* [CSE 450 Course Overview](#gjdgxs)
* [Course Structure](#30j0zll)
  + [Module 01](#1fob9te)
  + [Modules 02 - 07](#3znysh7)
* [Grading](#2et92p0)
* [Late Policy](#tyjcwt)
* [Student Support](#3dy6vkm)
* [Dress and Grooming](#1t3h5sf)
* [Preventing Sexual Misconduct](#4d34og8)
* [Disability Services](#2s8eyo1)
* [Academic Honesty](#17dp8vu)
* [Academic Grievances](#3rdcrjn)
* [Changes to Schedule and Assignments](#26in1rg)
* [Data Sources](#lnxbz9)

# CSE 450 - Machine Learning & Data Mining

## Course Syllabus

## CSE 450 Course Overview

Welcome to CSE 450 - Machine Learning and Data Mining.

The goal of this course is to help you:

* Be excited about machine learning and data mining.
* Have the ability to tackle a real dataset and do something interesting with it.
* Be prepared to start a graduate level experience, class, or project in machine learning / data mining.
* Understand current challenges and limitations in the field.

Course Textbook

The textbook for this course is [Fundamentals of Machine Learning for Predictive Data Analytics](https://www.amazon.com/Fundamentals-Machine-Learning-Predictive-Analytics/dp/0262029448) by Kelleher, Mac Namee, and D'Arcy; 1st Edition.

You may access [this text book online for free via Proquest](https://ebookcentral.proquest.com/lib/byui/detail.action?docID=6246595), courtesy of the BYU-Idaho library.

## Course Structure

This course is divided into seven *modules*. Each module will last approximately two weeks (six class periods). Modules begin on Wednesdays.

Subject to Change

Keep in mind that your instructor may deviate somewhat from the following guide, and they have final say on assignment requirements, delivery methods, and due dates. So be sure to pay attention to both in-class and Canvas announcements.

Time Expectations

University guidelines suggest that students spend an average of three hours per week per credit hour.

While there will be some time provided in class for team assignments, as this is a three credit course, the expectation is that students will spend an average of six hours per week on assignments outside of class, including the time spent on preparation readings.

Each module is worth a percentage of your final grade:

### Module 01

Module 01 is designed to quickly bring you up to speed on the foundational knowledge and vocabulary you will need to succeed in the rest of the course.

#### Preparation Reading Quizzes

Before each class session of Module 01, you will complete a Preparation Reading, followed by an associated quiz.

You may take each quiz as many times as you like until its due date. You must score at least 90% on a quiz to receive credit for it.

If you take a quiz multiple times, the highest passing score you receive will be your final score for that quiz.

At the start of class, the instructor will briefly review the material and answer questions from the reading, but will assume that you have already completed the reading.

#### Data Explorations

After reviewing the reading, you will work in temporary groups during class to complete hands-on, Data Exploration assignments. Online students will use Zoom breakout rooms.

Data Exploration Evaluations

In order to receive credit for a Data Exploration, each student must fill out a Data Exploration Evaluation in Canvas, according to the instructions provided.

#### Individual Exploration

At the end of Module 01, you will complete an Individual Exploration assignment that will test your Module 01 knowledge as well as your ability to apply that knowledge through a series of exercises.

This assessment will be done outside of class and should take approximately two hours to complete.

Its main purpose is to help you decide if you are adequately prepared to continue in the course.

Students who elect to continue with the course will be assigned to permanent teams for the remainder of the semester.

### Modules 02 - 07

Modules 02 - 07 use case studies to help students learn to understand and apply a variety of machine learning techniques. Each module will follow this pattern:

#### Day 1 (Wednesday)

We'll introduce the module's topic, and discuss an introductory case study related to it.

#### Day 2 (Friday)

Students will complete the module reading assignment before coming to class.

In class, each student will complete a timed, individual readiness assessment (iRAT).

After the individual assessment, teams will work together to complete an identical team readiness assessment (tRAT).

After the readiness assessments, the instructor will introduce the module's Minor Case Study assignment.

Students will spend any remaining time on Day 2 evaluating this case study, and making decisions about the questions posed.

#### Day 3 (Monday)

During the first part of the class, teams will be asked to answer questions about the case study they've been given in an interactive format.

We'll then introduce the module's Major Case Study.

Minor Case Study Reflection

In order to receive credit for the Minor Case Study, *each* student must submit a personal Minor Case Study Reflection by Tuesday at midnight.

#### Days 4 and 5 (Wednesday and Friday)

Teams will have until *Saturday at midnight* to perform any necessary data preprocessing, analysis, modeling, and visualizations related to the Major Case Study.

Each case study will include a formal Executive Summary Report template to guide them through this process.

Students are required to meet in class to help coordinate this work, but are also expected to do significant work outside of class on this assignment.

Students must submit their Executive Summary Report (one per team) by Saturday at midnight.

#### Day 6 (Monday)

Each team will present and defend their Major Case Study report to the rest of the class.

