

授課教師：鄭詠馨

Instructor: YUNG-HSIN
CHENG

課程名稱：生醫材料

Course Title : Biomaterials

2026/5/6

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| 課程代號：TX6721701 Course Code | 必選修：選修/半學年 Required/Elective: Elective/Half Yr. |
| 學分數：3 Credits | 先修課程： Prerequisites |
| 節次教室：W7(E1-306) W8(E1-306) W9(E1-306) Time/Location | |
| 專業核心能力： Core Professional Competencies | |
| 課程網址： Course Website | |
| 課程宗旨： Course Objectives | The mission of this course is to provide students with a comprehensive foundation in the multidisciplinary field of biomedical materials, bridging the gap between material science and clinical medicine. Students will first explore the critical principles of biocompatibility and regulatory frameworks, ensuring a deep understanding of the biological response to foreign implants and the standards required for clinical translation. The curriculum delves into the structural and functional properties of biomedical polymers, equipping students with the knowledge to design and synthesize materials tailored for physiological environments. Building upon these fundamentals, the course examines the frontiers of tissue engineering, where advanced scaffolds and cellular interactions are utilized to restore or replace damaged biological functions. Finally, through the analysis of diverse biomedical applications, students will develop the analytical skills necessary to implement innovative material solutions in real-world healthcare, from drug delivery systems to prosthetic devices. |
| 課程大綱： Outline of Lectures | 1. Biocompatibility and regulation 2. Biomedical polymers 3. Tissue engineering 4. Other biomedical applications |
| 授課方式： Method of Instruction | 講授 Lecture : 70% 分組討論 Group discussion : 0% 案例研討 Case study : 30% 操做練習 Practical exercises : 0% 講授 Lecture : % |
| 教科書： Textbooks | Slides |
| 參考書目： References | |

1. ISO 10993

2. Lanza, R., Langer, R., Vacanti, J., & Atala, A. (Eds.). (2020). Principles of tissue engineering (5th ed.). Academic Press.

3. Farag, M. M., & Al-Rashidy, Z. M. (2025). Biomaterials for tissue regeneration: Advances and challenges for fabrication and clinical translation. Springer Nature Switzerland.

修課須知：
Notice

評量方式： Midterm exam 50% Final report 50%
Grading

備註說明： N/A
Notes