coursera

✓ Congratulations! You've completed Week 1   Start Week 2

THIS WEEK'S FORUM

Week 1

Discuss and ask questions about Week 1.

Go to forum

Introduction

Andrew Ng

Welcome to Machine Learning! This week, we introduce the core idea of teaching a computer to learn concepts using data—without being explicitly programmed.

We are going to start by covering linear regression with one variable. Linear regression predicts a real-valued output based on an input value. We discuss the application of linear regression to housing price prediction, present the notion of a cost function, and introduce the gradient descent method for learning.

We'll also have optional lessons that provide a refresher on linear algebra concepts. Basic understanding of linear algebra is necessary for the rest of the course, especially as we begin to cover models with multiple variables. If you feel confident in your understanding of linear algebra, feel free to take a break or help other students out in the forums.

∧ Less

Welcome

✓ **Video:** Welcome to Machine Learning! 1 min

✓ **Reading:** Machine Learning Honor Code 8 min

Introduction

✓ **Video:** Welcome 6 min

✓ **Video:** What is Machine Learning? 7 min

✓ **Reading:** What is Machine Learning? 5 min

✓ **Reading:** How to Use Discussion Forums 4 min

✅ **Video:** Supervised Learning   12 min

✅ **Reading:** Supervised Learning   4 min

✅ **Video:** Unsupervised Learning   14 min

✅ **Reading:** Unsupervised Learning   3 min

✅ **Reading:** Who are Mentors?   3 min

✅ **Reading:** Get to Know Your Classmates   8 min

✅ **Reading:** Frequently Asked Questions   11 min

Review

✅ **Reading:** Lecture Slides   20 min

✅ **Quiz:** Introduction   5 questions

Linear Regression with One Variable

Andrew Ng

Linear regression predicts a real-valued output based on an input value. We discuss the application of linear regression to housing price prediction, present the notion of a cost function, and introduce the gradient descent method for learning.

Model and Cost Function

✅ **Video:** Model Representation   8 min

✅ **Reading:** Model Representation   3 min

✅ **Video:** Cost Function   8 min

✅ **Reading:** Cost Function   3 min

✅ **Video:** Cost Function - Intuition I   11 min

✅ **Reading:** Cost Function - Intuition I   4 min

✓ **Video:** Cost Function - Intuition II 3 min

✓ **Reading:** Cost Function - Intuition II 3 min

Parameter Learning

✓ **Video:** Gradient Descent 11 min

✓ **Reading:** Gradient Descent 3 min

✓ **Video:** Gradient Descent Intuition 11 min

✓ **Reading:** Gradient Descent Intuition 3 min

✓ **Video:** Gradient Descent For Linear Regression 10 min

✓ **Reading:** Gradient Descent For Linear Regression 6 min

Review

✓ **Reading:** Lecture Slides 20 min

✓ **Quiz:** Linear Regression with One Variable 5 questions

Linear Algebra Review

Andrew Ng

This optional module provides a refresher on linear algebra concepts. Basic understanding of linear algebra is necessary for the rest of the course, especially as we begin to cover models with multiple variables.

Linear Algebra Review

✓ **Video:** Matrices and Vectors 8 min

✓ **Reading:** Matrices and Vectors 2 min

✓ **Video:** Addition and Scalar Multiplication 6 min

✓ **Reading:** Addition and Scalar Multiplication   3 min

✓ **Video:** Matrix Vector Multiplication   13 min

✓ **Reading:** Matrix Vector Multiplication   2 min

✓ **Video:** Matrix Matrix Multiplication   11 min

✓ **Reading:** Matrix Matrix Multiplication   2 min

✓ **Video:** Matrix Multiplication Properties   9 min

✓ **Reading:** Matrix Multiplication Properties   2 min

✓ **Video:** Inverse and Transpose   11 min

✓ **Reading:** Inverse and Transpose   3 min

Review

✓ **Reading:** Lecture Slides   10 min

✓ **Practice Quiz:** Linear Algebra   5 questions