國立中正大學課程大綱

National Chung Cheng University Syllabus

課號 course code			全英文授課 EMI	■是　　□否
課程類別 course type	□1 資訊科技課程　　■2 人文關懷課程　　□3 跨領域課程　　□4 競賽專題 □5 問題導向課程　　□6 專導向課程　　□7 總整課程　　□8 實作課程			
課程名稱（中文） Chinese course name	神經行為方法學			
課程名稱（英文） English course name	**Introduction to Behavioral Neuroscience Research**			
學年/學期 academic year /semester	114/2		學分 credits	3
學系（所） department	心理系		必選修 required/selected	□必修　　■選修
上課時間 class hours	二 9:10-12:00		上課地點 classroom	432
教師 instructor	裴如淳		教師 email Instructor's email	
助教 teaching assistant			助教 email TA's email	
先修科目或 先備能力 prerequisites	None. This course is designed for graduate students but is also open to motivated junior and senior undergraduates from Psychology and related disciplines who are interested in neuroscience.			
課程概述 course descriptions	Tools for Studying the Brain and Behavior. How do neuroscientists link brain circuits to behavior? This course provides an overview of the experimental and analytical tools used in behavioral neuroscience, including neuroanatomical tracing, electrophysiology, imaging, behavioral assays, genetic and molecular interventions, and computational analysis pipelines. Students will learn how to design experiments, analyze data, and evaluate evidence connecting neural mechanisms to behavior.			
學習目標 learning objectives	Students completing this course will be able to: Explain major experimental approaches in behavioral neuroscience • Evaluate behavioral assays and neural manipulation techniques • Design and defend an experimental study • Analyze and interpret behavioral data • Communicate scientific findings effectively			
教科書及參考書 textbooks and references	Current Protocols in Neuroscience (Wiley); Peer-reviewed journal articles			

教學要點概述			
教材編選 **teaching materials**	■1 自製簡報(ppt)	□2 課程講義	□3 自編教科書
	□4 教學程式	■5 自製教學影片	■6 其他
教學方法 **teaching methods**	■1 講述	□2 小組討論　■3 學生口頭報告	□4 問題導向學習
	□5 個案研究	■6 其他	
評量工具 **Evaluation tools**	□1 期中考　□2 期末考	□3 隨堂測驗	□4 隨堂作業
	■5 課後作業　■6 期中報告	■7 期末報告	□8 專題報告
	□9 評量尺規　■10 其他		
教學資源 **teaching resources**	□1 課程網站　■2 教材電子檔供下載	□3 實習網站	
與 SDGs 目標的關聯 **related to objectives of SDGs**	□SDG 1 終結貧窮　　　　　　　　□SDG 2 消除飢餓 ■SDG 3 健康與福祉 ■SDG 4 優質教育 □SDG 5 性別平權 □SDG 6 淨水及衛生 □SDG 7 可負擔的潔淨能源 □SDG 8 合適的工作及經濟成長 □SDG 9 工業化、創新及基礎建設 □SDG 10 減少不平等 □SDG 11 永續城鄉 □SDG 12 責任消費及生產 □SDG 13 氣候行動 □SDG 14 保育海洋生態 □SDG 15 保育陸域生態 □SDG 16 和平、正義及健全制度 □SDG 17 多元夥伴關係 □無關聯		
教師相關訊息 **instructor's information**	Dr. Ju-Chun Pei studies how the brain controls learning, motivation, and decision making, and how these processes are altered in mental disorders such as schizophrenia. Her research integrates behavioral experiments, neuroscience tools, and computational analysis to link neural mechanisms to behavior. She is particularly interested in identifying biomarkers and developing novel therapeutic strategies to improve treatment outcomes in psychiatric patients.		

每週課程內容
weekly scheduled contents

Week 1	Introduction to Behavioral Neuroscience
Week 2	Behavioral Paradigms I: Anxiety and Stress
Week 3	Behavioral Paradigms II: Learning and Memory
Week 4	Behavioral Paradigms III: Decision-Making
Week 5	Experimental Design & Behavioral Data Analysis
Week 6	Computational Modeling Basics
Week 7	Brain Structure and Mapping

Week 8	Histology & Neuroanatomical Methods
Week 9	Immunohistochemistry & Western Blotting
Week 10	In Situ Hybridization & qPCR
Week 11	Electrophysiology: In vitro & in vivo
Week 12	Neuroimaging Techniques: Calcium Imaging, 3D
Week 13	Genetic Manipulations I: Viral Vectors, CRISPR
Week 14	Genetic Manipulations II: Optogenetics & Chemogenetics
Week 15	Research Ethics and Scientific Communication
Week 16	Journal Club & Paper Critique
Week 17	Student Presentations: Experimental Design
Week 18	Student Presentations: Experimental Design

核心能力
core competencies

核心能力 Core competency		本課程與核心能力關聯強度 Degrees of related to core competencies				
		1	2	3	4	5
專業能力 Specific competency	專業能力 1			v		
	專業能力 2				v	
	專業能力 3					v
	專業能力 4					v
	專業能力 5					v
	專業能力 6			v		
	專業能力 7					v
共通能力 General Competence	共通能力 1					v
	共通能力 2					v
	共通能力 3				v	
	共通能力 4					v
	共通能力 5			v		

註：關聯強度以五點量表標示，1 表示沒有關聯，5 表示非常有關聯。