

<p>課程中文名稱 Title of Course in Chinese : 人工智慧文本分析</p> <p>課程英文名稱 Title of Course in English : Artificial Intelligence for Text Analytics</p> <p>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 , 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 , 金融科技與量化金融學士學分學程 , 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 ,</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>課綱附檔 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. 瞭解人工智慧文本分析基本概念與研究議題。 2. 具備人工智慧文本分析實務操作能力。 3. 進行人工智慧文本分析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 Artificial Intelligence for Text Analytics. 2. Equip with Hands-on practices of Artificial Intelligence for Text Analytics. 3. Conduct information systems research in the context of Artificial Intelligence for Text Analytics.
<p>本課程包含永續發展(SDGs)目標(→點此瞭解永續相關目標←) :</p> <p>SDG3 良好健康和福祉 (Good Health and Well-being)</p> <p>SDG4 優質教育 (Quality Education)</p> <p>SDG8 尊嚴就業與經濟發展 (Decent Work and Economic Growth)</p> <p>SDG11 永續城市與社區 (Sustainable Cities and Communities)</p> <p>SDG12 負責任的消費與生產 (Responsible Consumption and Production)</p>
<p>內容綱要 :</p> <p>[Artificial Intelligence for Text Analytics] This is an EMI Full English Course.</p> <p>This course introduces the fundamental concepts, research issues, and hands-on practices of Artificial Intelligence for Text Analytics. Topics include Introduction to Introduction to Artificial Intelligence for Text Analytics, Foundations of Text Analytics: Natural Language Processing (NLP), Python for Natural Language Processing, Natural Language Processing with Transformers, Text Classification and Sentiment Analysis, Multilingual Named Entity Recognition (NER), Text Similarity and Clustering, Text Summarization and Topic Models, Text Generation with Large Language Models (LLMs), Question Answering and Dialogue Systems, Deep Learning, Generative AI, Transfer Learning, Zero-Shot, and Few-Shot Learning for Text Analytics, and Case Study on Artificial Intelligence for Text Analytics.</p>
<p>Course Outline :</p> <p>[Artificial Intelligence for Text Analytics] This is an EMI Full English Course.</p> <p>This course introduces the fundamental concepts, research issues, and hands-on practices of Artificial Intelligence for Text Analytics. Topics include Introduction to Introduction to Artificial Intelligence for Text Analytics, Foundations of Text Analytics: Natural Language Processing (NLP), Python for Natural</p>

Language Processing, Natural Language Processing with Transformers, Text Classification and Sentiment Analysis, Multilingual Named Entity Recognition (NER), Text Similarity and Clustering, Text Summarization and Topic Models, Text Generation with Large Language Models (LLMs), Question Answering and Dialogue Systems, Deep Learning, Generative AI, Transfer Learning, Zero-Shot, and Few-Shot Learning for Text Analytics, and Case Study on Artificial Intelligence for Text Analytics.

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 112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. 80 %
Business values: Each student will be aware of sustainable and ethical issues and their implications. 5 %
Global awareness: Each student will gain global awareness by participating in related activities. 5 %
[-]

資訊管理研究所 112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 %
[-]