This presentation will form a major part of the Instructor's evaluation for the Major Case Study.

Major Case Study Reflection

In order to receive credit for a case study, *each* student must submit a personal Major Case Study Reflection by Monday at midnight.

One of the questions in the reflection will ask you to assess your team's performance on the case study. Another will ask you to assess your personal performance on the case study.

Your personal grade for the major case study will be calculated as:

75% of Team + 25% of Individual ± Instructor's Evaluation

## Grading

See your Canvas section for exact grade weights for each assignment, but in general, assignments are weighted similar to the following:

Module 01: 10%

* Preparation Reading Quizzes: 30%
* Data Explorations: 60%
* Individual Assessment Assignment: 10%

Modules 02 - 07: 15% Each

* Individual Readiness Assessment (iRAT): 17%
* Team Readiness Assessment (tRAT): 3%
* Minor Case Study: 30%
* Major Case Study: 50%

Final Letter grades are given according to the [standard BYU-Idaho grading scale](https://www.byui.edu/student-records/grades/grading-system).

## Late Policy

Because of the team-based, interactive nature of this course, no late credit is given.

In the event of an *extreme emergency* that prevents you from communicating with your team in *any possible way known to mankind*, your instructor will work with you to come up with a way for you to make up the content of a given module.

Note that the following are *not* considered extreme emergencies:

* Marriages, Family Reunions, Bar Mitzvahs, Quinceaneros, Temple Trips, or other celebratory events.
* Having to work
* Oversleeping
* A broken or malfunctioning computer, Internet connection, or other technical issue.
* Suffering from any illness other than one that a doctor's note states has immobilized you in such a way that you are unable to communicate with your teammates via video or chat.
* Being quarantined or otherwise physically stranded in a location that has any possibility for a sufficiently desperate person to acquire Internet access.

## Student Support

Support is available in many ways including via other class members and discussion in Slack. In addition, help is available through [the university's academic support center](http://www.byui.edu/academic-support-centers).

## Dress and Grooming

You are expected to follow the university's [Dress and Grooming Standards](http://www.byui.edu/student-honor-office/ces-honor-code/dress-and-grooming)

This includes any [current university requirements and/or guidelines](https://www.byui.edu/covid-19-updates) related to wearing masks and/or social distancing.

## Preventing Sexual Misconduct

BYU-Idaho prohibits sex discrimination by its employees and students in all of its education programs or activities. This includes all forms of sexual harassment, such as sexual assault, dating violence, domestic violence, stalking, conditioning a grade or job on participation in sexual conduct, and other forms of unwelcome sexual conduct.

As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. University policy requires deans and department chairs, and encourages all faculty, to report every incident of sexual harassment that comes to their attention. If you encounter or experience sexual harassment, please contact the Title IX Coordinator at [titleix@byui.edu](mailto:titleix@byui.edu) or 208-496-9209. Additional information about sex discrimination, sexual harassment, and available resources can be found at [www.byui.edu/titleix](http://docs.google.com/www.byui.edu/titleix)

## Disability Services

BYU-Idaho does not discriminate against persons with disabilities in providing its educational and administrative services and programs and follows applicable federal and state law. This policy extends to the University’s electronic and information technologies (EIT).

Students with qualifying disabilities should contact the Disability Services Office at disabilityservices@byui.edu or 208-496-9210. Additional information about Disability Services resources can be found at <http://www.byui.edu/disabilities>.

## Academic Honesty

“When you are honest in every way, you are able to enjoy peace of mind and maintain self-respect. You build strength of character, which allows you to be of service to God and others. You are trustworthy in the eyes of God and those around you. If you are dishonest in your words or actions, you hurt yourself and often hurt others as well. If you lie, steal, cheat, or neglect to give the full amount of work for your pay, you lose your self-respect. You lose the guidance of the Holy Ghost” (“Honesty,” True to the Faith (2004), 84)

Academic Honesty means students do their own work. This also means their instructors will evaluate that work. Students should not be dishonest—this includes all types of work in their courses. The complete Academic Honesty Policy can be found at <http://www.byui.edu/student-honor-office/ces-honor-code/academic-honesty>.

## Academic Grievances

Students are encouraged to contact their instructors regarding course-related concerns. If concerns cannot be resolved in this way, students may contact the [BYU-Idaho Support Center](http://www.byui.edu/contact-us). to formally register a concern or grievance. The [Student Grievance Policy](https://content.byui.edu/integ/gen/d42e66fd-6e72-448f-a4c2-4d88a4ed26d2/0/Final%20Student%20Grievance%20Policy%20-%20catalog%20version.docx). can be found here.

## Changes to Schedule and Assignments

Schedules, assignments, and policies are subject to change. You will be notified of any changes on I-learn.

## Data Sources

This course uses datasets in the public domain or under a compatible license. Citations and other information for each dataset may be found on the [course data sources page](http://docs.google.com/data-sources.html).