

<p>課程中文名稱 Title of Course in Chinese : <b>人工智慧</b></p> <p>課程英文名稱 Title of Course in English : <b>Artificial Intelligence</b></p> <p>應修系級 Major : <b>資訊管理研究所2 , 財務金融英語碩士學位學程1 , 財務金融英語碩士學位學程2 , 智慧醫療管理英語碩士學位學程1 , 智慧醫療管理英語碩士學位學程2 , 城市治理英語碩士學位學程1 , 城市治理英語碩士學位學程2 ,</b></p> <p>授課教師 Instructor : <b>戴敏育</b></p> <p>選修類別 Required/Elective : <b>選</b></p> <p>全半學年 Whole or Half of the Academic Year : <b>半</b>學年</p> <p>學 分 Credit(s) : <b>3</b> 學分</p> <p>時 數 Hour(s) : <b>3</b> 小時</p>
<p>教師網址 Instructor's Website : <a href="http://web.ntpu.edu.tw/~myday/">http://web.ntpu.edu.tw/~myday/</a></p>
<p>教師專長 Instructor's Specialty : <b>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)</b></p>
<p>課網附檔 Attachments :</p>
<p>先修科目 : <b>None</b></p>
<p>Prerequisites : <b>None</b></p>
<p>教學目標 :</p> <ol style="list-style-type: none"> <li>1. 瞭解人工智慧基本概念與研究議題。</li> <li>2. 具備人工智慧實務操作能力。</li> <li>3. 進行人工智慧相關之資訊管理研究。</li> </ol>
<p>Course Objectives :</p> <ol style="list-style-type: none"> <li>1. Understand the fundamental concepts and research issues of Artificial Intelligence.</li> <li>2. Equip with Hands-on practices of Artificial Intelligence.</li> <li>3. Conduct information systems research in the context of Artificial Intelligence.</li> </ol>
<p>內容綱要 :</p> <p>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、機器學習：監督式與非監督式學習、學習理論與綜合學習、深度學習、強化學習、深度學習自然語言處理、電腦視學與機器人技術、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。</p>
<p>Course Outline :</p> <p>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, Machine Learning: Supervised and Unsupervised Learning, The Theory of Learning and Ensemble Learning, Deep Learning, Reinforcement Learning, Deep Learning for Natural Language Processing, Computer Vision and Robotics, Philosophy and Ethics of AI and the Future of AI, and Case Study on AI.</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>財務金融英語碩士學位學程 111年 系核心能力：[±]</p>
<p>資訊管理研究所 111年 系核心能力： -無系核心能力! [-]</p>
<p>智慧醫療管理英語碩士學位學程 111年 系核心能力：[±]</p>
<p>城市治理英語碩士學位學程 111年 系核心能力：[±]</p>

**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) 40 %	綜合統整 (Comprehensive Integration) 30 %	溝通協調 (Communication and Coordination) 5 %	團隊合作 (Teamwork) 5 %	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	20220914	Introduction to Artificial Intelligence	講授Lecture 討論Discussion
Week 2	20220921	Artificial Intelligence and Intelligent Agents	講授Lecture 討論Discussion 實習Practicum
Week 3	20220928	Problem Solving	講授Lecture 討論Discussion 實習Practicum
Week 4	20221005	Knowledge, Reasoning and Knowledge Representation; Uncertain Knowledge and Reasoning	講授Lecture 討論Discussion 實習Practicum
Week 5	20221012	Case Study on Artificial Intelligence I	討論Discussion
Week 6	20221019	Machine Learning: Supervised and Unsupervised Learning	講授Lecture 討論Discussion 實習Practicum
Week 7	20221026	The Theory of Learning and Ensemble Learning	講授Lecture 討論Discussion 實習Practicum
Week 8	20221102	Midterm Project Report	討論Discussion
Week 9	20221109	Deep Learning	講授Lecture 討論Discussion 實習Practicum
Week 10	20221116	Reinforcement Learning	講授Lecture 討論Discussion 實習Practicum
Week 11	20221123	Case Study on Artificial Intelligence II	討論Discussion
Week 12	20221130	Deep Learning for Natural Language Processing	講授Lecture 討論Discussion

			實習Practicum
Week 13	20221207	Computer Vision and Robotics	講授Lecture 討論Discussion 實習Practicum
Week 14	20221214	Philosophy and Ethics of AI and the Future of AI	講授Lecture 討論Discussion 實習Practicum
Week 15	20221221	Final Project Report I	討論Discussion
Week 16	20221228	Final Project Report II	討論Discussion
Week 17	20230104	Self-learning	其他Others
Week 18	20230111	Self-learning	其他Others

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 Exam) 0 %

期末考-筆試(Final Exam) 0 %

個案分析報告(Case Report) 20 %

課堂參與(Class Participation) 10 %

個人報告(Individual Presentation) 30 %

團體報告(Group Presentation) 30 %

作業(Assignment) 10 %

其他評量方式(Other Evaluation Methods)

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.

Steven D'Ascoli (2022), Artificial Intelligence and Deep Learning with Python: Every Line of Code Explained For Readers New to AI and New to Python, Independently published.

Nithin Buduma, Nikhil Buduma, Joe Papa (2022), Fundamentals of Deep Learning: Designing Next-Generation Machine Intelligence Algorithms, 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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