智慧醫療管理英語碩士學位學程 112年 系核心能力：
透過跨領域的學習來培養學生創新思考並解決問題的素養。 30 %
訓練學生智慧醫療管理的專業素養 3 %
來自不同文化的學生在學習及討論的過程中，了解彼此的差異、尋求共識，建立溝通協調的能力。 5 %
藉由與不同國籍同學之間的合作培養團隊合作精神。 5 %
培養學生關注醫療、商業倫理素養 5 %
培養學生關注人工智慧議題的專業倫理素養 30 %
養成學生對於不同領域之議題之思辨力 5 %
培養跨領域專業人才以因應未來國際趨勢 5 %
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城市治理英語碩士學位學程 112年 系核心能力：
專業知識與跨域整合：培養學生掌握當代城市治理的專業知識，並進行跨域整合的能力 40 %
國際多元與團隊合作：培養國際觀與多元尊重，並掌握全球情勢脈動，以進行團隊合作 10 %
智慧永續與創新思維：培養學生具備資料分析與了解智慧科技的能力，並應用創新思維於創意城市環境與地方創生的建構 40 %
政策制定與執行：培養同學思考公私部門永續發展議題，並以專業跨域整合思維，具備制定與執行政策的能力。 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) 40 %	溝通協調 (Communication and Coordination) 10 %	團隊合作 (Teamwork) 5 %	誠信正直 (Honesty and Integrity) 0 %	尊重自省 (Self-Esteem and Self-reflection) 0 %	多元關懷 (Caring for Diversity) 0 %	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	20230913	Introduction to Artificial Intelligence for Text Analytics	講授Lecture 討論Discussion 實習Practicum
Week 2	20230920	Foundations of Text Analytics: Natural Language Processing (NLP)	講授Lecture 討論Discussion 實習Practicum
Week 3	20230927	Python for Natural Language Processing	講授Lecture 討論Discussion 實習Practicum
Week 4	20231004	Natural Language Processing with Transformers	講授Lecture 討論Discussion 實習Practicum
Week 5	20231011	Case Study on Artificial Intelligence for Text Analytics I	討論Discussion
Week 6	20231018	Text Classification and Sentiment Analysis	講授Lecture 討論Discussion 實習Practicum
Week 7	20231025	Multilingual Named Entity Recognition (NER)	
Week 8	20231101	Midterm Project Report	討論Discussion
Week 9	20231108	Text Similarity and Clustering	講授Lecture 討論Discussion 實習Practicum
Week 10	20231115	Text Summarization and Topic Models	講授Lecture 討論Discussion 實習Practicum
Week 11	20231122	Text Generation with Large Language Models (LLMs)	講授Lecture 討論Discussion 實習Practicum
Week 12	20231129	Case Study on Artificial Intelligence for Text Analytics II	討論Discussion
Week 13	20231206	Question Answering and Dialogue Systems	講授Lecture 討論Discussion 實習Practicum
Week 14	20231213	Deep Learning, Generative AI, Transfer Learning, Zero-Shot, and Few-Shot Learning for Text Analytics	講授Lecture 討論Discussion 實習Practicum
Week 15	20231220	Final Project Report I	討論Discussion
Week 16	20231227	Final Project Report II	討論Discussion
Week 17&18 : 彈性補充教學		Self Study	

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) :

Lewis Tunstall, Leandro von Werra, and Thomas Wolf (2022), *Natural Language Processing with Transformers: Building Language Applications with Hugging Face*, O'Reilly Media.

參考書目(Reference Books) :

Denis Rothman (2021), *Transformers for Natural Language Processing: Build innovative deep neural network architectures for NLP with Python, PyTorch, TensorFlow, BERT, RoBERTa, and more*, Packt Publishing

Savaş Yıldırım and Meysam Asgari-Chenaghlu (2021), *Mastering Transformers: Build state-of-the-art models from scratch with advanced natural language processing techniques*, Packt Publishing.

Sudharsan Ravichandiran (2021), *Getting Started with Google BERT: Build and train state-of-the-art natural language processing models using BERT*, Packt Publishing.

Sowmya Vajjala, Bodhisattwa Majumder, Anuj Gupta (2021), *Practical Natural Language Processing: A Comprehensive Guide to Building Real-World NLP Systems*, O'Reilly Media.

其他參考資料(Other References) :

Dipanjan Sarkar (2019), *Text Analytics with Python: A Practitioner's Guide to Natural Language Processing*, Second Edition. APress.

Benjamin Bengfort, Rebecca Bilbro, and Tony Ojeda (2018), *Applied Text Analysis with Python: Enabling Language-Aware Data Products with Machine Learning*, O'Reilly.

Charu C. Aggarwal (2018), *Machine Learning for Text*, Springer.

Gabe Ignatow and Rada F. Mihalcea (2017), *An Introduction to Text Mining: Research Design, Data Collection, and Analysis*, SAGE Publications.

Aurélien Géron (2022), *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems*, 3rd Edition, O'Reilly Media.

Frederick Kaefer and Paul Kaefer (2020), *Introduction to Python Programming for Business and Social Science Applications*, SAGE Publications

Vic Anand, Khrystyna Bochkay, and Roman Chychyla (2020), *Using Python for Text Analysis in Accounting Research*, Now Publishers.

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