

Assessments

DATA 322: Machine Learning for Data Science

Assessments

Overview

This course includes several types of assessments designed to support regular practice, provide regular feedback, and evaluate mastery of machine learning concepts and methods.

| Component | Weight | Description |
|--------------------------------|-------------|---|
| Daily Participation (Warm-ups) | 5% | Warm-up problems during lecture (Mondays, Wednesdays, Fridays) |
| Weekly Quizzes | 25% | Quizzes during lab sessions (Tuesdays) |
| Weekly Labs | 15% | Programming labs implementing machine learning methods using Python |
| Two Projects | 30% | Unsupervised Learning Project and Supervised Learning Project |
| Midterm Exam | 10% | Midterm 1 (March 13) |
| Final Exam | 15% | Final Exam (May 13, 12:40–2:30 PM, BSS 408) |
| Total | 100% | |

Daily Participation (Warm-ups) (5%)

Daily warm-up problems are completed during lecture (Mondays, Wednesdays, and Fridays). These short activities are designed to help students engage with new concepts, build intuition, and practice explaining ideas with peers. Warm-ups are graded on participation.

Weekly Labs (15%)

Weekly programming labs provide guided, hands-on practice implementing machine learning methods using Python. Labs are intended as formative learning experiences. I'll provide desired outputs so students can check their work and reflect on their understanding before turning in their work. Labs will be graded on completion.

Early in the semester, you will complete a **mini project** as part of the weekly labs. This project introduces the full workflow of an applied machine learning task in a simplified and supported setting. Using a provided Google Colab notebook, the class will modify an existing recommender system to form study groups based on survey responses collected from real participants.

Individual Labs

- [Lab 1](#) - Instructions coming soon
- [Lab 2](#) - Instructions coming soon
- [Lab 3](#) - Instructions coming soon
- [Lab 4](#) - Instructions coming soon

- **Lab 5** - Instructions coming soon
- **Lab 6** - Instructions coming soon
- **Lab 7** - Instructions coming soon
- **Lab 8** - Instructions coming soon
- **Lab 9** - Instructions coming soon
- **Lab 10** - Instructions coming soon
- **Lab 11** - Instructions coming soon
- **Lab 12** - Instructions coming soon

Weekly Quizzes (25%)

Weekly quizzes are administered during **lab sessions (Tuesdays)**. Quizzes assess understanding of both lab material and assigned practice problems. Quiz questions may include conceptual questions, mathematical calculations, interpretation of output or visualizations, and short problem-solving tasks. Quizzes are designed to encourage steady preparation and synthesis of ideas.

If you need to miss a quiz due to illness or other emergencies, please contact me to make an arrangement to take it at another time.

Individual Quizzes

- **Quiz 1** - Instructions coming soon
- **Quiz 2** - Instructions coming soon
- **Quiz 3** - Instructions coming soon
- **Quiz 4** - Instructions coming soon
- **Quiz 5** - Instructions coming soon
- **Quiz 6** - Instructions coming soon
- **Quiz 7** - Instructions coming soon
- **Quiz 8** - Instructions coming soon
- **Quiz 9** - Instructions coming soon
- **Quiz 10** - Instructions coming soon
- **Quiz 11** - Instructions coming soon
- **Quiz 12** - Instructions coming soon
- **Quiz 13** - Instructions coming soon

Projects (30%)

Two projects throughout the semester require students to apply machine learning methods to real data, justify modeling choices, evaluate performance, and communicate results in written form. Projects emphasize modeling choices, interpretation, and communication and may be used as part of a professional portfolio.

Late project policies will be specified per project.

Individual Projects

- **Unsupervised Learning Project** - Due March 8
In this project, you will use unsupervised learning techniques to build a *major recommender system* for Cal Poly Humboldt using publicly available data. The goal is to explore and justify modeling choices, and communicate the resulting recommendations clearly and responsibly.
- **Supervised Learning Project** - Due May 10
In this project, you will work with data from a one-dimensional simulation of a fusion reactor to develop a model to predict the onset of instabilities *before* they occur. This project emphasizes feature engineering, computational efficiency and valid model evaluation in an effort to help further research in California's renewable energy sector.

Exams (25%)

Midterm Exam (10%)

- **Midterm 1:** March 13 (in lecture)

Exams assess students' ability to reason about machine learning methods, interpret results, compare approaches, and understand limitations. Exams focus on conceptual understanding rather than memorization of code syntax.

If you need to miss a midterm due to illness or other emergencies, please communicate with me as soon as possible to reschedule it.

Final Exam (15%)

Final Exam: Wednesday, May 13, 2026, 12:40–2:30 PM, BSS 408

The final exam is required and assesses comprehensive understanding of machine learning concepts and methods covered throughout the semester.

Grading Scale

Final letter grades will be assigned based on overall performance:

A: 93-100% | A-: 90-92% | B+: 87-89% | B: 83-86% | B-: 80-82% | C+: 77-79% | C: 73-76% | C-: 70-72% | D: 60-69%
| F: 0-59%

A minimum grade of **C-** is required for the course to count toward the Data Science major.