國立清華大學 112 學年第 1 學期新開課程課程大綱

科號 Course Number	11210LSMC514100	學分 Credit	2	人數限制 Class Size	
中文名稱 Course Title	酵母菌生物學				
英文名稱 Course English Title	Yeast Biology				
任課教師 Instructor	李清福、張壯榮、李政昇、廖品超、李以如				
上課時間 Time	T34	上課教室 Room	生二 213		

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

酵母生物學旨在教授學生酵母菌的基本生物學概念、實驗程序和實際應用。強調酵母菌的基本生物特徵和經典遺傳學方法，如突變體的分離和鑒定、互補性、四分體分析和有絲分裂重組等。還將探討分子遺傳技術，包括酵母轉化、基因替換、基因融合的構建和分析以及在克隆出的基因中導入突變等。此外，還將介紹現代細胞學和系統學方法。這些古典、分子細胞學和系統學酵母方法將有助於學生在將酵母應用作研究模型時獲得洞察力。同時，還會在適當的課程中討論最新的關於酵母遺傳學重要觀念的論文。

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)
酵母菌, yeast, molecular genetics, cell architecture, gene regulation, screening

一、課程說明	The Yeast Biology is designed to teach students basic biological concepts, experimental procedures, and applications of yeast. Basic biological features of yeast and classical genetic approaches, such as the isolation and characterization of mutants, complementation, tetrad analysis, and mitotic recombination, will be emphasized. Molecular genetic techniques, including yeast transformation, gene replacement with plasmids and PCR, construction and analysis of gene fusions, and generation of mutations in cloned genes, will also be addressed. Furthermore, modern cytological and systematical approaches will be covered.

	These classical, molecular cytological and systematical yeast approaches will benefit students to gain insight information while applying yeast as research model. Latest papers on fundamental aspects of yeast genetics may also be discussed in the corresponding lectures.
二、指定用書	N/A
三、參考書籍	• Yeast: Molecular and Cell Biology, Second Edition. Edited by Horst Feldmann. Wiley-VCH Verlag GmbH & Co. KGaA., 2012 • Genetic Techniques for Biological Research – A case study approach Corinne A. Michaels John Wiley & Sons, Ltd., 2002 • Methods in Yeast Genetics. David C. Amberg, Daniel J. Burke, Jeffery N. Strathern. CSHL Press, 2005
四、教學方式	Lecture combined with discussion.
五、教學進度	09/12 Week 1: Taxonomy and ecology of yeasts 09/19 Week 2: Yeast growth and the yeast cell cycle 09/26 Week 3: Manipulation of yeast genes 10/03 Week 4: Yeast transformation and protein expression 10/10 Week 5: National holiday 10/17 Week 6: Isolation of yeast mutants 10/24 Week 7: Yeast X-hybrid system 10/31 Week 8: Yeast screening 11/07 Week 9: Yeast genomics 11/14 Week 10: Budding yeast cell architecture and functions 11/21 Week 11: Intracellular protein sorting and transport 11/28 Week 12: Molecular signaling cascades and gene regulation 12/05 Week 13: Studies using fission yeast 12/12 Week 14: Biotechnological application of yeasts (1) 12/19 Week 15: Biotechnological application of yeasts (2) 12/26 Week 16: Final exam
六、成績考核	Class participation & in-class quiz: 30% Assignments: 30% Final exam: 40%

七、可連結之網頁位址(相關網頁)	https://eeclass.nthu.edu.tw/

生成式人工智慧倫理聲明：

「有條件開放，請註明如何使用生成式 AI 於作業或報告」

基於透明與負責任的原則，本課程鼓勵學生利用 AI 進行協作或互學，以提升本門課產出品質。根據本校公布之佈的「大學教育場域 AI 協作、共學與素養培養指引」，本門課程採取有條件開放，請註明如何使用生成式 AI 於作業或報告，說明如下：

- 學生可於課堂作業或報告中的「標題頁註腳」或「引用文獻後」簡要說明如何使用生成式 AI 進行議題發想、文句潤飾或結構參考等使用方式。然而，在本課程的「個人反思報告」、「小組採訪作業」中，學生不得使用生成式 AI 工具撰寫作業。若經查核使用卻無在作業或報告中標明，教師、學校或相關單位有權重新針對作業或報告重新評分或不予計分。
- 本門課授課教材或學習資料若有引用自生成式 AI，教師也將在投影片或口頭標注。
- 修讀本課程之學生於選課時視為同意以上倫理聲明。