1. **Credits:** 3
   a. Class Meets: **Monday and Thursday 4:00pm - 5:20pm, Zoom (synchronous online)**

2. **Instructor:** Kyumin Lee, kmlee@wpi.edu
   Office Hours: **Monday and Thursday 3:00-4:00pm, Zoom**

   **TA:** Di You, dyou@wpi.edu
   Office Hours: **Tuesday and Wednesday 3:00-4:00pm, Zoom**

3. **Primary Textbook:**

4. **Additional Readings will be drawn from the following textbooks:**
   a. Learning From Data by Y. S. Abu-Mostafa, M. Magdon-Ismail, and H.T. Lin., AML Book
   c. Machine Learning Lecture Notes by Andrew Ng
   d. Reinforcement Learning: An Introduction by Sutton and Barto, MIT Press

5. **Specific Course Information:**
   a. Course Description: Machine learning deals with the design and study of computer programs that are able to improve their own performance with experience, or in other words, computer programs that learn. In this course, we investigate different machine learning paradigms including supervised, unsupervised, and reinforcement learning. We study multiple classification, regression, clustering, meta-learning and reinforcement learning techniques. Students gain extensive understanding of and experience with theoretical and practical aspects of machine learning. Students will conduct a team-based project.
   
   b. Prerequisites: I expect all students to have had some previous exposure to basic probability, statistics, algorithms, and data structures. You should be able to design and develop large programs and learn new software libraries on your own.

**Communication:**
All course announcements will be posted via the Canvas course mailing list.

**Grading Policy:**
The course grading policy is as follows:
30% Assignments
20% Midterm
20% Final
30% Project

The grading scale for graduate students is A:100-90, B:89.9-80, C:79.9-70, D:69.9-60, F:59.9-0
The grading scale for undergraduate students is A:100-90, B:89.9-80, C: 79.9-70, NR:69.9-0

Assignments:
There are five assignments. Each assignment is proportion to 6% of your grade. We will use Python 3 as the main programming language for the assignments. You will have total 4 late days during the semester. You can use **up to 2 late days for each assignment** without penalty. After you consume the total 4 late days for an assignment, then you will get penalty proportion to extra late days (e.g., 10% off for the next late day, 20% for the next two late days).

For each assignment, we will **NOT accept** your solution **more than 2 days late**.

You may discuss an assignment with your colleague, but you should write a program and a report by yourself and should **NOT** copy and paste your colleague's solution. If you discussed an assignment with your colleague, **explicitly** report the colleague's name and what you discussed in your submission. We will use [Stanford MOSS](https://www.stanford.edu/group/moss/) to measure software similarity.

Exam:
The midterm and final exams are closed book and will be held in class via Zoom.

Project:
In the final project, you will apply algorithms, methods and techniques that you learned from this course to your project. The project consists of three major components: 1) proposal, 2) related paper presentation (i.e., literature review), 3) project website development, and 4) final presentation. The detailed information regarding the project will be announced in class and posted to Canvas. You will present and may demonstrate your project in the end of the semester.

Add policy:
A student can add/drop through the 10th day of the semester without a fee. After day 10 of the semester, students can add courses (with instructor approval) with a $100 late fee. Students must be officially registered for this course. No assignments or tests of any kind will be graded for students whose names do not appear on the class list. Refer to [https://www.wpi.edu/offices/registrar/course-registration/add-drop](https://www.wpi.edu/offices/registrar/course-registration/add-drop)

Drop policy:
No drops are allowed after the 10th day of the semester.
**Learning Aids:**
Lecture notes and schedule will be available in the course web page. Your homework solution and project report is supposed to be submitted via Canvas.

**Plagiarism and Cheating:**
Unless explicitly noted, all work you submit must be your own work. You are encouraged to discuss with others about ideas and material in the course, in preparing for exams, in understanding homework problems, project statements, etc. However, all homework solutions, exams are to be written individually, and the solutions should be your own, unless otherwise specified. Projects encourage teamwork, that is, in that case you are expected to work closely with your partner/(s) to solve problems and prepare a common agreed-upon solution.

Note in particular that copying of any material, may it be a single sentence or a figure, from any location (including the internet) without proper acknowledgement of the source constitutes plagiarism. If in doubt, please ask for clarification. Any violation of the WPI's guidelines for academic integrity will result in no credit for the course and referral to the Student Affairs Office for disciplinary action. You should be familiar with the WPI Policy on Academic Honesty.

**Office of Accessibility Services:**
Students with approved academic accommodations should plan to submit their accommodation letters through the Office of Accessibility Services Student Portal. Should you have any questions about how accommodations can be implemented in this particular course, please contact me as soon as possible. Students who are not currently registered with the Office of Accessibility Services (OAS) but who would like to find out more information regarding requesting accommodations and what that entails should plan to contact them via email: AccessibilityServices@wpi.edu and/or via phone: (508) 831-4908.