國立中山大學醫學院生物醫學科技學系課程結構圖

Department of Biomedical Science and Technology, NSYSU

Curriculum Structure for Undergraduate Program

通識教育必修 不含運動與健康(28) General Education (Not including Sport and Health courses)		語文素養 Languages（6）、跨院選修 Inter-College Electives（8）、博雅課程 Liberal Arts（13）、體驗性課程 Practical Experience（1）、運動與健康 Sport And Health（4）
基礎必修 Basic Required courses (18)	大一 1st Year (Freshmen)	普通物理(一) General Physics(I) (3)、普通物理實驗(一)General Physics Laboratory(I)(1)、普通化學 General Chemistry(3)、普通化學實驗 General Chemistry Laboratory(1)、普通生物學 General Biology(3)、普通生物學實驗 General Biology Laboratory(1)、微積分(一)Calculus(I) (3)、微積分(二)Calculus(II)(3)
專業必修 Professional Required courses (43)	大一 1st Year (Freshmen)	生物醫學科技導論(一) Introduction to Biomedical Science and Technology (I)(2)、生物醫學科技導論(二) Introduction to Biomedical Science and Technology (II)(2)、程式語言 Programming Language(3)
	大二 2nd Year (Sophomore)	有機化學 Organic Chemistry(3)、細胞生物學 Cell Biology(3)、材料科學導論 Fundamentals of Materials Science(3)、生物化學 Biochemistry(3)、統計學 Statistics(3)、生物醫學科技特論 Special Topic in Biomedical Science and Technology(1)
	大三 3rd Year (Junior)	生物資料庫 Biological Database(3)、生醫訊號處理 Biomedical Signal Processing(3)、臨床生理學 Clinical Physiology(3)、生物物理化學 Physical Chemistry for the Life Sciences(3)、人體生理與解剖學 Human Physiology and Anatomy (3)、人體生理與解剖學實驗 Human Physiology and Anatomy Laboratory (1)、專題研究(一)Special Topic (I)(1)、專題研究(二) Special Topic(II)(1)
	大四 4th Year (Senior)	書報討論(一) Seminar (I)(1)、書報討論(二) Seminar(II)(1)

- *課程為必選的選修課程
  Courses with an asterisk (*) are required elective courses.
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		生物醫學組 Biomedical Science Group	生醫工程組 Medical Engineering Group
專業選修 （跨組選修至少 2 門課） Professional Elective Courses (Must include at least two courses from different course groups)	大一 1st Year (Freshmen)	奈米生物科技概論 Introduction to Nanobiotechnology(3)	
	大二 2nd Year (Sophomore)	*遺傳學 Genetics(3) *微生物免疫學及實驗 Microbial Immunology and Experiments(3) *分子生物學及實驗 Molecular Biology and Experiments (3) *訊息傳遞 Signal Transduction(3) 神經科學探索 Introduction to Neuroscience(3) 腫瘤生物學 Tumor Biology (3) 再生醫學與組織工程 Regenerative Medicine and Tissue Engineering(3)	*工程數學（一）Engineering Mathematics(I)(3) *工程數學（二）Engineering Mathematics(II) (3) *材料力學導論 Introduction to Mechanics of Materials (3) *電子電路學 Electronics and Circuits(3) *電子電路學實驗 Electronics Laboratory(1) 計算機概論 Introduction to Computer Science(3) 工程電腦程式 Engineering Computer Programming(3)
	大三 3rd Year (Junior)	*生物醫學實務(一) Biomedical Practice(I) (3) 基因體技術及分析 Genomic Techniques and Analysis (3) 再生醫學概論 Introduction to Regenerative Medicine (3) 蛋白質技術與應用 Protein Techniques and Applications (3) 生物晶片技術與應用 Biochip Technology and Applications(3) 病理組織學 Histopathology (3) 模式生物之生物醫學研究 Model Organisms in Biomedical Research (3) 分子藥物設計與合成 Molecular Drug Design and Synthesis (2) 系統生物學概論 Systems Biology (3)	*醫學工程實務(一) Medical Engineering Practice(I) (3) *醫學儀表與量測及實驗 Medical Instrumentation and Measurement Laboratory (3) 訊號與系統 Signals and Systems (3) 醫療資訊學 Medical Informatics (3) 醫學影像處理 Medical Image Processing (3) 醫療儀器設計原理及創 Principles and Innovation in Medical Device Design(3) 生物資訊學 Bioinformatics(3) 計算生物學 Computational Biology(3) 3D 列印應用實作 3D Printing Applications and Practice(3) 人工智慧在健康照護的應用 Artificial Intelligence in Healthcare(3)

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	大四 4th Year (Senior)	*生物醫學實務(二) Biomedical Practice(II) (3) 臨床醫學概論 Introduction to Clinical Medicine (3) 人類疾病的細胞機制 Cellular Mechanisms of Human Diseases(3) 藥物輸送系統設計 Drug Delivery System (3) mRNA 核糖核酸疫苗與藥劑開發 mRNA Vaccine and Drug Development (3) 分子癌症學 Molecular Oncology(3) 結構生物學 Structural Biology(3) 細胞治療特論 Special Topics in Cell Therapy(3) 生技產業實務與應用 Biotechnology Industry Practices and Applications(2)	*醫學工程實務(二) Medical Engineering Practice(II) (3) *醫學倫理與法規 Medical Ethics and Regulations (3) *機器學習與實作 Machine Learning and Practice (3) 微處理器與嵌入式系統 Microprocessors and Embedded Systems (3) 生醫感測模組整合應用 Integration of Biomedical Sensor Modules (3) 腦機介面理論及實務 Brain-Computer Interface: Theory and Practice (3) 醫用微機電系統 Biomedical MEMS(3) 科技論文閱讀與寫作 Scientific Paper Reading and Writing (2)

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