

課程中文名稱 Title of Course in Chinese : **大數據分析**

課程英文名稱 Title of Course in English : **Big Data Analysis**

應修系級 Major : **資訊管理研究所1** ,

授課教師 Instructor : **戴敏育**

選修類別 Required/Elective : **選**

全半學年 Whole or Half of the Academic Year : **半學年**

學 分 Credit(s) : **3** 學分

時 數 Hour(s) : **3** 小時

教師網址 Instructor's Website : <http://web.ntpu.edu.tw/~myday/>

教師專長 Instructor's Specialty : 電子商務 (Electronic Commerce), 金融科技 (Financial Technology), 人工智慧 (Artificial Intelligence), 大數據分析 (Big Data Analytics), 資料探勘與文字探勘 (Data Mining and Text Mining)

課綱附檔 Attachments :

先修科目 : 無

Prerequisites : None

教學目標 :

1. 瞭解大數據分析基本概念、研究議題、與實務操作。
2. 具備大數據分析實務操作能力。
3. 進行大數據分析相關之資訊管理研究。

Course Objectives :

1. Understand the fundamental concepts and research issues of big data analysis.
2. Equip with Hands-on practices of big data analysis.
3. Conduct information systems research in the context of big data analysis.

內容綱要 :

本課程介紹大數據分析基本概念、研究議題、與實務操作。課程內容包括大數據分析介紹、AI人工智慧與大數據分析、Python 大數據分析基礎、Python Pandas 大數據量化分析、Python Scikit-Learn 機器學習、AI 機器人理財顧問、金融科技智慧型交談機器人、金融科技數位沙盒實作、與大數據分析個案研究。

Course Outline :

This course introduces the fundamental concepts, research issues, and hands-on practices of big data analysis. Topics include Introduction to Big Data Analysis, AI and Big Data Analysis, Foundations of Big Data Analysis in Python, Quantitative Big Data Analysis with Pandas in Python, Machine Learning with Scikit-Learn In Python, Deep Learning for Big Data Analysis with TensorFlow, Artificial Intelligence for Robo-Advisors, Conversational Commerce and Intelligent Chatbots for Fintech, Hands-on Practices with FintechSpace Digital Sandbox, and Case Study on Big Data Analysis.

學生核心能力關連(Student's Core Competence) :
(八大核心能力為百分比;合計100%;Total 100%)

資訊管理研究所 109年 系核心能力 :
資訊科技新知探索與系統開發應用 80 %
網路行銷企劃能力 10 %
論文寫作與獨立研究能力新知 10 %
[-]

校四大基本素養 Four Fundamental Qualities

專業 Professionalism		人際 Interpersonal Relationship		倫理 Ethics		國際觀 International Vision	
創意思考 與問題解	綜系統整 (Comprehensive	溝通協調 (Communication	團隊合作 (Teamwork)	誠信正直 (Honesty	尊重自省 (Self-	多元關懷 (Caring	跨界宏觀 (Interdisciplinary

決 (Creative thinking and Problem- solving) 30 %	Integration) 30 %	and Coordination) 10 %	10 %	and Integrity) 5 %	Esteem and Self- reflection) 5 %	for Diversity) 5 %	Vision) 5 %
---	----------------------	------------------------------	------	--------------------------	---	--------------------------	----------------

商學院學習目標(College Learning Goals) :

Ethics/Corporate Social Responsibility

Global Knowledge/Awareness

Communication

Analytical and Critical Thinking

系所學習目標(Department Learning Goals) :

Information Technologies and System Development Capabilities

Internet Marketing Management Capabilities

Research capabilities

教學進度(Teaching Contents) :

