



HANYANG UNIVERSITY

Hanyang International Summer School

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Course Information	Class No.	TBA	Course Code	ISS1164	Credits	3
	Course Name	AI Basics				
	Lecture Schedule	Monday-Saturday / 13:00-16:00				
	Course Description	<p>This course introduces fundamental problems of AI/ML/DL models used in tackling following topics:</p> <ol style="list-style-type: none"> 1. AI agents and (un)informed searching algorithm 2. Machine Learning techniques 3. Deep Learning basics 4. Up-to-date research topics 				
	Course Objective	<p>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.</p>				
	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.