



## 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_71990	系級 Department & Year	博士	開課單位 Course-Offering Department
教育與潛能開發學系				
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	具備科學教育專業理論發展與實踐之素養。To possess the capacity to develop and practice theories in science education			
B	具備科學教育獨立研究素養。To possess the ability of independent study focusing on science education			
C	具備科學教育的創新與問題解決素養。To possess creativity in science education and the ability of problem solving			
D	具備國際學術交流之素養。To possess the ability of international academic exchanges			
E	具備科學教學專業素養。To possess the ability and professional knowledge in science education			
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	Introduction of scientific creativity			Heller' paper
3	Creativity in Science Education			Daud' s paper
4	The theories of scientific creativity			Oh' s paper reading
5	Creativity, Intelligence & Personality			Barron' s paper

6	Increasing Students' Scientific Creativity	Hu's paper
7	Take one week off	
8	Scientific creativity & PBL	Siew's paper
9	期中考試週 Midterm Exam	
10	Effective strategies for scientific creativity development	Yang's paper
11	Evaluation of Scientific Creativity	hu's paepr
12	Rethinking creativity	Lee's paper
13	Demonstration of activity for scientific creativity	Teacher's demonstration
14	Activity design for scientific creativity 1	Students' design
15	Activity design for scientific creativity 2	Students' design
16	Teaching practice for scientific creativity 1	student's display and practice
17	Teaching practice for scientific creativity 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:

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