

CSC 412 Machine Learning and Knowledge Discovery

Syllabus

Meeting Information

- **Days, Times, & Room:** Mo We 2:30 PM – 4:25 PM @ 4N 213
- **Homepage:** <http://www.cs.csi.cuny.edu/~chen/412>
- **Instructor:** Cong Chen (cong.chen@csi.cuny.edu)
- **Office Hours:** Mo 4:30 PM – 5:30 PM @ 4N 206

Grading Policy

- **Attendance & Participation:** 1 point each
- **4 Exams:** 30 points each
- **Grades:**
 - A: more than 90 points;
 - B: 80 to 90 points;
 - C: 70 to 80 points;
 - D: 60 to 70 points;
 - F: fewer than 60 points

Textbook

- Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow

Topics

Machine Learning and Neural Networks

- Introduction to Machine Learning (Chapter 1 The Machine Learning Landscape)
- Linear Regression and Logistic Regression (Chapter 4 Training Models)
- Introduction to Neural Networks (Chapter 10 Introduction to Artificial Neural Networks with Keras)

—— Exam I ——

Deep Learning

- Deep Neural Networks (Chapter 11 Training Deep Neural Networks)
- Convolutional Neural Networks (Chapter 14 Deep Computer Vision Using Convolutional Neural Networks)
- Recurrent Neural Networks (Chapter 15 Processing Sequences Using RNNs and CNNs)
- Attention and Transformer (Chapter 16 Natural Language Processing with RNNs and Attention)

—— Exam II ——

Large Language Models

- Reinforcement Learning (Chapter 18 Reinforcement Learning)
- Prompting and Alignment

—— Exam III ——

Final Reviews

—— Exam IV ——