

<p>課程中文名稱 Title of Course in Chinese : 資料探勘</p> <p>課程英文名稱 Title of Course in English : Data Mining</p> <p>應修系級 Major : 資訊管理研究所1 , 電子商務碩士學分學程 ,</p> <p>授課教師 Instructor : 戴敏育</p> <p>選修類別 Required/Elective : 選</p> <p>全半學年 Whole or Half of the Academic Year : 半學年</p> <p>學 分 Credit(s) : 3 學分</p> <p>時 數 Hour(s) : 3 小時</p>
<p>教師網址 Instructor's Website : http://web.ntpu.edu.tw/~myday/</p>
<p>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)</p>
<p>課網附檔 Attachments :</p>
<p>先修科目 : 無</p>
<p>Prerequisites : None</p>
<p>教學目標 :</p> <ol style="list-style-type: none"> 1. 瞭解資料探勘基本概念與研究議題。 2. 具備資料探勘實務操作能力。 3. 進行資料探勘相關之資訊管理研究。
<p>Course Objectives :</p> <ol style="list-style-type: none"> 1. Understand the fundamental concepts and research issues of data mining. 2. Equip with Hands-on practices of data mining. 3. Conduct information systems research in the context of data mining.
<p>內容綱要 :</p> <p>本課程介紹資料探勘基本概念、研究議題、與實務操作。課程內容包括資料探勘介紹、資料探勘課程介紹、ABC : 人工智慧, 大數據, 雲端運算、Python資料探勘的基礎、資料科學與資料探勘: 發現, 分析, 可視化和呈現數據、非監督學習: 關聯分析、聚類分析、監督學習: 分類和預測、機器學習和深度學習、卷積神經網絡、遞歸神經網絡、強化學習、社交網絡分析、與資料探勘個案研究。</p>
<p>Course Outline :</p> <p>This course introduces the fundamental concepts, research issues, and hands-on practices of data mining. Topics include Introduction to data mining, ABC: AI, Big Data, Cloud Computing, Foundations of Data Mining in Python, Data Science and Data Mining: Discovering, Analyzing, Visualizing and Presenting Data, Unsupervised Learning: Association Analysis, Cluster Analysis, Supervised Learning: Classification and Prediction, Machine Learning and Deep Learning, Convolutional Neural Networks, Recurrent Neural Networks, Reinforcement Learning, Social Network Analysis, and Case Study on Data Mining.</p>
<p>學生核心能力關連(Student's Core Competence) :</p> <p>(八大核心能力為百分比; 合計100%; Total 100%)</p>
<p>資訊管理研究所 109年 系核心能力 :</p> <p>資訊科技新知探索與系統開發應用 80 %</p> <p>網路行銷企劃能力 10 %</p> <p>論文寫作與獨立研究能力新知 10 %</p> <p>[二]</p>
<p>校四大基本素養</p>

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 決 (Creative thinking and Problem- solving) 30 %	綜合統整 (Comprehensive Integration) 30 %	溝通協調 (Communication and Coordination) 10 %	團隊合作 (Teamwork) 10 %	誠信正直 (Honesty and Integrity) 5 %	尊重自省 (Self- Esteem and Self- reflection) 5 %	多元關懷 (Caring for Diversity) 5 %	跨界宏觀 (Interdisciplinary 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	20210223	資料探勘介紹 (Introduction to data mining)	講授Lecture 討論Discussion 實習Practicum
Week 2	20210302	ABC：人工智慧，大數據，雲端運算 (ABC: AI, Big Data, Cloud Computing)	講授Lecture 討論Discussion 實習Practicum
Week 3	20210309	Python資料探勘的基礎 (Foundations of Data Mining in Python)	講授Lecture 討論Discussion 實習Practicum
Week 4	20210316	資料科學與資料探勘：發現，分析，可視化和呈現數據 (Data Science and Data Mining: Discovering, Analyzing, Visualizing and Presenting Data)	講授Lecture 討論Discussion 實習Practicum
Week 5	20210323	非監督學習：關聯分析，購物籃分析 (Unsupervised Learning: Association Analysis, Market Basket Analysis)	講授Lecture 討論Discussion 實習Practicum
Week 6	20210330	資料探勘個案研究 I (Case Study on Data Mining I)	討論Discussion
Week 7	20210406	非監督學習：集群分析，行銷市場區隔 (Unsupervised Learning: Cluster Analysis, Market Segmentation)	講授Lecture 討論Discussion 實習Practicum
Week 8	20210413	監督學習：分類和預測 (Supervised Learning: Classification and Prediction)	講授Lecture 討論Discussion 實習Practicum
Week 9	20210420	期中報告 (Midterm Project Report)	討論Discussion
Week 10	20210427	監督學習：分類和預測 (Supervised Learning: Classification and Prediction)	講授Lecture 討論Discussion

			實習Practicum
Week 11	20210504	機器學習和深度學習 (Machine Learning and Deep Learning)	講授Lecture 討論Discussion 實習Practicum
Week 12	20210511	卷積神經網絡 (Convolutional Neural Networks)	講授Lecture 討論Discussion 實習Practicum
Week 13	20210518	資料探勘個案研究 II (Case Study on Data Mining II)	討論Discussion
Week 14	20210525	遞歸神經網絡 (Recurrent Neural Networks)	講授Lecture 討論Discussion 實習Practicum
Week 15	20210601	強化學習 (Reinforcement Learning)	講授Lecture 討論Discussion 實習Practicum
Week 16	20210608	社交網絡分析 (Social Network Analysis)	講授Lecture 討論Discussion 實習Practicum
Week 17	20210615	期末報告 I (Final Project Report I)	討論Discussion
Week 18	20210622	期末報告 II (Final Project Report II)	討論Discussion

評量方式(Evaluation Methods) :

課堂之前測(Pre-test) 0 %

期中考-筆試(Mid-Term) 0 %

個案分析報告(Case Report) 10 %

個人報告(Individual Presentation) 60 %

作業(Assignment) 10 %

其他評量方式(Other Evaluation Methods)

課堂之隨堂測驗(Quiz) 0 %

期末考-筆試(Final Exam) 0 %

課堂參與(Class Participation) 10 %

團體報告(Group Presentation) 10 %

指定用書(Required Texts) :

Robert Layton (2017), Learning Data Mining with Python, Second Edition, Packt Publishing.

參考書目(Reference Books) :

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.

其他參考資料(Other References) :

『請遵守智慧財產權』及『不得非法複製及影印』

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