

## LECTURE 0 - INTRODUCTION

### 1. COURSE INTRODUCTION

- What is Machine Learning?
- Review Syllabus: Course Topics, Grading, Office Hours, etc.
- The class website is found on GitHub and Canvas
  - Canvas: Grades will be posted here.
  - GitHub: Course notes, assignments, projects, extra credit, etc.. will be posted here.
- This tends to be a challenging course. Suggestions to help you do well:
  - Do the reading in advance and stay on top of your assignments, many topics build on each other
  - Ask questions when you do not understand in class, during office hours, or using the Canvas discussion page
  - Participate in classroom/wiki discussion and activities
  - You are expected to have a computer available that has git installed, the ability to code and compile in python 3+, and run jupyter notebooks. If attending class in person, bring this computer to class with you so you can follow along.
- Extra Credit: If you find (meaningful) errors or typos in the lecture notes, code, examples, etc posted in the class materials, you can report these using GitHub's "pull request" to get some extra credit. See: <https://help.github.com/articles/about-pull-requests/>. For errors/typos in any PDF file, be sure to correct the associated .tex for my review.

### 2. READING ASSIGNMENT - DUE AUG 28 @ 10:40AM

- Read Introduction to Chapter 1 and Sections 1.1-1.4
- Review vectors, matrices and the Gaussian distribution. Some (optional) sources for reviewing this material are:
  - Chapters 1 & 2 of Strang's Introduction to Linear Algebra text
    - \* book website: <http://math.mit.edu/~gs/linearalgebra/>
    - \* associated video lectures:  
<https://ocw.mit.edu/courses/mathematics/18-06-linear-algebra-spring-2010/>
  - Appendix B from Bishop's Pattern Recognition and Machine Learning text.

### 3. HOMEWORK 0 - DUE AUG 26 @ 11:59PM

- (1) If you do not already have them, install (1) an editor, (2) Python 3+, (3) the NumPy, SciPy, and Matplotlib packages and (4) Jupyter notebooks on the computer(s) you will be bringing to class and using to complete your assignments.

- You are welcome to use whatever editor you would like. There are many options. See: <https://wiki.python.org/moin/PythonEditors> Lately, I have been using SublimeText (which is what I will be using in class).
  - An easy way to install Python 3+ and all required packages is to install Anaconda: <https://www.continuum.io/downloads>
- (2) If you are not familiar with Python 3, go through one (or a few) introductory tutorials:
    - Dive into Python 3: <http://www.diveintopython3.net>
    - A list of many beginner tutorials: <https://wiki.python.org/moin/BeginnersGuide/Programmers>
    - For those familiar with Matlab, see: [http://scipy.github.io/old-wiki/pages/NumPy\\_for\\_Matlab\\_Users.html](http://scipy.github.io/old-wiki/pages/NumPy_for_Matlab_Users.html)
  - (3) If you do not have one, create a github account.
    - Please set up a username that clearly indicates who you are (e.g., my username is alinazare)
    - Check out: <https://education.github.com/pack>
  - (4) If you are not familiar with git, complete one (or a few) introductory tutorials:
    - Git bootcamp: <https://help.github.com/categories/bootcamp/>
    - Tutorials: <https://www.atlassian.com/git/tutorials/>
    - Interactive Introduction: <https://try.github.io/>
  - (5) Follow the assignment link for the Homework00 repository. After accepting the invitation, clone the repository to your local machine.
  - (6) Code up a python program that prints the following:
    - My name is [your name].
    - I am a [undergraduate/masters/PhD] student majoring in [your major] in the Department of [your department].
    - I have [no/some/extensive] programming experience in general.
    - I have [no/some/extensive] python programming experience.
    - I have [no/some/extensive] experience with using version control software.
    - I have [no/some/extensive] experience with git.
    - I have [no/some/extensive] experience in machine learning.
    - My github username is [username].
    - I am excited to learn the following in this class: [complete with your response]
  - (7) Starter code has been provided for you in your homework repository. You only need to edit, verify that it runs properly, and push back your submission.
  - (8) Submit this through GitHub by pushing your completed code back to the github assignment repository.
  - (9) Double check your submission using Travis CI and the provided test script. See [www.travis-ci.com](http://www.travis-ci.com)