



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	科學創造力教學策略專題研究		學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Teaching Strategy of Scientific Creativity in Science Education			
科目代碼 Course Code	SCE_52840	系級 Department & Year	碩士	開課單位 Course-Offering Department
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/陳世文			
先修課程 Prerequisite				
課程描述 Course Description				
This course aims to introduce the theory, environments, and evaluation of scientific creativity. Students learn innovative thinking, problem-solving, and interdisciplinary collaboration, which are expected to understand fostering creative culture and using tech tools for creativity. Successful cases are analyzed for practical insights, laying a foundation for future research and teaching in scientific creativity.				
課程目標 Course Objectives				
一、認識促進科學創造力之理論與研究方法。 二、了解並能應用提升科學創造力之策略。 三、培養熱心探究科學創造力及其議題的態度。				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	瞭解科學教育專業理論及內涵。To comprehend the theories and implementations of science education			
B	具備科學教學專業素養。To possess the professional competencies of science teaching			
C	具有科學教育研究基礎素養。To have the basic abilities of science education research			
D	具備科學素養與人文關懷。To integrate scientific literacy with humanistic concern			
E	具備科學教育推廣與傳播素養。To possess the abilities of science popularization and communicate			
F	具備主動探究之態度與熱愛自然的情操。To express the positive attitude toward inquiry and the sentiment adoring the nature			
G	具備多面相的科學觀。To understand the science with multidimensional viewpoints			
圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated				
授課進度表 Teaching Schedule & Content				
週次 Week	內容 Subject/Topics			備註 Remarks
1	Objectives and content of the course introduction			
2	科學創造力課程討論			Heller' paper
3	科學創造力之影響因素			Daud' s paper

4	科學興趣與創造力之關係	Oh's paper reading
5	科學創造力之教學策略	Barron's paper
6	科學創造力研究課程之建構	Hu's paper
7	Take one week off	
8	創造力教學模式	Siew's paper
9	期中考試週 Midterm Exam	
10	科學創造力測驗介紹/科學創造性問題解決測驗之發展	Yang's paper
11	科學創造性問題解決測驗	Hu's paper
12	情境式科學創造力測驗及影響變項分析	Lee's paper
13	科學創造力教學活動設計與實踐	Teacher's demonstration
14	科學創造力教學活動規劃與設計討論1	Students' design
15	科學創造力教學活動規劃與設計討論2	Students' design
16	科學創造力教學活動之發表與展示1	student's display and practice
17	科學創造力教學活動之發表與展示2	student's display and practice
18	期末考試週 Final Exam	

教學策略 Teaching Strategies

- 課堂講授 Lecture
 分組討論 Group Discussion
 參觀實習 Field Trip
 其他 Miscellaneous:

教學創新自評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

- 問題導向學習(PBL)
 團體合作學習(TBL)
 解決導向學習(SBL)
 翻轉教室 Flipped Classroom
 磨課師 Moocs

社會責任(Social Responsibility)

- 在地實踐 Community Practice
 產學合作 Industry-Academia Cooperation

跨域合作(Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching
 跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance	20%			✓					
期中考成績 Midterm Exam	20%		✓	✓					
期末考成績 Final Exam	30%					✓			
作業成績 Homework and/or Assignments	30%					✓			
其他 Miscellaneous (_____)									

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目 (書名、作者、書局、代理商、說明)
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

上課教材

1. 陳振明 (2006)。影響高一學生科學創造力的因素之研究。資優教育研究, 5(2), 63-81。
2. 林日宗、許淑婷、洪振方 (2014)。不同科學學習動機、創造傾向、師生互動對國一學生在科學創造力表現之分析。教育科學期刊, 13 (2), 1-33。
3. 楊怡雯、潘裕豐 (2021)。國中學生學科學習興趣與創造力之關係研究。創造學刊, 12 (1), 1-24。
4. 李明昆、洪振方 (2012)。提升科學創造力的探究教學策略之實驗研究。科學教育研究與發展季刊, 65, 49-74。
5. 唐偉成、江新合 (1999)。開發科學創造力之教學策略研究——應用於國小自然科。科學與教育學報, 3, 53-77。
6. 謝甫佩 (2013)。科學創造力研究課程之建構與教學實施成效。教師專業研究期刊, 6, 103-128。
7. 蕭佳純 (2019)。國內運用創造力教學模式對學生創造力影響之後設分析。特殊教育研究學刊, 44 (3), 93-120。
8. 陳振明、江秋樺 (1996)。科學創造力測驗之介紹。雲嘉特教, 10, 25-36。
9. 王佳琪、何曉琪、鄭英耀 (2014)。「科學創造性問題解決測驗」之發展。測驗學刊, 61 (3), 337-360。
10. 葉玉珠、彭月茵、林志哲、蔡維欣、鍾素香 (2008)。情境式科學創造力測驗之發展暨科學創造力之性別與年級差異分析。測驗學刊, 55 (1), 33-60。

補充教材

1. Heller, K. A. (2007). Scientific ability and creativity. High Ability Studies, 18(2), 209-234.
2. Daud, A. M., Omar, J., Turiman, P., & Osman, K. (2012). Creativity in science education. ProcediaSocial and Behavioral Sciences, 59, 467-474.
- 30h, J. Y. (2022). Understanding scientific creativity based on various perspectives of science. Axiomathes, 32(6), 907-929.
4. Barron, F., & Harrington, D. M. (1981). Creativity, intelligence, and personality. Annual review of psychology, 32(1), 439-476.
5. Hu, W., Wu, B., Jia, X., Yi, X., Duan, C., Meyer, W., & Kaufman, J. C. (2013). Increasing students' scientific creativity: The "learn to think" intervention program. The Journal of Creative Behavior, 47(1), 3-21.
6. Siew, N. M., Chong, C. L., & Lee, B. N. (2015). Fostering fifth graders' scientific creativity through problem-based learning. Journal of Baltic Science Education, 14(5), 655-669.
7. Yang, K. K., Lee, L., Hong, Z. R., & Lin, H. S. (2016). Investigation of effective strategies for developing creative science thinking. International Journal of Science Education, 38(13), 2133-2151.
8. Hu, W., & Adey, P. (2002). A scientific creativity test for secondary school students. International Journal of Science Education, 24(4), 389-403.
9. Lee, H. K. (2022). Rethinking creativity: creative industries, AI and everyday creativity. Media, Culture & Society, 44(3), 601-612.

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)
Teaching Aids & Teacher's Website(Including online teaching information.
Personal website can be listed here.)

<https://drive.google.com/drive/folders/1IRe-yTakoJ44wCXfWc3mDB017RUlkHk?usp=sharing>

其他補充說明 (Supplemental instructions)