

Introduction

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Course information

- Course:

ECE 239AS.2 - Neural Networks and Deep Learning 2
Mong Learning Center, Engineering VI

- Instructor:

Jonathan Kao
kao@seas.ucla.edu

- TAs:

Shawn (Yuxuan) Dong (dyx723@g.ucla.edu)
Johannes Lee (johanneslee@ucla.edu)
Kaifeng Pang (calvinpang777@g.ucla.edu)
Xu Yan (yanxu2015@g.ucla.edu)

- Grading: 100% projects (4 projects, each worth 25%), 2% bonus
- Pre-requisite: ECE C147/247 or equivalent.

Course information (cont.)

- Prof. Kao's office hours
Th 9-11a @ E4, 56-147H + <https://ucla.zoom.us/j/96448409236>
- Shawn's office hours
Tu 12-1:30p @ E4, 67-112
F 12-1:30p @ <https://ucla.zoom.us/j/98559017102>
- Johannes' office hours
M, W 5:50-7:20p @ E4, 44-123
The Engr 4 building requires access after 6pm. If you need access, first go to the north bridge of Engr 4 which connects to Engr 6, then text or call me at (310)4946535. Zoom by request only:
<https://ucla.zoom.us/j/96514245189>.
- Kaifeng's office hours
M 1-2:30p @ E4, 67-112
Th 1-2:30p @ <https://ucla.zoom.us/j/92007445262?pwd=amglqf2JlNuxWJsAzLhBs3WTE8fGAi.1&jst=2>
- Xu's office hours
Th 8-9:30p, Sat 9-10:30a @ <https://ucla.zoom.us/my/xuyan>

There is no final exam for this class. We will therefore hold OH up to and including Week 10, but not in finals week.

Course information, cont.

- We will hold 4 discussion sections, one for each project. These discussions are tentatively scheduled for:
 - ▶ Friday, April 11, 3-4:50p, Fowler A103B
 - ▶ Friday, April 25, 3-4:50p, Fowler A103B
 - ▶ Friday, May 09, 3-4:50p, Fowler A103B
 - ▶ Friday, May 23, 3-4:50p, Fowler A103B

While we have the rooms booked for 2 hours, we may not use up the entire time.

- We will use Bruin Learn for course materials. Annotated lecture notes will be uploaded to Bruin Learn.

Zoom online lectures

We will open a Zoom room at <https://ucla.zoom.us/j/96448409236> during live lecture. By default, all students will be muted in the Zoom room. We will not pause to take verbal questions over Zoom. When possible, we will try to have at least one TA will monitor the chat on Zoom and answer questions in the chat.

Please note that ordinarily, MSOL would record this lecture from Mong Learning Center, but is unable to while the front display is malfunctioning. If it is repaired and MSOL is able to record lectures, we will stop doing Zoom recordings and let MSOL handle the recordings.

Syllabus

This schedule is highly tentative based on our pace.

| Date (2025) | Lecture | Content |
|-------------|---------|--|
| 31 Mar | 1 | Overview & Syllabus |
| 02 Apr | 2 | Generative Adversarial Networks I |
| 07 Apr | 3 | PyTorch Video lecture (no in person meeting) Project #1 released (GANs + VAEs) |
| 09 Apr | 4 | Generative Adversarial Networks II |
| 14 Apr | 5 | Variational Autoencoders & Evidence Lower Bound |
| 17 Apr | 6 | Graphical Models & Diffusion I |
| 21 Apr | 7 | Diffusion II Project #2 released (Diffusion) |
| 23 Apr | 8 | Diffusion III |
| 28 Apr | 9 | Sequence-to-Sequence and Attention |
| 30 Apr | 10 | Transformers |
| 05 May | 11 | Applications of Attention & Transformers* Project #3 released (Transformers) |
| 07 May | 12 | Imitation Learning |
| 12 May | 13 | (ON ZOOM) DRL basics and introduction, Policy Gradients I |
| 14 May | 14 | Policy Gradients II & Actor Critic I |
| 19 May | 15 | Actor Critic II Project #4 released (Policy Gradients & Deep Q) |
| 20 May | 16 | Value Function |
| 26 May | - | No class (Memorial Day Holiday) |
| 28 May | 17 | Deep Q Learning |
| 02 Jun | 18 | Advanced Policy Gradients |
| 04 Jun | 19 | Other topics in Deep RL |

* Guest lecturer: PhD student Brandon McMahan

Please do not post a public github repository of your code

Please do not post a public GitHub repo of your projects or the solutions. This helps to prevent other students from copying your repository in later iterations of the course.

