



## Syllabus, Spring 2018

### CSCI 6990: Machine Learning II

**Lecture:** Monday, Wednesday, Friday: 2:00pm to 2:50pm. **Location:** SC2002.

**Instructor:** Md Tamjidul Hoque

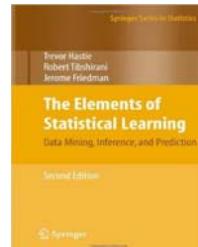
*Office:* Math #333  
*Email:* thoque@uno.edu  
*Phone:* 504-280-2406

*Office Hours:* Monday, Wednesday: 1pm to 2pm in **SC2002**, and 6:15pm to 7:15pm in **Math333**.  
Friday 12noon to 1pm in **Math333**, and 1pm to 2pm in **SC2002**.

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

**Textbooks:**

1. The Elements of Statistical Learning, 2<sup>nd</sup> edn, by Trevor Hastie, Robert Tibshirani and Jerome Friedman. Springer, 2009, ISBN: 978-0387848570. The book is available online, <https://web.stanford.edu/~hastie/ElemStatLearn/>
2. Pattern Recognition and Machine Learning, by Christopher M Bishop, Springer, 2006.
3. Deep Learning, by Ian Goodfellow, Yoshua Bengio and Aaron Courville, MIT press, ISBN 9780262035613, 2016.



**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>. 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:** Programming Assignments (3): marks 39% [Some knowledge of MATLAB/Octave is recommended]  
[Tentative] Homework Assignments (1): marks 11%  
Class Tests (3): marks 20% [best 2 counts]  
Attendance: marks 5% {5%: [90-100], 4%: [85-90], 3%: [80-85], 2%:  
[75-80], 1%: [70-75], 0%: <70.}  
Final Examination: marks 25% (**Must attend final exam to pass**)  
*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 14<sup>th</sup>, March 16<sup>th</sup> and Apr 27<sup>th</sup> respectively.

**Last Class:** April/30/2018.

**Final Exam:** May/07/2018 (Monday), 3pm to 5pm. **Location:** SC2002.

**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>).
- (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.



# THE UNIVERSITY of NEW ORLEANS

## Spring Semester Important Dates\*

Last day to adjust schedule w/out fee.....	01/15
Semester Classes Begin .....	01/17
Last day to adjust schedule w/fee, or withdraw with 100% refund.....	01/23
Last day to apply for May Commencement.....	03/09
Final day to drop a course or resign .....	03/16
Last Day of Classes .....	05/01
Final examinations .....	05/04 - 05/10
Commencement.....	05/11

## Session "A" Important Dates\*

Last day to adjust schedule w/out fee.....	01/15
Semester Classes Begin .....	01/17
Last day to adjust schedule w/fee, or withdraw with 100% refund.....	01/19
Final day to drop a course or resign .....	02/16
Last Day of Classes .....	03/03
Final examinations .....	03/06 - 03/07
Last day to apply for May Commencement.....	03/09
Commencement.....	05/11

## Session "B" Important Dates\*

Last day to adjust schedule w/out fee.....	03/13
Semester Classes Begin .....	03/14
Last day to adjust schedule w/fee, or withdraw with 100% refund.....	03/15
Last day to apply for May Commencement.....	03/09
Final day to drop a course or resign .....	04/9
Last Day of Classes .....	04/28
Final examinations .....	05/01 - 05/02
Commencement.....	05/11

\*Note: check [Registrar's website](#) for items not listed here.

## Spring Semester Holidays

Martin Luther King Holiday.....	01/15
Mardi Gras Holiday.....	02/12 - 02/13
Spring Break .....	03/28 - 03/31

## Withdrawal Policy – Undergraduate only

Students are responsible for initiating action to resign from the University (withdraw from all courses) or from a course on or before dates indicated in the current Important Dates calendar. Students who fail to resign by the published final date for such action will be retained on the class rolls even though they may be absent for the remainder of the semester and be graded as if they were in attendance. Failure to attend classes does not constitute a resignation. Check the dates and charges associated on the [Registrar's website](#).

## Incomplete Policy – Undergraduate only

A grade of I is assigned when, due to extenuating circumstances beyond their control, students engaged in passing course work are unable to complete class assignments within the time frame of the course's session. Before agreeing to the use of an incomplete grade in any course, an Incomplete Grade Agreement Form must be completed. Details regarding deadlines for completing the I grade, when the incomplete converts to a grade of F and a link to the form may be found on the [Academic Affairs](#) website.

## Syllabus Attachment

Spring 2018

### 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](#)

### Academic Dishonesty Policy

Policies for academic conduct [are here](#).

### 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](#):

### 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. First-year students often have unique concerns, and UNO Cares is designed to address those students' needs. Contact [UNO Cares](#).

### Emergency Procedures

Sign up for emergency notifications via text and/or email at [E2Campus Notification](#). All emergency and safety procedures are explained at the [Emergency Health and Safety Office](#).

### 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](#) promotes these values through a wide range of programming and activities.

### Affirmative Action and Equal Opportunity

UNO is an equal opportunity employer. The Human Resource Management department has more information on UNO's compliance with federal and state regulations regarding EEOC in its [Policies and Resources website](#).

### Learning and Support Services

Help is within reach in the form of learning support services, including tutoring in writing and math and other supplemental instruction. Visit the [Learning Resource Center](#) in LA 334.