



HANYANG UNIVERSITY

Hanyang International Summer School

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Course Information	Class No.		18074	Course Code	ISS1164 v	Credits	
	Course Name		AI Basics (AIX: Deep Learning)				
	Lecture Schedule		Tue-Fri / 1:00 PM - 4:00 PM				
	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		20 %	Participation		10 %	
	Etc.		Evaluation Item			Ratio	
			Midterm Exam (Take Home)			20 %	
			Group/Individual Project with Oral Exam			20 %	
Daily Lecture Plan	Week 1	Day 1	Intro to AI and agents, vacuum pyrobot				
		Day 2	Dimensions of models, environment, SKT applications				
		Day 3	States and searching, 8-puzzle				
		Day 4	States and searching, RL example, BFS, DFS				
	Week	Day 1	ML overview: feature engineering, titanic prediction				



	2	Day 2	ML overview: (un)supervised learning, decision trees, PCA, K-mean
		Day 3	ML overview: other techniques
		Day 4	DL basics: Intro to neural networks
	Week 3	Day 1	Gradient descent, activation/loss functions, sentimental analysis example
		Day 2	Regularization, optimization techniques, tensorflow playground
		Day 3	Sample code exercise, torch, keras
		Day 4	Sample code exercise, torch lightning (image/text processing)
	Week 4	Day 1	Understanding cloud infra examples (AWS)
		Day 2	Trends in advanced topics: CNN, RNN, Transformers, and others.
		Day 3	Project: Students' oral exam on selected papers (KDD, paperwithcode, and etc.)
		Day 4	Graduation (NO class)