Syllabus, Spring 2018

CSCI 6990: Machine Learning II

Lecture: Monday, Wednesday, Friday: 2:00pm to 2:50pm. Location: TBA.

Instructor: Md Tamjidul Hoque

Office: Math #333
Email: thoque@uno.edu
Phone: 504-280-2406
Office Hours: Monday, Wednesday: 1pm to 2pm and 6:15pm to 7:15pm, in Math 333. Friday 12noon to 2pm, in Math 333.

Prerequisites: CSCI 2125/4525 and MATH 2124/2511/3511 or, consent of the department.

Textbooks:

Course Content: The course is about applying suitable and effective machine learning techniques on given data to build a good predictor. Topics covered will include:

- neural networks,
- support vector machines,
- flexible discriminants,
- boosting and adaptive trees,
- sampling and stochastic methods,
- prototype methods and nearest-neighbors,
- Evolutionary / genetic / optimization algorithms,
- unsupervised Learning,
- random Forests,
- ensemble Learning,
- high-dimensional problems,
- reinforcement learning,
- symmetric weights and deep belief networks

Learning Outcomes: We are entering the era of big data and this data-flood requires automated methods to be applied to uncover the patterns to predict the future data. This course is about studying the machine learning techniques to address critical pattern recognition and classification problems in various applications from the given dataset. Our objective will be to learn those techniques and to apply them properly. The target techniques are particularly useful in higher dimensional and complex dataspace, where the deterministic approaches are infeasible or are...
hard to apply. Machine learning has wide spectrum of application such as search engines, stock-market analysis, game playing, medical diagnosis and bioinformatics.

**Online Materials:** Essential course material, assignments, announcement etc. will be posted to this course page on Moodle, [http://www.uno.edu/moodle](http://www.uno.edu/moodle). Make sure to check your @uno.edu email frequently.

**Attendance:** Your attendance at class is needed and essential for you to meet course requirements. 5% mark is allocated for your attendances.

### Grading:

<table>
<thead>
<tr>
<th>Assignments/Tests</th>
<th>Marks</th>
</tr>
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<tbody>
<tr>
<td>Programming Assignments</td>
<td>39%</td>
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<tr>
<td>Homework Assignments</td>
<td>11%</td>
</tr>
<tr>
<td>Class Tests</td>
<td>20%</td>
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<tr>
<td>Attendance</td>
<td>5%</td>
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<tr>
<td>Final Examination</td>
<td>25%</td>
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</tbody>
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**Grading Scale:** A: 90-%, B: 80-89%, C: 70-79%, D: 60-69%, F: < 60%

**Bonus:** A student who will be able to produce any publishable work (approved based on superior results, recognized by the instructor during the course period) related to any given assignment(s) or the topics covered in the class, will be given 10% bonus marks. The bonus will be added to the total marks, but the overall upper limit will remain 100%. For example, 82% obtained overall marks with bonus marks will be 92% or, 90% marks will be 100%, but 95% will be 100% (not 105%) and so on.

**Exams:** Test 1, 2 and 3: tentatively on Feb 14th, March 16th and Apr 27th respectively.

**Last Class:** TBA.

**Final Exam:** TBA, Location: TBA.

**Due Dates:** You are responsible for handing in your assignment on time. Late submissions will be assessed at the following rates: 85% for 1-48 hours late, 65% for 49-96 hours late, 45% for 97-144 hours late, 25% for 145-168 hours late. Assignments that are over a week late will receive no credit. For online submission, use moodle. However, if moodle is not working for some technical reason, email me (thoque@uno.edu) the assignment. If you are unable to act according to the deadlines due to special circumstances, you must inform long before the deadline or, you must provide evidence.

**Conducts:**

1. **All submitted works must be your own.** Any academic dishonesty including cheating, plagiarism and conspiracy will result in 0 marks and will be reported to the appropriate authority in the University ([http://www.studentaffairs.uno.edu/pdfs/StudentCodeofConduct.pdf](http://www.studentaffairs.uno.edu/pdfs/StudentCodeofConduct.pdf)).
2. Please be on time in the class. Late coming in the class is seriously discouraged.
3. Please avoid disruptive and noisy activities in the class and be respectful to others.

However, I wish we will never have to see any misconduct. Rather, as you are attending my class paying your time and efforts, I believe you must have good intention to learn. **Both the instructor and the students have to be very serious in the class to make this particular course successful.** Therefore, we should all cooperate to maintain a stimulating environment.

**Repeat Policy**

When a student is permitted to repeat a course for credit, the last grade earned shall be the one, which determines course acceptability for degree credit. A student who has earned a C or better
in a course may not repeat that course unless, (1) the catalog description indicates that the course may be repeated for credit, or (2) the student's Dean gives prior approval for documented extenuating circumstances.

**Graduate Policies**
Graduate policies often vary from undergraduate policies. To view the applicable policies for graduate students, see the [Graduate Student Handbook](http://www.uno.edu/student-affairs-enrollment-management/documents/graduate-student-handbook).

**Academic Dishonesty Policy:**

**Safety Awareness Facts and Education**
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: [http://www.uno.edu/student-affairs-enrollment-management](http://www.uno.edu/student-affairs-enrollment-management/)

**UNO Counseling Services and UNO Cares**
UNO offers care and support for students in any type of distress. Counseling Services assist students in addressing mental health concerns through assessment, short-term counseling, and career testing and counseling. Find out more at [http://www.uno.edu/counseling-services/](http://www.uno.edu/counseling-services/). First-year students often have unique concerns, and UNO Cares is designed to address those students succeed. Contact UNO Cares through [http://www.uno.edu/fye/uno-cares.aspx](http://www.uno.edu/fye/uno-cares.aspx).

**Emergency Procedures**

**Diversity at UNO**
As the most diverse public university in the state, UNO maintains a Diversity Affairs division to support the university’s efforts towards creating an environment of healthy respect, tolerance, and appreciation for the people from all walks of life, and the expression of intellectual point of view and personal lifestyle. The [Office of Diversity Affairs](http://www.uno.edu/student-affairs-enrollment-management/documents/diversity-affairs-policy-rev2014.pdf) promotes these values through a wide range of programming and activities.

**Learning and Support Services**

**Affirmative Action and Equal Opportunity**