Academic integrity

UCLA embraces the core values of integrity, excellence, accountability, respect, and service through the True Bruin program

<http://www.truebruin.ucla.edu>

I take academic integrity very seriously; students caught cheating or violating these principles will face disciplinary action. Please refer to the UCLA student conduct code:

<https://deanofstudents.ucla.edu/student-conduct-code>

In this class, unacceptable behavior includes plagiarizing the work of others, plagiarizing code, and copying another person's exam. In accordance with UCLA policy, any instance of suspected academic dishonesty will be immediately reported to the Dean of Students Office and zero credit will be given for any work determined to be dishonest.

Grading

Your grade will be based on four projects.

Projects (100%). Projects will contain coding components and potentially a write-up. We reserve the right to cancel at least 1 project depending on the pace of the course. Each project will be weighed equally.

- Projects must be submitted by 11:59pm on the day they are due.
- To accomodate for unexpected or unforeseen circumstances, we will give *three late days* to every student. These late days should only be used in extenuating circumstances. We will not grant additional late days beyond these.
- You may use **at most** 2 late days on any given project.
- Any project more than two days late receives a grade of **zero**.

Grading (cont.)

In addition to these grading scales, we will also award bonuses on top of your final grade as follows.

Bonuses (2 points)

- (Feedback) You earn a bonus of +0.5% for filling out the class evaluation at the end of class.
- (Piazza) You receive a bonus of at most +1.5% for participating on Piazza. While your answers to others will be anonymous, they will be known to the instructors, who will determine an appropriate number of points for instructor-approved student replies. Your bonus will be based on your participation on Piazza, which will be curved.
- (Piazza, cont.) Please do not conspire to post and answer questions for extra credit. We will be able to detect this. We do not want the Piazza forums to be spammed; this makes it more difficult for all students to find helpful questions.

Grading (cont.)

The class is graded on an absolute scale. The scale may be relaxed but it will not be made more stringent. These scales will be calculated and applied separately for undergraduate and graduate students. Please note that for graduate students, the "D" grades are not assignable; any graduate student earning a grade lower than C- will be assigned an F (i.e., for graduate students any grade below 70 is an F).

| Final score | Letter grade |
|-------------|--------------|
| 93 – 100 | A |
| 90 – 93 | A- |
| 86 – 90 | B+ |
| 83 – 86 | B |
| 80 – 83 | B- |
| 76 – 80 | C+ |
| 73 – 76 | C |
| 70 – 73 | C- |
| 66 – 70 | D+ |
| 63 – 66 | D |
| 60 – 63 | D- |
| < 60 | F |

Grading (cont.)

- I will not change your final grade unless I made a calculation error, in accordance with UCLA Academic Senate Regulation A-313 and strict rules governing the integrity of the grading process.
- Unless I made an error in calculating your final grade, please do not send me any requests to change your final grade from what you earned according to the syllabus. I view this as fundamentally unfair and will not entertain or reply to any such requests.

S/U grading

Note that per the UCLA registrar:

The grade S is assigned for a letter grade of B or better, but units earned in this manner are not counted in computing the GPA.

This is University policy. If you take this class S/U and earn a B-, by definition that is a U.

Last notes

- All assignments will be in PyTorch. We will devote Lecture 3 to PyTorch.
- Piazza should be the primary means of asking and getting questions answered in the class. We would like Piazza to be student-driven. TAs will answer any questions that other students are unable to answer.
- If you have other course-related questions that are not appropriate to Piazza, please e-mail the entire teaching staff (rather than any one of us individually). If you have any personal matters to discuss, please e-mail Prof. Kao directly.
- Slides are partially based on those from another class. In particular, several slides were strongly inspired by Prof. Sergey Levine's lectures, particularly in Deep Reinforcement Learning (CS 285, UC Berkeley).