Please consult Intellectual Property Rights before making a photocopy. Please use the textbook of copyrighted edition.

## ②國玄東華大學

## 教學計劃表 Syllabus

課程名和 Course Name	偁(中文) in Chinese	機器學習		<u> </u>	學年/學期 Academic Year/Seme	ester	111/2		
課程名和 Course Name	偁(英文) in English	machine learning							
科目 Course	代碼 e Code	ECM6700	系級 開課單位 Department 碩士 Course-Offering & Year Department		經濟學系				
	·別 rpe	選修 Elective	)/3.0	3.0					
	教師 uctor	/李同龢							
先修 Prereq	課程 uisite								
課程描述 Course Description									
This class intends to introduce students for basic techniques in machine learning using Python. This									
class will familiarize students with a broad cross-section of models and algorithms for machine learning, and prepare students for research or industry application of machine learning techniques.									
		課	程目標 Cour	se Object	tives				
1 · How to apply supervised learning methods to data analysis 2 · How to apply unsupervised learning methods to data analysis 3 · Use actual dataset to build up analytical capacity									
系專業能力 Basic Learning Outcomes							課程目標與系專業能 力相關性 Correlation between Course Objectives and Dept.'s Education Objectives		
數理分析能力:通曉經濟學的進階理論技巧,應用數學與賽局解決經濟議題的能力。  A Mathematical analysis skills: Mastering in intermediate application of mathematical theories and game theory in analyzing economic issues.									
實證經濟分析能力:通曉經濟學的進階實證技巧,善用資訊科技進行資訊蒐集、資料統計與計量 分析。Empirical analysis skills: Mastering in intermediate application of statistics and econometrics in data collection and examination.									
微觀經濟之闡釋能力:通曉進階個體經濟學相關的理論與應用。Microeconomic perspective: C Thorough understanding of intermediate microeconomic theories and relevant application.									
宏觀經濟之闡釋能力:通曉進階總體經濟學相關的理論與應用。Macroeconomic perspective:  D Thorough understanding of intermediate macroeconomic theories and relevant application.									
樂活能力: 具備適應現代社會的進階學養以及就業能力。Employment opportunities: E Capabilities of intermediate working on important policy and decision challenges in business and government.									
溝通表達能力:思路清晰,有能力與人溝通並撰寫進階專業研究報告。Communication skills: F Having a clear mind and capability in writing an intermediate professional academic report.									
圖示說明Illustration : ● 高度相關 Highly correlated ○中度相關 Moderately correlated									
授課進度表 Teaching Schedule & Content									
週次Week		內容	Subject/Topi	cs		備註R	Remarks		
1 In	ntroduction an	nd Crash course of Python							

2	Crash course of Python						
3	No class, national holiday,						
4	Simple ML classification algorithms						
5	Scikit-learn for ML classification						
6	Data processing for training sets						
7	Dimensionality reduction						
8	No class, holiday						
9	Midterm project presentation,						
10	Model evaluation and hyperparameter tuning						
11	Ensemble learning						
12	Sentiment analysis						
13	Web application						
14	Regression						
15	Clustering analysis						
16	Artificial neural network and TensorFlow						
17	Deep convolutional neural networks and Recurrent neural networks						
18	Final project presentation						
教學策略 Teaching Strategies							
✓ 課堂講	授 Lecture	ield Trip					
其他Miscellaneous:							
教 學 創 新 自 評 Teaching Self-Evaluation							
創新教學(	Innovative Teaching)						
問題導	向學習(PBL) 團體合作學習(TBL) 解決導向學	월(SBL)					
■ 翻轉教室 Flipped Classroom							
社會責任(	Social Responsibility)						
□ 在地實踐Community Practice □ 產學合作 Industy-Academia Cooperation							
跨域合作(Transdisciplinary Projects)							
──跨界教學Transdisciplinary Teaching ──跨院系教學Inter-collegiate Teaching							
──業師合授 Courses Co-taught with Industry Practitioners							
其它 other:							

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	配分比例 Percentage	多元評量方式 Assessments							
Items		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績(含出缺席) General Performance (Attendance Record)									
期中考成績 Midterm Exam	35%		<b>✓</b>						
期末考成績 Final Exam	35%		~						
作業成績 Homework and/or Assignments	30%		<b>~</b>						
其他 Miscellaneous									

評量方式補充說明

Grading & Assessments Supplemental instructions

Class etiquette: Experience indicates that students with regular attendance of class have higher grades than those who did not. Followings are basic class etiquette. Turn off your mobile phone before class. No iPad, smart phone and laptop computer are allowed to use during lecture, unless with permission from me. No loud chatting allowed in the class. Having food or drink in the class is not encouraged. No video or audio recording is not allowed. Picture taking by any electronic devices is forbidden as well. Any irrational behavior in the class will not be tolerated. Any violation of the class etiquette will be penalized by reduction in your grade.

Three strikes, you're out: If you missed three classes without any official excuses, your semester grade will be D or below D. You need an official document for not attending class. No oral or email excuses will be accepted. Therefore, please do not email me that you could not come to class, just give me the official document.

## 教科書與參考書目(書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Introduction to Statistical Learning with applications in R (ISLR), James, Witten, Hastie and Tibshirani, 8th printing

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.

Personal website can be listed here.)

其他補充說明(Supplemental instructions)