



THE UNIVERSITY of  
NEW ORLEANS

DEPARTMENT OF COMPUTER SCIENCE

---

## Syllabus, Fall 2021

### CSCI 4588/5588: Machine Learning II

**Lecture:** Monday, Wednesday: 5:00 PM to 6:15 PM. **Location:** Math 322 + Online via Zoom.

**Zoom Link and Passcode to attend the class –**

**Zoom ID:** 83657748225

**Passcode:** 191737

**Instructor:** Md Tamjidul Hoque

*Email:* thoque@uno.edu

*Phone:* 504-280-2406

*Office Hours:* **Monday** 12 NOON to 1 PM and 6:15 PM to 7:15 PM.

**Wednesday** 12 NOON to 1 PM and 6:15 PM to 7:15 PM.

**Friday** 12 NOON to 2 PM.

**Online Office Hours:** [https://uno.zoom.us/meeting/register/tZ0tdOivqz8uE9OMeeyXNLgvfFNbGPODEDsx](https://uno.zoom.us/join/83657748225)

**Prerequisites:** CSCI 2125 or CSCI 3220 or consent of the department.

#### Textbooks:

[1] The Elements of Statistical Learning, 2nd 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] An Introduction to Statistical Learning: With Applications in R, by Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani. Springer, ISBN 978-1-4614-7138-7 (eBook). The book is available online for free: <https://www.statlearning.com>

[3] Géron, A., 2019. Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow, 2nd ed. O'Reilly.

**Course Content:** Topics include machine learning models, such as:

- Evolutionary Computation / Genetic Algorithm,
- Regression/Classification
- Neural Networks,
- Support Vector Machines,
- Boosting,
- Decision Tree,
- Random Forest, and
- Deep/Belief Nets.

**Learning Outcomes:** A programmer with Machine Learning (ML) knowledge will be able to 'generate' solution-code for a complex problem just by clicking a few buttons after setting up some appropriate parameters. Whereas without ML knowledge, a programmer may have to spend years to have a stable version of the program code, and for complex problems, the

developed solution may perform very poorly. Thus, the programmer with ML knowledge can have a significant advantage over a programmer without ML knowledge in terms of faster and better-performing program-code generation. In this course, the students will have opportunities to learn state-of-the-art machine learning algorithms, their implementations, and applications to solving real-world problems through programming projects and assignments. The target techniques are particularly useful in higher dimensional and complex data space, whereas the available deterministic approaches are often hard to apply. ML has a broad spectrum of applications, especially for complex domains like search engines, stock-market analysis, game playing, medical diagnosis, robotics, automation, and bioinformatics.

**Online Materials:** Essential course material, assignments, announcements, 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 in class is needed and essential for you to meet course requirements. A 5% mark is allocated for your attendance.

### Grading:

Assignments (Programming + Homework)	(4) × 11% →	44%
Class Test	(3) × 11% →	33%
<u>Best 6 out of 7</u>	(6) × 11% →	66%
Final Examination	→	29% [ <b>Must attend to pass</b> ]
Attendance:	→	5%
<hr/>		
%5: [90-100%], 4%: [85-90], 3%: [80-85], 2%: [75-80], 1%: [70-75], 0%: <70.		

*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.

**Exams:** Tests 1, 2, and 3 are scheduled tentatively on Sep 20<sup>th</sup>, Oct 20<sup>th</sup>, and Nov 22<sup>nd</sup>, respectively.

**Last Class:** Dec/01/2021 (~~Wednesday~~ **Friday**).

**Final Exam:** Dec 6, 5:30 PM to 7:30 PM.

**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 cannot act according to the deadlines due to exceptional circumstances, you must inform long before the deadline or provide evidence.

### Conducts:

(1) **All submitted works must be your own.** Any academic dishonesty, including cheating, plagiarism, and conspiracy, will result in zero 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 for the class. Late coming into the class is heavily discouraged.

(3) Please avoid disruptive and noisy activities in the class and be respectful to others.

(4) **Masks are required in the physical classroom.**