



## 教學計劃表 Syllabus

|   |  |                             |                                 |                                    |   |
|---|--|-----------------------------|---------------------------------|------------------------------------|---|
| 課程名稱(中文)<br>Course Name in Chinese  | 分子生物科技   |                             | 學年/學期<br>Academic Year/Semester | 113/1                              |   |
| 課程名稱(英文)<br>Course Name in English  | Molecular Biotechnology  |                             |                                 |                                    |   |
| 科目代碼<br>Course Code   | BMM_M0050  | 系級<br>Department & Year     | 碩士                              | 開課單位<br>Course-Offering Department | 生化暨分子醫學科學系  |
| 修別<br>Type  | 必修 Required  | 學分數/時間<br>Credit(s)/Hour(s) | 3.0/3.0                         |                                    |   |
| 授課教師<br>Instructor  | /彭致文/李佳洪   |                             |                                 |                                    |   |
| 先修課程<br>Prerequisite  |  |                             |                                 |                                    |   |
| 課程描述 Course Description   |  |                             |                                 |                                    |   |
| 本課程主要讓學生對於生物科技涵蓋的內容有基礎的認識，課程的重點之一為啟發學生對於生物科技之興趣及思考能力  |  |                             |                                 |                                    |   |
| 課程目標 Course Objectives  |  |                             |                                 |                                    |   |
| The course aims to guide students to understand cell biology, molecular cell biology, knowledge, scientific rationale, and methodology; in addition, students can learn the ability to gain comprehensive understanding of scientific issues related to cell biology. |  |                             |                                 |                                    |   |
| 系專業能力<br>Basic Learning Outcomes  |  |                             |                                 |                                    | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.'s Education Objectives |
| A   | 具備生物技術相關學科之基礎知識。Having a fundamental understanding of subjects related to biotechnological techniques.                             |                             |                                 |                                    | ●   |
| B   | 具備邏輯分析與解決問題的能力。Having the capabilities of logical analysis and problem solving.  |                             |                                 |                                    | ○   |
| C   | 具備資料整合、數據分析與書面及口頭報告能力。Having the capabilities of data integration and analysis, and the skills of written and poster presentation. |                             |                                 |                                    | ○   |
| D   | 具備終生學習的能力。Having the capability of lifelong learning.  |                             |                                 |                                    | ●   |
| 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   | Nanosystem characterization tools in the life sciences   |                             |                                 |                                    |   |
| 2   | Cellular drug delivery   |                             |                                 |                                    |   |
| 3   | Nanomaterials for cancer diagnosis   |                             |                                 |                                    |   |
| 4   | Nanotechnology for targeted cancer therapy   |                             |                                 |                                    |   |
| 5   | Fluorescence and bioluminescence in vivo imaging system  |                             |                                 |                                    |   |
| 6   | 期中考試週 Midterm Exam   |                             |                                 |                                    |   |
| 7   | Recombinant DNA  |                             |                                 |                                    |   |

|    |   |  |
|----|---|--|
| 8  | Recombinant virus                         |  |
| 9  | Recombinant protein                       |  |
| 10 | Fluorescence and luminescence application |  |
| 11 | Omics biotechnology                       |  |
| 12 | Molecular imaging in drug R & D           |  |
| 13 | Gene Editing-Crispr/Cas9 system           |  |
| 14 | Translational medicinal research          |  |
| 15 | Bioinformatic and drug development        |  |
| 16 | Overview and discussion                   |  |
| 17 | End-term presentation                     |  |
| 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<br>Items                       | 配分比例<br>Percentage | 多元評量方式 Assessments |          |          |          |          |          |          |    |
|-------------------------------------|--------------------|--------------------|----------|----------|----------|----------|----------|----------|----|
|                                     |                    | 測驗<br>會考           | 實作<br>觀察 | 口頭<br>發表 | 專題<br>研究 | 創作<br>展演 | 卷宗<br>評量 | 證照<br>檢定 | 其他 |
| 平時成績 General<br>Performance         | 20%                |                    | ✓        |          |          |          |          |          |    |
| 期中考成績 Midterm Exam                  | 30%                |                    | ✓        | ✓        |          |          |          |          |    |
| 期末考成績 Final Exam                    | 30%                |                    | ✓        | ✓        |          |          |          |          |    |
| 作業成績 Homework and/or<br>Assignments | 20%                |                    |          |          |          |          | ✓        |          |    |
| 其他 Miscellaneous<br>(_____)         |                    |                    |          |          |          |          |          |          |    |

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.)

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)