國立清華大學 111 學年第 2 學期新開課程課程大綱

科號 Course Number		學分 Credit	2	人數限制 Class Size	0
中文名稱 Course Title	粒線體動態調控與疾病特論				
英文名稱 Course English Title	Special Topics on Mitochondria Dynamics and Pathogenesis				
任課教師 Instructor	張壯榮				
上課時間 Time	M3M4	上課教室 Room			

課程簡述(必填) (最多 500 個中文字) 本欄位資料會上傳教育部課程網 Brief Course Description (required) (50-200 words if possible, up to 1000 letters 本課程針對粒線體動態調控與疾病進程之關係深入探究。課程前半部將介紹粒線體動態，直接參與動態行為的分子與調控粒線體動態的機制，後半部則針對粒線體動態平衡失調與疾病進程之關係，特別對神經元退化疾病、癌症、老化及病毒感染相關機制加以探討。
請輸入課程內容「中文暨英文關鍵字」至少 5 個, 每個關鍵字至多 20 個中文, 以半形逗點分隔 (必填) Please fill in at least 5 course keywords (up to 40 letters for each keyword) and use commas to separate them.(required) 粒線體、動態平衡、疾病進程、神經元退化、老化。 Mitochondria, dynamics, pathogenesis, neurodegenerative disorders, aging.

一、課程說明	Mitochondria are critical organelles in the cell. Dynamic fusion, fission and transport are pivotal for maintaining the integrity of mitochondria. This course aims to introduce basic knowledge of mitochondria dynamics. The course will go further to discuss the correlation of pathogenesis of difference diseases and mitochondria dynamics.
二、指定用書	N/A
三、參考書籍	1. Mitochondria and Longevity, Academic Press, 2018 2. Mitochondrial Dynamics and Neurodegeneration, Springer, 2011
四、教學方式	English lecture combined with latest journal paper discussion.
五、教學進度	Week 1: Introduction Week 2: Advance approaches to study mitochondria dynamics

	Week 3: Molecular mechanisms of mitochondrial fusion Week 4: Molecular mechanisms of mitochondrial fission Week 5: Molecular mechanisms of mitochondrial transport Week 6: Mitochondrial activities and dynamic processes Week 7: Maintenance of mtDNA and mitochondria dynamics Week 8: The regulatory pathways of mitochondria dynamics Week 9: Mid-term Week 10: Disrupted mitochondria dynamics and cellular activity Week 11: Mitochondria dynamics factors and inherited diseases Week 12: Alzheimer disease and mitochondria dynamics Week 13: Parkinson/Huntington diseases and mitochondria dynamics Week 14: Amyotrophic lateral sclerosis and mitochondria dynamics Week 15: Virus infection/SARS-CoV-2 and mitochondria dynamics Week 16: Tumorigenesis and mitochondria dynamics Week 17: Aging and mitochondria dynamics Week 18: Final Exam
六、成績考核	40 % - Mid-term Exam 40 % - Final Exam 15 % - Discussion in the classes 5 % - Attendance
七、可連結之網頁位址(相關網頁)	E-learning platform: eeclass of National Tsing Hua University