

# CS 6957: NLP with Neural Networks

Fall 2023



# Course Logistics and Information



# What we will see

- A general overview of underlying concepts that pervade deep learning for NLP tasks
- A collection of successful design ideas to handle sparse, compositional varying sized inputs and outputs

# Class focus

- To understand underlying *concepts*
  - Defining models, training, prediction
  - Choosing the right architecture for a problem
  - Implementing neural networks for NLP using PyTorch
  - Tricks and tips
- We will see several example NLP tasks along the way

# Course objectives

At the end of the course, you should be able to:

1. Define deep neural networks for new NLP problems,
2. Implement, train and use such models using off-the-shelf libraries, and
3. Be able to critically read, evaluate and perhaps replicate current literature in the field.

# Basic information

Course website: <https://svivek.com/teaching/deep-learning-nlp>

Discussion forum: Canvas (link on course website)

All of you should have access to Canvas by now

Canvas for announcements, and managing submissions and grades

# People and meetings

- **Lectures:** Mon, Wed 3:00 – 4:20 PM
- **Instructor:** Vivek Srikumar
  - Office: 3126 MEB
  - Office hours: Wed 4:30 PM
- **Teaching assistant:** Maitrey Mehta
  - Office hours: Thu 11 AM at 3145 MEB

# Communication with staff

Use the discussion board and Canvas as primary forms of communication

- Except, of course, for confidential/personal stuff
- Email turnaround time may be longer. **Please prefix any emails with the class number!**

Look for announcements on Canvas



# Class participation *strongly* encouraged

Participating in class aids understanding

- Especially the complex material we will cover over the semester

## Ways to participate

- In person: As usual. Ask and answer questions
- Visit us at office hours
- Discuss on canvas

# Course mechanics

Course website: <https://svivek.com/teaching/deep-learning-nlp>

- Course structure
  - Lectures by me and Maitrey
- No official text book
  - Useful background reading on course website
  - Lectures posted on class website
- Pre-requisites: Machine Learning and NLP
- Five mini-projects
  - Four of these will be provided by us (task, dataset, etc)
  - You can choose the fifth one

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## Grading

Mini-projects 72%

Final exam 9%

Class participation 1%

Questions?

# Mini-projects

Will involve a significant programming effort

- You will implement neural networks and train them
- We will use python + PyTorch for all our mini-projects

There may be a written/theory part as well

- Will be somewhat on the simpler side

Only digital submissions will via canvas will be accepted.

## Late policy

- Assignments accepted up to 24 hours after deadline with a 10% penalty
  - i.e a 90 will become  $90 - 9 = 81$
- Will not be accepted after that

<i>Date</i>	<i>Milestone</i>
30 Aug	Project 1 available
13 Sep	Project 1 due
	Project 2 available
4 Oct	Project 2 due
16 Oct	Project 3 available
25 Oct	BYOP proposal due
6 Nov	Project 3 due
	Project 4 available
22 Nov	Project 4 due
4 Dec	BYOP due

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# What assistance is available for you?

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## We will use

Canvas for:

1. Announcements and communication
2. Discussion board
3. All submissions

Course website for:

1. Lecture slides
2. Notes and readings

# Class policies

Please go over the syllabus on the website

# Class policies

See details on class website

- [School of Computing policies](#)
  - This class operates under the school of computing and the college of engineering policies
- [Collaboration and cheating](#)
  - Collaboration is strongly encouraged, cheating will not be tolerated
  - The School of Computing policy on academic misconduct. See link on the website
  - Acknowledge sources and discussions
  - Your submissions (code, analysis, text, etc) should be your own.
  - Group submissions not allowed.



# Class policies

See details on class website

- Accessibility and accommodation
  - If you need any assistance, please contact me as soon as possible
    - Will process via the university's Center for Disability and Access
    - <https://disability.utah.edu>
- Additional policies and information on class website
  - Safety: <https://safeu.utah.edu>
  - No harassment/discrimination on any basis
  - Wellness and health consultation: <https://wellness.utah.edu>

# Course expectations

This is an advanced course aimed at helping you navigate recent research.

I expect you to

- Participate in the class
- Complete the readings for the lectures
- And most importantly, demonstrate independence and mathematical rigor in your work

# Who are you?

- Class survey will be available on Canvas
- You can answer it or any part of it if you want
- **Goal:** To help me design the lectures for you

- Reading:

Christopher D. Manning. 2022. Human Language Understanding & Reasoning. *Daedalus*, 151(2):127–138.

- For questions about registration, please meet me now