TOPIC: Human, Animal, and Machine Learning
Vasile Rus

Contact Information:

<table>
<thead>
<tr>
<th>Office: 320 Dunn Hall/Lab:FIT403c</th>
<th>Department Office: 209 Dunn Hall</th>
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</thead>
<tbody>
<tr>
<td>Phone: 678-5259</td>
<td>Department Phone: 678-5465</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:vrus@memphis.edu">vrus@memphis.edu</a></td>
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Office Hours:

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>11:00AM-noon</td>
<td>1:20-2:20PM</td>
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Also by Appointment

Course Description:

COMP/PSYC 7514-8514. (from the University catalog).

Systematic study of current topics in Cognitive Science; student required to make presentations and prepare research paper or project. No more than 3 hours may be applied to MS with computer science concentration. PREREQUISITE: Permission of instructor.

Why this course?

Have you always asked yourself how humans learn? What about animals? Even computers can learn. This class will reveal the fundamentals and latest discoveries related to learning in Humans, Animals, and Machines. The course focuses on interdisciplinary aspects of learning with lectures covering human, animal, and machine learning. Outstanding speakers will give talks on latest trends in learning in a variety of areas from language learning in humans to learning in animals to learning by machines. The regular lectures will focus primarily on machine learning topics with applications to language learning.

Resources:

See the class website: http://www.cs.memphis.edu/~vrus/teaching/cogsci/index.html

Required Text


Recommended Texts


Other Resources:

See the class website: [http://www.cs.memphis.edu/~vrus/teaching/cogsci/index.html](http://www.cs.memphis.edu/~vrus/teaching/cogsci/index.html)

Evaluation:

The University policy requires to email a grade to a student's U of M email address *only*.

Final Grades:

Homeworks 35%, Project + Project Report 40%, Quizzes 20%, Participation 5%

Grading Scale:

<table>
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<tr>
<th>Grade</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90-100+</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
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<tr>
<td>70-79</td>
<td>C</td>
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<tr>
<td>60-69</td>
<td>D</td>
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<tr>
<td>0-59</td>
<td>F</td>
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2.5 above or below the cut-off will earn you a + or – in front of your grade.
For example: 89 has a letter equivalent of B+
Exception: A- is for 90-91, A for scores ranging from 92 to 96, anything above 97 leads to A+

Course Policies:

Attendance
Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.
Late Policy
Students will have on average one-two weeks from the date the work is assigned. Late submissions are not accepted. In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students must ask for it before the due date).

Testing Policy
Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the coding-style guidelines described on the web site. The coding-style will be strictly enforced.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor’s discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to:
http://www.people.memphis.edu/~jaffairs/
Course Syllabus (tentative)

Week 1: Introduction to Machine Learning
Week 2: The WEKA Machine Learning environment
Week 3: Concept Learning
Week 4: Decision Trees Learning
Week 5: Linear Regression and Perceptrons
Week 6: Hypotheses Spaces and Evaluating Hypotheses
Week 7: Graphical Models: Naïve Bayes, Bayes Nets
Week 8: SPRING BREAK
Week 9: Graphical Models: Hidden Markov Models
Week 10: Graphical Models: LDA
Week 11: Computational Learning Theory
Week 13: Support Vector Machines
Week 14: Instance-based Learning
Week 15: Project Presentations
Week 16: Project Presentations

Invited Speakers (see Invited Speakers schedule)