

## Artificial Intelligence

Course Name	Course type (credit/hours)	Elective course(3/3)	Course code	F045
	Target students Division/major/grade	Software and Computer Engineering/Senior	Opening semester	2021 2ND SEMESTER
	Class time and classroom	Mon C(Pa1409)Wed C(Pa1409)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	Machine Learning		
	Related basic courses	Discrete mathematics, Probability and Statistics		
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)		Jongbin Ryu(Assistant Professor, Software and Computer Engineering)		
	Office Room Number	Office phone Number	3815	e-mail	
	Office hours	Homepage address			
Teaching Assistant	Name (title/division)				
	Office Room Number	Office phone Number		e-mail	

### 1. Introduction

1. We study the history of artificial intelligence and the basics of deep learning.
2. We study the network structure widely used in deep learning.
3. We study recent deep learning trends and conduct some practice.

### 2. Course Objectives

\* Educational goals

Developing an understanding of and the ability to apply artificial intelligence.

\* Subject learning outcomes

- 1) Understanding the definition and history of artificial intelligence, and the basics of deep learning.
- 2) Developing practical skills through understanding and practice of the latest deep learning algorithms.

### 3. Class types and activities

Lectures, Homework, and Term-projects

### 4. Teaching Method

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> lecture                          | <input type="checkbox"/> discussion and debate              |
| <input type="checkbox"/> team project(presentation and case studies) | <input type="checkbox"/> experiments(role-playing,etc)      |
| <input type="checkbox"/> designing and production                    | <input type="checkbox"/> on-site learning(on-site training) |
| <input type="checkbox"/> others                                      |   |

### 5. Support Systems in Use

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> AjouBb               | <input type="checkbox"/> automatic recording system | <input type="checkbox"/> web-based assignment |
| <input checked="" type="checkbox"/> cyber lecture        | <input type="checkbox"/> online content             |   |
| <input type="checkbox"/> class behavior analyzing system | <input type="checkbox"/> others                     |   |

### 6. Teaching Tools

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> PBL(Problem Based Learning) | <input type="checkbox"/> CBL(Case Based Learning) | <input type="checkbox"/> TBL(Team Based Learning)           |
| <input type="checkbox"/> UR(Undergraduate Research)  | <input type="checkbox"/> FL(Flipped Learning)     | <input type="checkbox"/> DSAL(Data Science Active Learning) |
| <input type="checkbox"/> others                      |   |   |

### 7. Knowledge and ability required for taking this course

Basic mathematical knowledge such as discrete mathematics and probability and the ability to use Python.

## 8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance	28	10	
midterm exam	1	20	
final exam	1	30	
quiz			
presentation			
discussion			
homework	1	30	Term project
etc	28	10	Attendance. Assignment
study hours			

## 9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Introduction to Artificial Intelligence	Wolfgang Ertel	Springer	

## 10. Class system and Class shedule

We study the basic theory of deep learning and the latest technologies.  
 In addition to practical exercises, students develop the ability to solve AI related problems on their own.

### < Class Schedule >

\* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Introduction to AI	E	Jongbin Ryu			
2	Deep learning basic	E	Jongbin Ryu			
3	Deep learning basic	E	Jongbin Ryu			
4	Deep learning basic	E	Jongbin Ryu			
5	Convolution and backpropagation	E	Jongbin Ryu			
6	Deep arch: AlexNet	E	Jongbin Ryu			

## < Class Schedule >

\* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
7	Deep arch: Inception	E	Jongbin Ryu			
8	Mid-term	E	Jongbin Ryu			
9	Deep arch: ResNet	E	Jongbin Ryu			
10	Deep arch: SENet	E	Jongbin Ryu			
11	Recent deep learning architecture	E	Jongbin Ryu			
12	Recent deep learning architecture	E	Jongbin Ryu			
13	Transformer and BERT	E	Jongbin Ryu			
14	Transformer and BERT	E	Jongbin Ryu			
15	Summary	E	Jongbin Ryu			
16		E	Jongbin Ryu			

### 11. Other items of notification