

CSCE 5215

Machine Learning

Course Information & Syllabus (Fall 2014)

Instructor: Cornelia Caragea
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Lectures: Tue, Thr 2:30pm-3:50pm, Room NTDP D215

Teaching Assistant: TBD

Office Hours: Tue & Thr 11:00am - 12:00pm or by appointment, F228 Discovery Park

Course Objective: The course objectives are to understand machine learning algorithms and identify challenging problems on the Web, learn how to apply machine learning algorithms to these problems, and how to use the existing tools and design new ones. The course will cover both traditional and newly developed machine learning algorithms and their Web applications. Examples of topics include: classification and clustering, kernel methods and Support Vector Machines, Bayesian learning methods, semi-supervised learning techniques, and feature selection, construction, and clustering.

Prerequisites: Basic knowledge on probability and statistics, basic knowledge on calculus, good understanding of data structures and algorithms. Background in machine learning is not required.

Targeted audience: *Graduate and undergraduate students from Computer Science and related areas.*

Course Work and Evaluation: There will be two exams for the course. Students will be evaluated based on the exams, homework assignments, reading assignments and paper presentations, and a class project. Students will be required to write summaries and praises/critiques for the assigned readings. Critical thinking will be an important criterion used for evaluating the assignments. Students are encouraged to attend every lecture and to participate in class discussion.

Attendance: Attendance is essential and thus is expected.

Required textbooks:

- Pattern Recognition and Machine Learning, Christopher Bishop.

Other Recommended textbooks:

- Machine Learning, Tom Mitchell.
- The Elements of Statistical Learning: Data Mining, Inference and Prediction, Trevor Hastie, Robert Tibshirani, Jerome Friedman (available online at: <http://statweb.stanford.edu/~tibs/ElemStatLearn/>).

Americans with Disabilities Act: We cooperate with the Office of Disability Accommodation to make reasonable accommodations for qualified students (cf. Americans with Disabilities Act and Section 504, Rehabilitation Act) with disabilities. If you have not registered with ODA, we encourage you to do so. If you have a disability for which you require accommodation, please discuss your needs with the instructor or submit a written Accommodation Request on or before the fourth class day.