

Syllabus (1st Semester, 2024)

Course Information

Course Code	AI51801	Course Title	Deep Generative Models
Year/Semester	2024 / 1st Semester	School	Graduate School of Artificial Intelligence
Class Time/Classroom	MON WED 10:30-11:45 (104-E104)	Grading Type	Letter grade

Instructor Information

Instructor	Office	Tel.	E-mail	Office Hours
Jaejun Yoo		052-217-3453	jaejun.yoo@unist.ac.kr	

Teaching Method

<input type="checkbox"/> Online	<input checked="" type="checkbox"/> Offline	<input type="checkbox"/> Online & Offline
---------------------------------	---	---

Course Objectives & Description

<p>Course Objectives:</p> <ol style="list-style-type: none">To provide a comprehensive understanding of deep generative models.To equip students with the skills to build, train, and evaluate deep generative models for various applications such as image synthesis, text generation, and data augmentationTo explore advanced topics in deep generative models, including recent developments and future directions <p>Course Description:</p> <p>This course is an in-depth study of deep generative models, a subfield of machine learning that focuses on creating generative models capable of synthesizing new data from a learned distribution. The course covers both theory and practical implementation of various deep generative models. The course will cover topics such as model architecture, loss functions, training techniques, and evaluation metrics. The students will be exposed to various real-world applications of deep generative models such as image synthesis, text generation, data augmentation, etc. Additionally, the course will also explore advanced topics in deep generative models, including recent developments and future directions. The course will be taught through lectures, hands-on coding sessions, and group discussions.</p> <p>The objectives of the course will be assessed as follows:</p> <ol style="list-style-type: none">Attendance (Will not be checked every time. However, students must take more than 70% of the entire lectures to get the final score.)Each assignment (or quiz) will take 40 % of the gradeAt the end of the course, there is a final presentation and a report corresponding to 40 % of the grade. <p>(A tentative plan) One (or a team, up to three people) would be asked to present their project using deep generative models and to deliver a presentation in front of other classmates and the instructor. The score will be determined by the quality of the presentation and project. Here, one will be also asked to score other classmates' presentation. Each group should submit their report on the project at the end of the semester</p>
--

Grading

Attendance (%)	Midterm Exam (%)	Final Exam (%)	Quizzes (%)	Individual Assignments (%)
	20.0			40.0
Reports (%)	Presentations (%)	Other (%)	Total (100%)	
20.0	20.0		100.0	

Remarks

The grading policy and schedule are subject to change due to unforeseen circumstances. Cheating and plagiarism are not tolerated.

Weekly Schedule

Week	Contents
01	Course logistics & Overview
02	Graphical model and inference
03	Autoregressive Models
04	Normalizing Flow Models
05	Variational Autoencoder

Syllabus (1st Semester, 2024)

06	Energy-Based Model
07	Generative Adversarial Networks
08	Mid term (Proposal due, Presentation)
09	Generative Adversarial Networks
10	Diffusion Models
11	Diffusion Models
12	Evaluation of Generative Models
13	Applications & Advanced topics
14	Applications & Advanced topics
15	Guest Lectures
16	Final presentation

Notes and Remarks

The syllabus may change.

Remarks

SCRIPT ERROR