/CS425-528-fall10>

Instructor: Dr. Lynne E. Parker
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Office Hours: Tuesday: 10-11AM

Thursday: 10-11AM, 12:30 – 1:30PM

(or send email for appointment at another time; or, just stop by when I'm in my office)

TA:

Richard Edwards

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Email: redwar15@eecs.utk.edu

Office Hours: Mondays/Wednesdays: 1:30 – 3:00PM

Time and Place: Tuesday/Thursday, 11:10 AM– 12:25 PM, Claxton 205

Course Description:

Machine Learning is the study of how to build computer systems that learn from experience. This CS425/528 course on *Machine Learning* will explain how to build systems that learn and adapt using real-world applications. Some of the topics to be covered include concept learning, neural networks, genetic algorithms, reinforcement learning, instance-based learning, and so forth. The course will be project-oriented, with emphasis placed on writing software implementations of learning algorithms applied to real-world problems, along with short reports describing your results. No exams will be given.

Optional Textbook: *Machine Learning*, by Tom Mitchell, McGraw-Hill, 1997.

Online Materials: See <http://ai.stanford.edu/people/nilsson/MLBOOK.pdf>. Other materials will also be provided.

Prerequisites: Familiarity with basic concepts of computer science (algorithms, data structures, and complexity), mathematical maturity commensurate in discrete math (CS311), matrix math (Math 251), probability and statistics (Math 323), and the ability to program algorithms in a language of your choice (e.g., C++ or Matlab) in a Linux environment.

Evaluation:

Grading will be based 90% on project grades and 10% on class attendance and participation. Some projects will count more than others. The value of each project will be announced.

Final grades will be determined by overall average as follows:

A: 90 – 100

B+: 85 – 89.9

B: 80 – 84.9

C+: 75 – 79.9

C: 70 – 74.9

D: 60 – 69.9

F: 0 – 59.9

Decisions on borderline grades will be based upon class participation.

Students taking the class for undergraduate credit will be assigned the same projects as those taking the class for graduate credit, except when announced otherwise. However, the quality and/or quantity of the work expected is higher for graduate students than for undergraduates, and thus will be graded more strictly. More details of expectations will be provided for each project (as it varies by project).

Class Policies:

- Class attendance: Class attendance is required, and counts 10% of your grade. You are allowed 1 unexcused absence (i.e., you can miss 1 class for any reason without consequence). To be an “excused” absence, you need to inform the instructor in advance of your anticipated absence, and receive advance approval. Approval for absences may also be given after you have missed class, but only for exceptional circumstances. There is no limit to the number of excused absences, as long as the instructor approves the absences. However, for each additional unexcused absence (beyond 1), you will lose 4% of the 10% credit allotted to attendance. Thus, more than 3 unexcused absences means you’ll receive 0% of the attendance credit.

You are expected to keep up with all course material and announcements covered in class. If you miss class for any reason, you must obtain the covered material from a willing classmate. Neither the instructor nor the TAs will be available (during office hours or other times) to repeat material covered in class.

- Class participation: Decisions on borderline grades will be based upon exceptional class participation, as deemed merited by the course instructor.
- Project assignments: Project assignments will be handed out in class and posted on the course web site, along with the due dates. All projects will be introduced and discussed during class time. Projects will involve a combination of programming and/or writing up your results (in short report form). You may use any programming language you like to program your own projects, as long as the compiler is available on our CS Linux machines, and as long as your code runs on our CS Linux machines. Note that you will NOT be allowed to use existing machine learning packages (including some MATLAB packages) for your project assignments, unless specifically stated. As part of the project materials you turn in, you will be required to submit instructions for how to compile and run your code, along with all files needed to successfully run your code.
- Collaboration Policy: Discussing and exchanging ideas is encouraged. You may help each other with your strategy for how to solve the projects. You are expected to note significant collaborations by giving the name of your student collaborators on the project material you turn in. However, except if specifically allowed by the instructor, copying from any outside sources (e.g., fellow students, Internet, etc.) on any material to be graded is not permitted, and will be considered cheating. Cheating will be dealt with harshly, and may result in failure of the assignment/exam and/or failure of the class. Each student is responsible for securing his or her work from copying. Each student is expected to abide by UT’s policies on Academic Conduct and the Honor Statement. Refer to the University of Tennessee Undergraduate Catalog and the HillTopics Student Handbook for more details.
- Due dates and Late Projects: One (1) project may be turned in up to four days late and still receive full credit. All projects after this will immediately be given a grade of zero, with no exceptions. The specific due time will be given for each project. All projects turned in more than five (5) minutes after the specified time (according to the timestamp on the email) will be considered late.
- Exams: There will be no exams or quizzes ☺.
- Grading corrections: Bring any project grading correction requests to the instructor or TA within 1 week of receiving the grade, or before the end of the semester, whichever comes first. After that, your grade will not be adjusted. If you find any mistake in grading, please let the instructor or TA know. Your grade will not be lowered.
- Announcement responsibilities: Important announcements, schedule revisions, etc., will be distributed via the class email list. You are responsible for information distributed to this email list, so be sure you are on the list.
- Schedule and readings: The schedule for each class will be posted on the class web site, along with relevant readings for each topic. You are expected to keep up with the readings as we go, as they will help provide the foundation for completing your projects.