Module 5 | Overview

OVERVIEW

This module, we continue working with and comparing the outcome of some of the most common machine learning techniques. We introduce various popular classification algorithms used for prediction (e.g., k-nearest neighbors, logistic regression, support vector machines). We also introduce techniques for measuring the predictive power of our trained models.

LEARNING OUTCOMES

This module will support these course level learning outcomes:

* Acquire, clean, and organize data from a variety of sources, including raw data files, SQL  
  databases, and online repositories using the Python programming language.
* Apply toolkits to preprocess large datasets for input to statistical and machine learning  
  algorithms, including methods of feature extraction and dimensionality reduction.
* Apply statistical and machine learning toolkits to large datasets, including applications of  
  regression, classification, and clustering.
* Perform simple visualizations of data.

ASSIGNMENTS

This is an approximation of the amount of time each activity will take the average student. If you find you are taking more time than suggested, please contact me for help.

| ASSIGNMENT ORGANIZER | |
| --- | --- |
| **Activity** | **Time (Hrs)** |
| Study/Reflect Time | 1:00 |
| Participate in [Reading & Discussion: Chapter 5 - Machine Learning (SVMs Pages 405-420)](https://elearning.mines.edu/courses/52392/assignments/354720) | 1:00 |
| Watch & Study [Instructional Videos & Learning Materials: Classification](https://elearning.mines.edu/courses/52392/pages/instructional-videos-and-learning-materials-classification) | 1:30 |
| Participate in [Reading & Coding: Chapter 5 - Machine Learning (Validation Pages 359-375)](https://elearning.mines.edu/courses/52392/discussion_topics/256382) | 1:00 |
| Watch & Study [Instructional Videos & Learning Materials: Model Validation](https://elearning.mines.edu/courses/52392/pages/instructional-videos-and-learning-materials-model-validation) | 0:30 |
| Submit [Activity: Confusion Matrix](https://elearning.mines.edu/courses/52392/assignments/354731) | 0:30 |
| Submit [Semester Project: Update #1](https://elearning.mines.edu/courses/52392/assignments/354756) | 3:00 |
| Submit [Project 5: Classification](https://elearning.mines.edu/courses/52392/assignments/354747) | 6:00 |
| **Sunday, 11am - 11:30am Mountain Time**- Complete [Final Exam Quiz 1 of 3 (Classification)](https://elearning.mines.edu/courses/52392/quizzes/74260) | 0:30 |
| Total Hours: | 15:00 |