

課程中文名稱 Title of Course in Chinese : **人工智慧**

課程英文名稱 Title of Course in English : **Artificial Intelligence**

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)

課網附檔 Attachments :

先修科目 : 無

Prerequisites : None

教學目標 :

1. 瞭解人工智慧基本概念與研究議題。
2. 具備人工智慧實務操作能力。
3. 進行人工智慧相關之資訊管理研究。

Course Objectives :

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

內容綱要 :

本課程介紹人工智慧基本概念、研究議題、與實務操作。課程內容包括人工智慧概論、人工智慧和智慧代理人、問題解決、知識推理和知識表達、不確定知識和推理、監督式學習、學習理論與綜合學習、深度學習、強化學習、自然語言處理、深度學習自然語言處理、機器人技術、人工智慧的哲學與倫理與人工智慧的未來、與人工智慧個案研究。

Course Outline :

This course introduces the fundamental concepts, research issues, and hands-on practices of Artificial Intelligence. Topics include Introduction to Artificial Intelligence, Artificial Intelligence and Intelligent Agents, Problem Solving, Knowledge, Reasoning and Knowledge Representation, Uncertain Knowledge and Reasoning, Supervised Learning, The Theory of Learning and Ensemble Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Deep Learning for Natural Language Processing, Robotics, Philosophy and Ethics of AI and the Future of AI, and Case Study on AI.

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 %

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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 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	20210224	人工智慧概論 (Introduction to Artificial Intelligence)	講授Lecture 討論Discussion 實習Practicum
Week 2	20210303	人工智慧和智慧代理人 (Artificial Intelligence and Intelligent Agents)	講授Lecture 討論Discussion 實習Practicum
Week 3	20210310	問題解決 (Problem Solving)	講授Lecture 討論Discussion 實習Practicum
Week 4	20210317	知識推理和知識表達 (Knowledge, Reasoning and Knowledge Representation)	講授Lecture 討論Discussion 實習Practicum
Week 5	20210324	不確定知識和推理 (Uncertain Knowledge and Reasoning)	講授Lecture 討論Discussion 實習Practicum
Week 6	20210331	人工智慧個案研究 I (Case Study on Artificial Intelligence I)	討論Discussion
Week 7	20210407	監督式學習 (Supervised Learning)	講授Lecture 討論Discussion 實習Practicum
Week 8	20210414	學習理論與綜合學習 (The Theory of Learning and Ensemble Learning)	講授Lecture 討論Discussion 實習Practicum
Week 9	20210421	期中報告 (Midterm Project Report)	討論Discussion
Week 10	20210428	深度學習 (Deep Learning)	講授Lecture 討論Discussion 實習Practicum

Week 11	20210505	強化學習 (Reinforcement Learning)	講授Lecture 討論Discussion 實習Practicum
Week 12	20210512	人工智慧個案研究 II (Case Study on Artificial Intelligence II)	討論Discussion
Week 13	20210519	自然語言處理 (Natural Language Processing)	講授Lecture 討論Discussion 實習Practicum
Week 14	20210526	深度學習自然語言處理 (Deep Learning for Natural Language Processing)	講授Lecture 討論Discussion 實習Practicum
Week 15	20210602	機器人技術 (Robotics)	講授Lecture 討論Discussion 實習Practicum
Week 16	20210609	人工智能的哲學與倫理與人工智能的未來 (Philosophy and Ethics of AI and the Future of AI)	講授Lecture 討論Discussion 實習Practicum
Week 17	20210616	期末報告 I (Final Project Report I)	討論Discussion
Week 18	20210623	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) :

Stuart Russell and Peter Norvig (2020), Artificial Intelligence: A Modern Approach, 4th Edition, Pearson.

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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