提升 AI 協作課程質與量

Improving the Quality and Quantity of AI Collaborative Courses

教務處教學資源中心

Office of Academic Affairs, Teaching Resources Center

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臺北醫學大學 TAIPEI MEDICAL UNIVERSITY

提升 AI 協作課程質與量策略

- 116年度校內深耕計畫教學面學院管考指標增加「AI協作課程比例」50%
  - ① 請於授課進度表或第一堂課明確規定AI使用範疇(高度協作、條件式開放、嚴禁使用)，若允許使用，須規定學生標註使用歷程與引用範圍
  - ② 請於授課進度表的教學大綱註明AI協作的項目
  - ③ 鼓勵教師多加使用IM@TMU的AI出題模組功能
  - ④ 鼓勵教師在評分標準中增加AI評分項目
  - ⑤ 鼓勵教師降低一般講演時數，提升以AI協作或實作的時數

  教務處將統計各學院授課進度表有註明AI協作的課程數及比例

- 教務處將持續辦理AI協作評量等工作坊，精進教師AI協作的品質

AI 導入Problem/Project-Based Learning 課程行動方案

- 鼓勵教師自「課程設計與融入」階段至少擇1項行動項目導入課程，並請於授課進度表註明

階段	行動項目	說明
課程設計與融入	• AI 扮演虛擬角色	• AI 扮演患者、家屬、醫療人員，訓練學生多面向溝通與問題解決
	• 安排學生與 AI 互動	• 學生使用 AI 探討不同檢查/治療方案的利弊、AI 查找文獻
	• 小組討論與 AI 輔助診斷	• 將 AI 產出的想法納入小組討論並批判性分析，指導學生交互驗證 AI 資料
	• 重視倫理、隱私與假訊息判斷	• 教育學生 AI 在醫學知識、臨床建議上的局限與潛在偏見，納入 AI 倫理議題討論(如患者隱私、醫療責任等)
評量回饋	• 設計AI協作標記與反思評量	• 教師應要求學生在最終產出附上 AI 使用聲明與反思報告
	• 設計AI評分項目	• 教師提供 AI 評量參數(如邏輯完整度、語言流暢度)，讓學生在反覆練習中獲得即時回饋，提升最終表現

此方案參考來源Gemini

AI 導入Product-Based Learning課程行動方案

- 鼓勵教師利用 AI 將「醫學痛點」轉化為「產品原型」，並請於授課進度表註明

階段	行動項目	說明
課程設計與融入	• 利用 AI 將「醫學痛點」轉化為「產品原型」	• 教師可教導學生利用生成式 AI 設計工具或無程式碼開發平台(No-code 平台)，開發醫療 App 原型、AI 輔助診斷演算法或 3D 列印手術導板
評量回饋	• 設計AI協作標記與反思評量	• 教師應要求學生在最終產出附上 AI 使用聲明與反思報告
	• 設計AI評分項目	• 教師提供 AI 評量參數(如邏輯完整度、語言流暢度)，讓學生在反覆練習中獲得即時回饋，提升最終表現

此方案參考來源Gemini

AI 導入USR課程行動方案

- 鼓勵教師至少擇1項行動項目導入課程，並請於授課進度表註明

階段	行動項目	說明
1.需求診斷	• 辨識地方痛點	• 教師教導學生運用 AI 分析在地社群、新聞與論壇數據，自動歸納實踐場域的關鍵痛點
	• AI 訪談生成紀錄	• 田野調查中，使用 AI 語音轉文字與摘要工具
	• 視覺化需求地圖	• 結合 GIS 地理資訊系統與AI 預測模型，繪製「健康風險分布地圖」，協助學生決定服務的最佳落腳點
2.智慧方案設計	• 適性化衛教生成	• 針對醫療資源匱乏區，教師教導學生利用生成式 AI 產出「多國語言」或「長輩易讀版」的衛教短片與手冊
	• 智慧諮詢服務	• 引導學生建構針對場域對象的 AI 諮詢機器人
	• 輔具原型設計	• 引導學生利用 AI 針對場域產出低成本的智慧化輔助工具
3.成效評估	• 服務回饋分析	• 自動分析場域參與者的回饋，即時調整課程實踐方向，優化師生與地方的互信關係
	• 影響力追蹤	• 建立 AI 數據追蹤系統，長期監控服務後場域居民的健康數據變化或參與度，將質化的社會改變轉化為量化的影響力指標(SROI)

此方案參考來源Gemini

AI 導入總整課程行動方案

- 鼓勵教師自「課程設計與融入」階段至少擇1項行動項目導入課程，並請於授課進度表註明

階段	行動項目	說明
課程設計與融入	• 實施 AI 增強型蘇格拉底教學法	• 教師運用 AI 工具生成「挑戰性問題」，讓學生提出解決方案
	• 實施智慧學習歷程追蹤	• 教師運用 AI 分析學生在 IM@TMU 的討論頻率，針對有問題的學生及時介入輔導
	• 跨領域產學媒合	• 教師利用 AI，將學生的專案雛形精準對接校外導師或產業界專家
評量回饋	• 設計AI協作標記與反思評量	• 教師應要求學生在最終產出附上 AI 使用聲明與反思報告
	• 設計AI評分項目	• 教師提供 AI 評量參數(如邏輯完整度、語言流暢度)，讓學生在反覆練習中獲得即時回饋，提升最終表現