週別 (Weekly Schedule)	日期 (Date)	教學預定進度 (Tentative teaching schedule) (若有調整，依教師實際授課為準;Adjustments are made according to instructor's actual teaching schedule)	教學方法與教學活動 (Teaching methods and activities)
Week 1	20200916	大數據分析介紹 (Introduction to Big Data Analysis)	講授Lecture 討論Discussion 實習Practicum
Week 2	20200923	AI人工智慧與大數據分析 (AI and Big Data Analysis)	講授Lecture 討論Discussion 實習Practicum
Week 3	20200930	Python 大數據分析基礎 (Foundations of Big Data Analysis in Python)	講授Lecture 討論Discussion 實習Practicum
Week 4	20201007	數位沙盒第一堂課：數位沙盒服務平台簡介 (Digital Sandbox Lesson 1: Introduction to FintechSpace Digital Sandbox)	講授Lecture 討論Discussion 實習Practicum
Week 5	20201014	數位沙盒第二堂課：工程師操作說明與實作教學 (Digital Sandbox Lesson 2: Hands-on Practices)	講授Lecture 討論Discussion 實習Practicum
Week 6	20201021	Python Pandas 大數據量化分析 (Quantitative Big Data Analysis with Pandas in Python)	講授Lecture 討論Discussion 實習Practicum
Week 7	20201028	數位沙盒第三堂課：學生小組討論實作與成果發表 (Digital Sandbox Lesson 3: Learning Teams Hands-on Project Discussion and Project Presentation)	講授Lecture 討論Discussion 實習Practicum
Week 8	20201104	Python Scikit-Learn 機器學習 I (Machine Learning with Scikit-Learn In Python I)	講授Lecture 討論Discussion 實習Practicum
Week 9	20201111	期中報告 (Midterm Project Report)	討論Discussion
Week 10	20201118	Python Scikit-Learn 機器學習 II (Machine Learning with Scikit-Learn In Python II)	講授Lecture 討論Discussion 實習Practicum
Week 11	20201125	TensorFlow 深度學習金融大數據分析 I (Deep Learning for Big Data Analysis with TensorFlow I)	講授Lecture 討論Discussion 實習Practicum
Week 12	20201202	大數據分析個案研究 (Case Study on Big Data Analysis)	討論Discussion
Week 13	20201209	TensorFlow 深度學習金融大數據分析 II (Deep Learning for Big Data Analysis with TensorFlow II)	講授Lecture 討論Discussion

			實習Practicum
Week 14	20201216	TensorFlow 深度學習金融大數據分析 III (Deep Learning for Big Data Analysis with TensorFlow III)	講授Lecture 討論Discussion 實習Practicum
Week 15	20201223	AI 機器人理財顧問 (Artificial Intelligence for Robo-Advisors)	講授Lecture 討論Discussion 實習Practicum
Week 16	20201230	金融科技智慧型交談機器人 (Conversational Commerce and Intelligent Chatbots for Fintech)	講授Lecture 討論Discussion 實習Practicum
Week 17	20210106	期末報告 I (Final Project Report I)	討論Discussion
Week 18	20210113	期末報告 II (Final Project Report I)	討論Discussion

評量方式(Evaluation Methods) :

課堂之前測(Pre-test) 0 %

課堂之隨堂測驗(Quiz) 0 %

期中考-筆試(Mid-Term) 0 %

期末考-筆試(Final Exam) 0 %

個案分析報告(Case Report) 10 %

課堂參與(Class Participation) 10 %

個人報告(Individual Presentation) 60 %

團體報告(Group Presentation) 10 %

作業(Assignment) 10 %

其他評量方式(Other Evaluation Methods)

指定用書(Required Texts) :

Aurélien Géron (2019), Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems, 2nd Edition, O'Reilly Media.

參考書目(Reference Books) :

Yves Hilpisch (2018), Python for Finance: Mastering Data-Driven Finance, 2nd Edition, O'Reilly Media.

其他參考資料(Other References) :

Paolo Sironi (2016), FinTech Innovation: From Robo-Advisors to Goal Based Investing and Gamification, Wiley.

Yuxing Yan (2017), Python for Finance: Apply powerful finance models and quantitative analysis with Python, Second Edition, Packt Publishing

『請遵守智慧財產權』及『不得非法複製及影印』

Please respect intellectual property rights and do not illegally copy or print materials.