Course Syllabus

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Course Title: CS 474/574 Deep Learning

Credits: 3

Instructor: Min Xian (**You may address me as 'Professor' or 'Dr. Xian'**)

TA: Elijah Danquah Darko (danq7270@vandals.uidaho.edu)

Time: MW, 6 – 7:15 pm (PT), or 7 - 8:15 pm (MT)

Office Hours: T: 12-2 pm (PT) using Zoom (https://uidaho.zoom.us/j/85438015998) (https://uidaho.zoom.us/j/85438015998)

Contact: mxian@uidaho.edu | 208-757-5425

Textbook

Required: ***The Science of Deep Learning*, Iddo Drori, Cambridge University Press, 2022. ISBN-10: 1108835082.**
Recommended: ***Deep Learning*, Ian Goodfellow, Yoshua Bengio and Aaron Courville, MIT Press, 2016 http://www.deeplearningbook.org/**.

Prerequisites

CS 121 or equivalent knowledge, MATH 330, and STAT 301

Course Outcomes

- Understand the fundamental concepts in deep learning, such as deep forward networks, regularization, pooling, CNNs, RNNs, Long short-term memory, and GANs
- Be able to apply CNNs and RNNs to analyze, model, and solve real-world problems
- Develop skills in applying one of the major frameworks, e.g., TensorFlow, to train, tune, and test a deep neural network
- Develop leadership and teamwork ability with others through group discussion and course projects

Grading

Course Work	Points	Percent of Final Grade
Homework and quizzes	450	64%
Final Project and Report	150	21%
Attendance	100	15%
Extra Credit	50	
Total	700	100%

A (>=630)

B (>= 560)

C (>= 490)

D (>= 420)

F (< 420)

Academic Integrity

We expect you to adhere to the highest academic standards of honesty and integrity. At the University of Idaho, we assume students will do their work. Plagiarism—passing off someone else's work as your own without citing the source—should not be tolerated. This includes direct copying, rephrasing, and summarizing, as well as taking someone else's idea and putting it in different words. It is not allowed to use any versions of large language models, e.g., GPT series, to write project reports.

Refer to more information about academic dishonesty and how to avoid it at **https://www.webpages.uidaho.edu/cae_core/hart/academic_integrity.htm (https://www.webpages.uidaho.edu/cae_core/hart/academic_integrity.htm)**

An SNL video about plagiarism:

Why you should not cheat:

Healthy Vandals Policies

It is a longstanding tradition that Vandals take care of Vandals, and we all do our best to look out for the Vandal Family. The simple precautions listed below go a long way in reducing the impact of coronavirus on our campuses and communities. With everyone engaging in these small actions, we can continue to participate in our vibrant campus culture, where we can learn, live, and grow. Visit **U of I's COVID-19 page (https://www.uidaho.edu/vandal-health-clinic/coronavirus)** often for updated information. Questions related to U of I's coronavirus response can be sent to **covid19questions@uidaho.edu (mailto:covid19questions@uidaho.edu)** .

In-person Class Attendance

Attendance of this class is required. Documentation (a doctor's note) for medical excuses is not needed; instead, email me to make arrangements to submit any missed work and plan to use Zoom and/or online course materials to stay current with the course schedule.

Library Help

The library website has many databases that will help you find relevant and reliable books, articles, images, and more. Don't hesitate to contact a librarian for research assistance.

UIDAHO Library (http://www.lib.uidaho.edu/)

Help – Reference Services (http://www.lib.uidaho.edu/help)

Help for Distance Ed Students (http://www.lib.uidaho.edu/help/offcampus.html)

Technology Help

The UI Help Desk provides many technology-related services to UI faculty, staff and students.

PHONE: 208-885-HELP (208-885-4357)

EMAIL (mailto:helpdesk@uidaho.edu)

WEBSITE (http://www.uidaho.edu/its/)

Course Summary:

Date	Details	Due
Tue Sep 3, 2024	**HW1: Function implementation (https://canvas.uidaho.edu/courses/30734/assignments/366806)**	due by 11:59pm
Fri Sep 20, 2024	**HW2: SGD implementation and cross-validation (https://canvas.uidaho.edu/courses/30734/assignments/366807)**	due by 11:59pm
Sun Oct 13, 2024	**HW3: NN Implementation from scratch (https://canvas.uidaho.edu/courses/30734/assignments/366808)**	due by 11:59pm
Wed Oct 30, 2024	**HW4: Handwritten Digits Classification (https://canvas.uidaho.edu/courses/30734/assignments/382468)**	due by 11:59pm
Fri Nov 22, 2024	**HW5: RNN for Sentiment Analysis (https://canvas.uidaho.edu/courses/30734/assignments/366810)**	due by 11:59pm
Sat Nov 30, 2024	**Final Project: M1 submission (https://canvas.uidaho.edu/courses/30734/assignments/366804)**	due by 11:59pm
Fri Dec 13, 2024	**Final Project: M2 submission (final) (https://canvas.uidaho.edu/courses/30734/assignments/366805)**	due by 11:59pm

Date	Details	Due
	Attendance (https://canvas.uidaho.edu/courses/30734/assignments/366802)	