此Rubrics範例參考了頂尖大學對學術誠信與數位素養的要求，資料來自Gemini

AI 協作課程評分規準 (Rubrics) 建議

評分向度	卓越 (18-20分)	優良 (14-17分)	尚可 (10-13分)	待加強 (0-9分)	權重
1.AI 工具選用	能精準根據問題性質選用多種AI工具，並展現高階提示技巧。	能選用適合的AI工具，提示語結構清晰且具邏輯。	使用單一AI工具，提示語較為簡單或缺乏層次。	盲目使用AI工具，未針對問題調整工具選用。	20%
2.批判性驗證與錯誤修正	**主動辨識出AI的偏誤或錯誤**，並能引用權威文獻進行精準修正與事實查核。	察覺AI產出的不合理處，並進行初步的調整與資料對照。	接受大部分AI產出，僅在明顯錯誤時進行修改。	完全照搬AI產出，未進行任何事實查核。	25%
3.人機協作價值	在AI基礎上加入**深度的個人原創見解、人文關懷或臨床直覺**，產出遠超AI水準。	能有效整合AI建議與個人專業判斷，專案完整且具執行力。	僅將AI產出與個人內容簡單拼接，缺乏有機整合感	專案內容高度依賴AI，缺乏學生主體性的專業貢獻。	25%
4.AI 使用透明度	清楚標註AI使用工具與範圍，詳盡記錄與AI互動的協作過程，符合最高學術誠信。	清楚標註AI使用工具與範圍，記錄主要協作過程。	僅口頭提及使用AI，未提供具體的紀錄或標註。	未揭露AI使用情況，有學術不端或剽竊疑慮。	15%
5.最終成果與影響力	成果具備高度創新性與產學鏈結潛力，並展現優異的媒體素養。	成果具備實務解決問題能力，表達清晰且專業。	成果達成基本要求，但在創新性或表達上較為平庸	成果不完整，或無法展現跨領域整合之成效。	15%

Improving the Quality and Quantity of AI Collaborative Courses

- For 2027 year, the AI Collaborative Courses added as a performance evaluation indicator for the Teaching Division under the University's Higher Education Sprout Project, with a target of 50%.
  - ① Please clearly specify the scope of AI use (highly collaborative, conditionally permitted, or strictly prohibited) in the course syllabus or during the first class. If AI use is permitted, students must document their usage history and provide proper citations.
  - ② Please indicate the AI collaboration projects in the course syllabus or schedule.
  - ③ We encourage teachers to make greater use of the AI question-generation module in IM@TMU.
  - ④ Encourage teachers to incorporate AI-based grading criteria into their evaluation standards.
  - ⑤ Encourage teachers to reduce the number of hours spent on general lectures and increase the time allocated to AI-assisted collaboration and hands-on activities.
- The Office of Academic Affairs will continue to organize workshops on AI-assisted assessment and other related topics to enhance the quality of teachers' use of AI in their work.

Action Plan for Implementing AI in Problem/Project-Based Learning Courses

- Teachers are encouraged to select at least one action item from the Design and Integration phase to incorporate into their curriculum and be sure to include this in the course syllabus.

Phase	Action	Explanation
Curriculum Design and Integration	• AI serves as a virtual character	• AI simulates the roles of patients, family members, and healthcare professionals to train students in complex communication and problem-solving skills.
	• Arrange opportunities for students to interact with AI	• Students use AI to explore the advantages and disadvantages of various diagnostic and treatment options. Additionally, AI is employed to search for relevant literature.
	• Group Discussions and AI-Assisted Diagnoses	• Incorporate AI-generated ideas into group discussions and critically analyze them, guiding students to verify AI-generated data through cross-referencing.
	• Emphasizing Ethics, Privacy, and the Evaluation of Misinformation	• Educate students about the limitations and potential biases of AI in medical knowledge and clinical recommendations, and incorporate discussions on AI ethics, including patient privacy and medical liability.
Assessment Feedback	• Designing AI-Assisted Collaborative Annotation and Reflective Assessment	• Teachers should require students to include a statement about their use of AI, along with a reflective report, in their final submissions.
	• Design AI Scoring Criteria	• Teachers provide AI-based assessment criteria, such as logical coherence and linguistic fluency, to give students immediate feedback through repeated practice, thereby enhancing their final performance.

Action Plan for Implementing AI in Product-Based Learning Courses

- Encourage teachers to use AI to transform “Medical Pain Points” into “Product Prototypes” and be sure to include this in the course syllabus.

