

SYLLABUS

(온라인 진행시) 강의형태 예시
① 영상업로드: GEL, YouTube
② 실시간 화상채팅: Zoom, Skype

(선택MOOC 활용시) 실라버스내 플랫폼명과 강좌명 필수 등록

Classification	Elective	Course No.	GS1491	Hrs.:E:Credits	1:2:2	Instructor	김희속
Course Title	강의방식		강의형태		선택 MOOC	플랫폼명: 강좌명:	아래 양식 안에 안내 우 전산입력이 불가 주시면 감사하겠습니다
	Korean	SW코딩 과 AI활용					
	English	Software Coding and AI Practical Use					
Course Outline	Step 1 : Data Collection - WebCrawling : form basic to high level technique - Learn how to extract variety and large amount of data on Web - Through examples, students can get some abilities to treat real-world tasks and data Step 2 : Data Analysis - Learn how to manipulate and treat data based on Python - Learn how to analysis data based on Python - Through examples, students can get many useful and efficient data analysing techniques Step 3 : Basics of ML(Machine Learning) & DL(Deep Learning) - Understand the concepts of AI(Artificial intelligence) - Understand and Learn how to execute ML(Machine Learning) & DL(Deep Learning)						
Prerequisite							
Textbook & References	Author(Translator): 라이언 미첼 (한선웅)/ Publisher: 한빛미디어) -Book Title : Python for Data Analysis, 2nd Edition / Author : Wes McKinney / Publisher : O'Reilly Media (Book Title : Python for Data Analysis: 파이썬 라이브러리를 활용한 데이터 분석 [2판]/ Author(Translator): 웨스 맥키니 (김영근)/ Publisher: 한빛미디어) -Book Title : Introduction to Machine Learning with Python: A Guide for Data Scientists/ Author : Andreas Mueller & Sarah Guido / Publisher : O'Reilly Media						
Etcetera							

아래 양식 안에 안내되어 있는 글자 수를 초과하는 경우 전산입력이 불가하오니 기준 글자 수를 준수하여 주시면 감사하겠습니다.

Weekly Course Schedule			
Week	Description	Remarks	온라인/오프라인
1st	· Orientation · Preparing the Python coding environment (Installing Anaconda) · Understand and practice how to use Jupyter notebooks		
2nd	· Practices about Python grammar used to process Data - Understanding how to manage directories		
3rd	· Understand how to efficiently extract TMB-based data using the Python library - Libraries to be utilized for web data collection: BeautifulSoup, Selenium etc.	Step 1 : Data Collection	
4th	- Understanding and practicing API for collecting text data on the web - Text data collection based on Korea Tourism Organization and Naver	Step 1 : Data Collection	
5th	· Understanding and practicing API for collecting image data on the web - Image data collection based on Google	Step 1 : Data Collection Step 2 : Data Analysis	
6th	· Data Analysis - Data Loading, Saving, Transforming, and Merging for Data Analysis - Libraries to be utilized for data analysis: NumPy, pandas, wordcloud etc.	Step 2 : Data Analysis	
7th	· Midterm exam - The midterm exam is replaced by submission of coding results on data collection and analysis		
8th	· Visualize data analysis results - Libraries to use to visualize data analysis results: matplotlib, seaborn etc.	Step 2 : Data Analysis	
9th	· Preparing virtual environments based on tensorflow and keras for machine learning - Understanding linear regression and practicing application examples	Step 3-1 : Basics of Machine Learning	
10th	- basic terminology: gradient descent, perceptron, error backpropagation, activation function etc.	Step 3-1 : Basics of Machine Learning	
11th	· Deep Learning - Deep learning modeling and execution using application examples application examples: Prediction of the incidence of diabetes	Step 3-2 : Basics of Deep Learning	
12th	- Understanding how to build datasets for deep learning - Deep learning modeling and execution using application examples	Step 3-2 : Basics of Deep Learning	
13th	- Deep learning model analysis using TensorBoard - Deep learning modeling and execution using application examples	Step 3-2 : Basics of Deep Learning	
14th	· Deep Learning - Understanding and Practice of Convolutional Neural Network(CNN) - CNN project implementation and code MNIST	Step 3-2 : Basics of Deep Learning	
15th	· Include in the project: Data Collection + Data Analysis + Data Prediction The term project will be introduced in the 10th week lecture.		
16th	· Term project : Demonstration and Presentation		

* If there will be experiments, mark it in the "Remarks" section.

Instructor
Dept. Chair

김희속
황치옥

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