Syllabus (2024-Summer)

Course Title	Introduction to Artificial Intelligence	Course No.	
Credit	3 credits	Hours	45 Hours
Class Time Classroom	Mon to Thr Classroom TBA		
Instructor	Name Jaehyeong Sim	Department Computer Science and Engineering	
	E-mail jh.sim@ewha.ac.kr	Phone 02-3277-6547	
Office Hours Office Location			

I. Course Overview

1. Course Description
This course more focuses on very practical aspects of "deep learning" which is a key technology driving current AI prevalence, instead of dealing with the traditional concepts in artificial intelligence like decision trees, knowledge representation, etc. We will rather cover the concept of perceptron, deep neural network, convolutional neural network, recurrent neural network, transformers, which are foundational deep learning models employed recently in real-world AI applications. Basically, we will have hands-on experiences and related homework assignments using TensorFlow Keras framework throughout the course.

2. Prerequisites
Students are expected to have the following background to take this course:
* Fluency in Python language + experiences on handling Python libraries.

3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
70%	%	30%	%	%

4. Course Objectives
At the end of the course, students should be able to:
* explain the underlying principles of deep learning.
* explain the motivation and ideas of each deep learning model.
* implement various deep learning models in TensorFlow.

5. Evaluation Systems

☐ Relative evaluation ■ Absolute evaluation (for Ewha International Summer College students only) ☐ Others

Midterm Exam	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Others
0%	50%	%	%	%	40%	10%	%

II. Course Materials and Additional Readings

1. Required Materials
Lecture notes will be provided on Ewha CyberCampus upon lectures.

2. Supplementary Materials
Deep learning, Ian Goodfellow.

3. Optional Additional Readings
III. Course Schedule

Day	Date	Topics & Class Materials, Assignments
Day 1	(7/1)	Course Introduction, Traditional artificial intelligence concepts
Day 2	(7/2)	Introduction to deep learning, Neural network basic
Day 3	(7/3)	Multi-layer perceptron, Deep neural network
Day 4	(7/4)	Learning dynamics, Python Exercise 1
Day 5	(7/8)	Convolutional neural network, Training CNN
Day 6	(7/9)	Regularization, Python Exercise 2
Day 7	(7/10)	Various CNN models, Python Exercise 3
Day 8	(7/11)	Recurrent neural network, long short term memory
Day 9	(7/15)	Sequence to sequence model, Python Exercise 4
Day 10	(7/16)	Attention & Transformer, Transformer models
Day 11	(7/17)	NLP Pipeline, Python Exercise 5
Day 12	(7/18)	Large language model, Vision transformer
Day 13	(7/22)	Python Exercise 6, Variational autoencoder
Day 14	(7/23)	Generative adversarial networks, Python Exercise 6
Day 15	(7/24)	Wrap up, final exam
Makeup Classes 1	(mm/dd)	

Day	Date	Topics & Class Materials, Assignments
Makeup Classes 2	(mm/dd)	

IV. Special Accommodations

* According to the University regulation section #57-3, students with disabilities can request for special accommodations related to attendance, lectures, assignments, or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' request, students can receive support for such accommodations from the course professor or from the Support Center for Students with Disabilities (SCSD). Please refer to the below examples of the types of support available in the lectures, assignments, and evaluations.

Lecture	Assignments	Evaluation
. Visual impairment: braille, enlarged reading materials . Hearing impairment: note-taking assistant . Physical impairment : access to classroom, note-taking assistant	Extra days for submission, alternative assignments	. Visual impairment: braille examination paper, examination with voice support, longer examination hours, note-taking assistant . Hearing impairment: written examination instead of oral examination . Physical impairment: longer examination hours, note-taking assistant

- Actual support may vary depending on the course.

* The contents of this syllabus are not final—they may be updated.