

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 , 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 , 英語授課商學碩士學分學程 , 金融科技與量化金融學士學分學程 , 商業人工智慧學士微學程 ,**

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 : **人工智慧 (Artificial Intelligence)、生成式AI (Generative AI)、永續綠色金融科技 (ESG and Green Financial Technology)、大數據分析 (Big Data Analytics)、電子商務 (Electronic Commerce)**

課綱附檔 Attachments :

先修科目 : **None**

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.

本課程包含永續發展(SDGs)目標(→[點此瞭解永續相關目標](#)←) :

SDG4 | 優質教育 (Quality Education)

SDG9 | 產業創新與基礎設施 (Industry, Innovation and Infrastructure)

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、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、生成式人工智慧、代理式人工智慧、實體人工智慧、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, Machine Learning: Supervised and Unsupervised Learning, The Theory of Learning and Ensemble Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Computer Vision and Robotics, Generative AI, Agentic AI, Physical AI, 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%)

財務金融英語碩士學位學程 114年 系核心能力：

Communication: Each student will be able to demonstrate proficiency in oral and written communication. 5 %

Teamwork: Each student will demonstrate the ability to work well in teams. 5 %

Professionalism: Each student will have the ability to address and analyze business problems and provide suggestions to the related fields. 70 %

Business values: Each student will be aware of sustainable and ethical issues and their implications. 20 %

Global awareness: Each student will gain global awareness by participating in related activities. 10 %

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資訊管理研究所 114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) 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 %

商學院院核心素養目標 (College Competency Goals) :

Communication

Fundamental Skill

Teamwork

Leadership

Professionalism

Research

Business Ethics and Sustainability

Global Awareness

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	20250909	Introduction to Artificial Intelligence	講授Lecture 討論Discussion
Week 2	20250916	Artificial Intelligence and Intelligent Agents; Problem Solving	講授Lecture 討論Discussion 實習Practicum
Week 3	20250923	Knowledge, Reasoning and Knowledge Representation; Uncertain Knowledge and Reasoning	講授Lecture 討論Discussion 實習Practicum
Week 4	20250930	Case Study on Artificial Intelligence I	討論Discussion

Week 5	20251007	Machine Learning: Supervised and Unsupervised Learning; The Theory of Learning and Ensemble Learning	講授Lecture 討論Discussion 實習Practicum
Week 6	20251014	NVIDIA Fundamentals of Deep Learning I: Deep Learning; Neural Networks	講授Lecture 討論Discussion 實習Practicum
Week 7	20251021	NVIDIA Fundamentals of Deep Learning II: Convolutional Neural Networks; Data Augmentation and Deployment	講授Lecture 討論Discussion 實習Practicum
Week 8	20251028	Self-Learning	其他Others
Week 9	20251104	Midterm Project Report	討論Discussion
Week 10	20251111	NVIDIA Fundamentals of Deep Learning III: Pre-trained Models; Natural Language Processing	講授Lecture 討論Discussion 實習Practicum
Week 11	20251118	Case Study on Artificial Intelligence II	討論Discussion
Week 12	20251125	Computer Vision and Robotics	講授Lecture 討論Discussion 實習Practicum
Week 13	20251202	Generative AI, Agentic AI, and Physical AI	講授Lecture 討論Discussion 實習Practicum
Week 14	20251209	Philosophy and Ethics of AI and the Future of AI	講授Lecture 討論Discussion 實習Practicum
Week 15	20251216	Final Project Report I	討論Discussion
Week 16	20251223	Final Project Report II	討論Discussion
彈性補充教學		課程於16週內上完，彈性補充教學規劃如下： ☐ 問題討論 ☐ 翻轉教學 ☐ 展演實作 ☐ 校外參訪 ☐ 校內外各類演講/講座 ☐ 線上作業 ☐ 數位自學 ☐ 課業輔導 ☐ 遠距教學(同步) ☐ 遠距教學(非同步) ☒ 學生自主學習 ☒ 其他 彈性補充教學規劃主要為學生自主學習，目標為培養學生的終身學習能力，並鼓勵根據個人興趣與生涯規劃，進行探索式學習。這是一項完全自主、非強制性且不列入成績評量的學習活動，實施方式為提供多元化學習資源，支持學生自我精進。	

評量方式(Evaluation Methods)：

課堂之前測(Pre-test) 0 %

期中考-筆試(Mid-Term Exam) 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)：

Numa Dhamani and Maggie Engler (2024), Introduction to Generative AI, Manning

Denis Rothman (2024), Transformers for Natural Language Processing and Computer Vision - Third Edition: Explore Generative AI and Large Language Models with Hugging Face, ChatGPT, GPT-4V, and

DALL-E 3, 3rd ed. Edition, Packt Publishing

Ben Auffarth (2023), Generative AI with LangChain: Build large language model (LLM) apps with Python, ChatGPT and other LLMs, Packt Publishing.

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) :

NVIDIA (2025), Getting Started with Deep Learning, https://learn.nvidia.com/courses/course-detail?course_id=course-v1:DLI+S-FX-01+V1

NVIDIA (2025), Fundamentals of Deep Learning, https://learn.nvidia.com/courses/course?course_id=course-v1:DLI+C-FX-01+V3

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