HANYANG UNIVERSITY

Hanyang International Summer School

Faculty Information	**Name**	Youngjoon Won				
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Course Information	**Class No.**	18026	**Course Code**	ISS1164	**Credits**	3
	Course Name	AI Basics				
	Lecture Schedule	Monday-Saturday / 13:00-16:00				
	Course Description	This course introduces fundamental problems of AI/ML/DL models used in tackling following topics: 1. AI agents and (un)informed searching algorithm 2. Machine Learning techniques 3. Deep Learning basics 4. Up-to-date research topics				
	Course Objective	This course is designed to introduce the field of artificial intelligence and basic machine/deep learning techniques. Sample codes and hands-on exercises will help the student understand the theories behind the popular AI/ML techniques in practice. This course is designed for all majors; our goal is to give a friendly AI introduction to all students in general.				
	Prerequisite	None				
	Materials/Textbooks	Course materials will be given in class				

Evaluation	**Attendance**	10 %	**Quiz**	%
	Assignment	30 %	**Mid-term Exam**	20 %
	Presentation	%	**Final Exam**	%
	Group Project	30 %	**Participation**	10 %
	Etc.	**Evaluation Item**		**Ratio**
		Midterm Exam (Take Home)		20 %
		Group/Individual Oral Exam		30 %

Daily Lecture Plan	Day 1	Intro to AI and agents, vacuum pyrobot
	Day 2	Dimensions of models, environment, SKT applications
	Day 3	States and searching, 8-puzzle, using Claude code

	Day 4	States and searching, RL example, BFS, DFS, machine learning in R
	Day 5	ML overview: feature engineering, medical image classification
	Day 6	ML overview: (un)supervised learning, decision trees, PCA, K-mean
	Day 7	ML overview: other techniques, wild yolo example
	Day 8	DL basics: Intro to neural networks, timeseries prediction
	Day 9	Gradient descent, activation/loss functions, sentimental analysis
	Day 10	Regularization, optimization techniques, tensorflow playground
	Day 11	Sample code exercise, torch, keras, transfer learning
	Day 12	Sample code exercise, torch lightning (image/text processing), image caption
	Day 13	Understanding cloud infra examples (AWS)
	Day 14	Trends in advanced topics: CNN, RNN, Transformers, and others.
	Day 15	Oral Exam, Graduation.