Phase	Action	Explanation
Curriculum Design and Integration	• Using AI to Transform “Medical Pain Points” into “Product Prototypes”	• Teachers can guide students in using generative AI design tools or no-code development platforms to create prototypes of medical applications, AI-assisted diagnostic algorithms, or 3D-printed surgical guides.
Assessment Feedback	• Designing AI-Assisted Collaborative Annotation and Reflective Assessment	• Teachers should require students to include a statement about their use of AI, along with a reflective report, in their final submissions.
	• Design AI Scoring Criteria	• Teachers provide AI-based assessment criteria, such as logical coherence and linguistic fluency, to give students immediate feedback through repeated practice, thereby enhancing their final performance.

Action Plan for Implementing AI in USR Courses

- Teachers are encouraged to incorporate at least one action item into their curriculum and be sure to include this in the course syllabus.

Phase	Action	Explanation
1. Needs Assessment	• Identifying Local Pain Points	• Teachers guide students in using AI to analyze data from social media, news outlets, and forums to automatically identify key pain points in real-world contexts.
	• AI Interview Transcript	• Using AI Speech-to-Text and Summarization Tools in Field Research
	• Visualization Requirements Map	• By integrating Geographic Information Systems (GIS) with AI predictive models, we have developed a risk distribution map to assist students in identifying the optimal locations for their services.
2. Smart Solution Design	• Generation of Personalized Health Education Materials	• In areas with limited medical resources, teachers guide students in using generative AI to create health education videos and manuals in multiple languages or in versions tailored for seniors.
	• Smart Consulting Services	• Guide students in developing AI-powered advisory bots customized for specific contexts.
	• Assistive Device Prototyping	• Guide students in using AI to develop affordable, intelligent tools tailored to specific applications.
3. Effectiveness Evaluation	• Service Feedback Analysis	• Automatically analyze feedback from participants in the field, adjust the course implementation direction in real time, and strengthen mutual trust among teachers, students, and the local community.
	• Influence Tracking	• Establish an AI-powered data tracking system to continuously monitor changes in residents' health data and engagement levels within the service area, thereby converting qualitative social changes into quantifiable social return on investment (SROI) metrics.

Action Plan for Implementing AI in Capstone Courses

- Teachers are encouraged to select at least one action item from the Design and Integration phase to incorporate into their curriculum and be sure to include this in the course syllabus.

Phase	Action	Explanation
Curriculum Design and Integration	• Implementing AI-Enhanced Socratic Teaching Methods	• Teachers use AI tools to generate challenging problems and have students propose solutions.
	• Implementation of Smart Learning Portfolio Tracking	• Teachers use AI to analyze the frequency of students' discussions on IM@TMU and provide timely interventions and guidance to those who are struggling.
	• Cross-Disciplinary Industry-Academia Matchmaking	• Teachers use AI to accurately match students' project prototypes with external mentors or industry experts.
Assessment Feedback	• Designing AI-Assisted Collaborative Annotation and Reflective Assessment	• Teachers should require students to include a statement about their use of AI, along with a reflective report, in their final submissions.
	• Design AI Scoring Criteria	• Teachers provide AI-based assessment criteria, such as logical coherence and linguistic fluency, to give students immediate feedback through repeated practice, thereby enhancing their final performance.

Recommendations for AI Collaborative Course Rubrics

Rating Dimensions	Excellent (18–20 Points)	Good (14–17 Points)	Fair (10–13 Points)	Needs Improvement (0–9 Points)	Weight
1. Selecting AI Tools	Can accurately select from a variety of AI tools based on the nature of the problem and demonstrate advanced prompting techniques.	Be able to select appropriate AI tools and formulate prompts with clear and logical structure.	When using a single AI tool, prompts tend to be relatively simple and may lack nuance.	Blindly using AI tools without tailoring their selection to the specific problem.	20%
2. Critical Validation and Error Correction	Proactively identify biases or errors in AI systems, utilize authoritative sources to make accurate corrections, and conduct thorough fact-checking.	Identify inconsistencies in the AI-generated output, perform preliminary adjustments, and verify the data.	Accept most AI-generated content and make corrections only when there are obvious errors.	This content is a direct copy of AI-generated material and has not been fact-checked.	25%
3. The Value of Human-Machine Collaboration	By incorporating in-depth personal insights, humanistic considerations, and clinical intuition into AI, the results far surpass what AI alone can achieve.	Effectively integrates AI recommendations with personal professional judgment to create comprehensive and actionable project plans.	Simply combining AI-generated content with personal content lacks a sense of seamless integration.	The project relies heavily on AI and lacks significant contributions from the students themselves.	25%
4. AI Transparency	Clearly specify the AI tools used and their scope, and maintain detailed records of the collaborative processes involving AI, in accordance with the highest standards of academic integrity.	Clearly document the AI tools used, their scope, and record the key steps of the collaboration.	The use of AI was mentioned only verbally, with no specific records or annotations documented.	Failure to disclose the use of AI raises concerns about academic misconduct and plagiarism.	15%
5. Final Outcomes and Impact	The project demonstrates a high degree of innovation and strong potential for industry-academia collaboration, while also exhibiting excellent media literacy.	The deliverables demonstrate practical problem-solving skills and are presented clearly and professionally.	The work meets the basic requirements but lacks innovation and is somewhat uninspired in its presentation.	The results are incomplete and fail to demonstrate the effectiveness of interdisciplinary integration.	15%