

# AI 1 Course Syllabus

## Objectives

This course aims at introducing the basic concepts about AI and machine learning. We focus on using the `scikit-learn` library to build applications as well as digging into the theories. We break down the major topics into "Modules" that focus on each topic one at a time.

## Module Topics

1. Crash Course - A primer on Python before we jump into AI.
2. Introduction to AI - A conceptual discussion on what AI is, where it is used, and the basics on how most AI models function.
3. Regression Models - A discussion and implementation on linear and polynomial regression models and when to use regression models.
4. Classification - A discussion and implementation of classification models and when to use them over regression models.
5. Rock Paper Scissors Project - A project implementing both regression and classification models to make a rock paper scissors AI.
6. Clustering - A discussion and implementation of clustering models and when to use them over regression and classification models.
7. Sentiment Analysis - A discussion and implementation of what sentiment analysis is and a brief introduction to webscraping as a demonstration.
8. Web Deployment - A small foray into the world of web design as we deploy our AI projects to the Internet.
9. Mobile Deployment - A small foray into the world of app design as we deploy our AI onto a mobile application.
10. Cutting Edge AI - A preview into advanced AI as we play with new libraries in Google Colab.

## Topics and Schedule

Module 0	Topic - Crash Course
L0-1	Python File Structure, Syntax, and Printing
L0-2	Variables

Module 0	Topic - Crash Course
L0-3	Boolean Expressions
L0-4	Conditional Statements
L0-5	Lists
L0-6	Functions

Module 1	Introduction to AI
L1-1	Introduction to AI
L1-2	Game Recommendations
L1-2 Project	Recommender System

Module 2	Topic - Regression Models
L2-1	Linear Regression
L2-2	Polynomial Regression

Module 3	Topic - Classification
L3-1	Intro to Classification
L3-2	Support Vector Machine
L3-3	Decision Trees and Random Forests

Module 4	Topic - Rock Paper Scissors Project
L4-1	Rock Paper Scissors
L4-1 Project	A Better AI
L4-2	Tournament
L4-3	Cross Validation/Algorithm Comparisons

Module 5	Topic - Clustering
L5-1	Clustering
L5-2	Graphing Data
L5-3	Everything About Machine Learning

Module 6	Topic - Sentiment Analysis
L6-1	Sentiment Analysis
L6-2	Webscraping

Module 7	Topic - Web Deployment
L7-1	Python Flask
L7-2	Handling Requests
L7-3	Deploying AI
L7-4	Better Web Development
L7-5	Upgrading Our Server

Module 8	Topic - Mobile Deployment
L8-1	Intro to Thunkable
L8-2	Designing Our App
L8-3	Programming the App

Module 9	Topic - Cutting Edge AI
L9-1	Cutting Edge AI