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| 科號 | 11220LSMC546500 | 組別 | | 學分 | 2 | 人數限制 | 0 |
| 修課年級 | <input checked="" type="checkbox"/> 大學部 3 年級以上 <input checked="" type="checkbox"/> 碩士班一年級以上(含博士班) <input checked="" type="checkbox"/> 碩士班二年級以上(含博士班) | | | | | | |
| 上課時間 | F7F8 | | | 教室 | 生科一館 421A | | |
| 科目中文名稱 | CRISPR-Cas 之基因編輯特論一 | | | | | | |
| 科目英文名稱 | Special Topics in gene editing by CRISPR-Cas I | | | | | | |
| 任課教師 | 李政昇 | | | | | | |
| 擋修科目 | | | | 擋修分數 | | | |

※下列各欄由任課教師提供※

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| 一、課程說明 | This class will introduce the major concepts and methods in CRISPR/Cas field. The students will learn how CRISPR/Cas works and how we can utilize the system for genome editing. Both conceptual background in molecular biology and detailed protocol of multiple different applications will be covered. |
| 二、指定用書 | CRISPR-Cas: A Laboratory Manual Edited by Jennifer Doudna & Prashant Mali ISBN 978-1-621821-31-1 |
| 三、參考書籍 | Selected papers from high profile journals |
| 四、教學方式 | All students are required to read all assigned chapters and papers and then participate in classroom discussion. |
| 五、教學進度 | 1-2. Overview of CRISPR-Cas9 Biology 3-4. Guide RNAs: A Glimpse at the Sequences that Drive CRISPR-Cas Systems 5-6. Characterization of Cas9-Guide RNA Orthologs 7-8. Large-Scale Single Guide RNA Library Construction and Use for CRISPR-Cas9-Based Genetic Screens 9-10. Adeno-Associated Virus-Mediated Delivery of CRISPR-Cas Systems for Genome Engineering in Mammalian Cells 11-12. Detecting Single-Nucleotide Substitutions Induced by Genome Editing 13-14. CRISPR-Cas9 Genome Engineering in Saccharomyces cerevisiae Cells |

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| | 15. Optimization Strategies for the CRISPR-Cas9 Genome-Editing System 16. An Introduction to CRISPR Technology for Genome Activation and Repression in Mammalian Cells |
| 六、成績考核 | Class discussion: 40%. Assigned presentation: 40%. Attendance: 20%. |
| 七、講義位址 | https://eeclass.nthu.edu.tw/ |
| 八、AI 使用規則 | Conditionally open; please specify how generative AI will be used in course output |