COMP 541 (01) DEEP LEARNING

Fall 2021

1. Course Information

Instructor:	Deniz Yüret, dyuret@ku.edu.tr
KU Credits:	3.00
ECTS Credits:	6.00
Prerequisite(s):	
Class Location & Meeting Times:	SNA B152 - Tuesday, Thursday 13:00-14:10
PS (Yes/No):	Yes
DS (Yes/No):	No
Lab (Yes/No):	No
Language of Instruction:	English
Office Hours:	Tu-Th 14:15-15:00

2. Course Description

Basic linear models for classification and regression; stochastic gradient descent (backpropagation) learning; multi-layer perceptrons, convolutional neural networks, and recurrent neural networks; recent advances in the field; practical examples from machine translation, computer vision; practical experience in programming, training, evaluating and benchmarking deep learning models.

3. Course Overview

This course is aimed at advanced undergraduate or graduate students who want to use deep learning models for their research. It assumes a strong background in probability, linear algebra, calculus and significant programming experience. The course gives the background theory and practical experience with basic deep learning and reinforcement learning models. The main criterion for success in the course is the term project in which students replicate and try to improve on the results from a recently published paper in deep learning literature.

4. Course Learning Outcomes (CLOs):

CLO #	**Upon successful completion of this course, students will be able to**…
1	Understand the theory behind deep learning and reinforcement learning models.
2	Be able to understand, implement, and train the latest deep learning and reinforcementlearning models.
3	Be able to run experiments with large scale datasets and replicate recent results in deeplearning.

5. Assessment Methods

Method	Description	Weight %
Participation	Attendence and in-class exercises, quizzes.	20.00
Project	Project related assignments throughout the semester.	60.00
Laboratory	Lab assignments.	20.00
	Total:	100.00

6. Instructional Material and Learning Resources

- Deep Learning
  Author: Goodfellow et al.
  Publisher: MIT Press (Year: 2016)
  Material Type: Textbook
  Material Status: Recommended
  Additional Notes: http://www.deeplearningbook.org

- Dive into Deep Learning
  Author: Zhang et al.
  Material Type: Textbook
  Material Status: Recommended
  Additional Notes: https://d2l.ai/index.html

- Reinforcement Learning: An Introduction
  Author: Sutton and Barto
  Publisher: MIT Press (Year: 2018)
  Material Type: Textbook
  Material Status: Recommended
  Additional Notes: http://incompleteideas.net/book/the-book-2nd.html

- Active Use of Course Page on Blackboard: https://ku.blackboard.com/
- KOLT Tutoring: No Service Available

7. Course Schedule

Meeting Times	Subject

8. Student Code of Conduct and Academic Grievance Procedure

Student Code of Conduct

Statement on Academic Honesty with Emphasis on Plagiarism

Academic Grievance Procedure

9. Course Policies

10. Other

Please send course related emails to comp541@ku.edu.tr. See the course website http://courses.ku.edu.tr/comp541 for the schedule and additional information.