

組織工程與再生醫學博士學位學程課程地圖

Curriculum Map for Doctoral Program in Tissue Engineering and Regenerative Medicine

教育目標 Education Goals	
編號 Number	項目內容 Content
1	培養具有跨領域整合性與國際視野之科技人才。 Cultivate scientific and technological talents with cross-field integration and international vision.
2	訓練組織工程與再生醫學相關之研發及產業應用人才。 Train R&D and industrial application talents related to tissue engineering and regenerative medicine.

學生核心能力 Student Core Competencies		
編號 Number	項目內容 Content	對應教育目標編號 Corresponding Education Goal Number
A	運用生醫材料、生物學等知識之能力 Ability to apply knowledge of biomedical materials, biology, etc.	1, 2
B	獨立思考及研究創新之能力 Ability to think independently and conduct research and innovation.	1, 2
C	整合跨領域研究的溝通協調能力 Communication and coordination skills for integrating cross-field research.	1, 2
D	以國際視野瞭解專業領域的趨勢 Understand the trends in professional fields with an international perspective.	1, 2
E	養成終身學習的能力 Develop the ability for lifelong learning.	1, 2

112 學年度組織工程與再生醫學博士學位學程課程規劃表 (11205)

Curriculum Plan for Doctoral Program in Tissue Engineering and Regenerative Medicine for the 112th Academic Year

中文課程名稱 Course Title in Chinese	英文課程名稱 Course Title in English	規劃要點(附註) Plans (Notes)				對應核心能力 編號 Corresponding Education Goal Number	建議修課年級 Recommended Course Division	開課單位 Course Offering Unit	備註 Remarks
		1	2	3	4				
必修課程 Required Courses									
博士論文	Dissertation	D	C	Y	12	ABCDE	3~5	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
幹細胞生物學	Stem Cell Biology Lecture Series	D	A	S	3	ABCDE	1~3	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
生醫組織工程學	Biomedical Tissue Engineering	M	A	S	3	ABCDE	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
專題討論(一)	Seminar (I)	D	C	Y	2	ABCDE	1~3	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	

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		1	2	3	4				
專題討論(二)	Seminar (II)	D	C	Y	2	ABCDE	1~3	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
組織工程與再生醫學特論(一)	Special Topics in Tissue Engineering and Regenerative Medicine (I)	D	A	S	1	ABCDE	1	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
組織工程與再生醫學特論(二)	Special Topics in Tissue Engineering and Regenerative Medicine (II)	D	A	S	1	ABCDE	1	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
組織工程與再生醫學特論(三)	Special Topics in Tissue Engineering and Regenerative Medicine (III)	D	A	S	1	ABCDE	2	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
組織工程與再生醫學特論(四)	Special Topics in Tissue Engineering and Regenerative Medicine (IV)	D	A	S	1	ABCDE	2	組織工程與再生醫學博士學位學程 Doctoral Program in	

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		1	2	3	4				
								Tissue Engineering and Regenerative Medicine	
選修課程 Elective Courses									
生醫材料暨實驗動物基礎技術	Fundamental Technology of Biomedical Materials and Laboratory Animals	D	A	S	1	ABCDE	1~4	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
組織工程與再生醫學	Tissue Engineering and Regenerative Medicine	D	A	S	2	ABCDE	1~3	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
神經退化性疾病	Neurodegenerative diseases	D	A	S	2	ABC	1~3	獸醫學系 Department of Veterinary Medicine	
醫藥生技關鍵技術特論	Special Topics in Core Techniques in Pharmaceutical Biotechnology	D	A	S	2	ABC	1~3	生命科學系 Department of Life Sciences	
醫藥生技關鍵技術	Core Techniques in Pharmaceutical Biotechnology	D	A	S	2	ABC	1~3	生命科學系 Department of Life Sciences	

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生殖生物學特論(一)	Special Topics in Reproductive (II)	M	A	S	3	ABC	1~3	動物科學系 Department Of Animal Sciences	
細胞生物學特論	Advanced Cell Biology	M	A	S	2	ABC	1~3	生命科學系 Department of Life Sciences	
腫瘤幹細胞學	Nano-pharmaceutics and cancer stem cell	M	A	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
腫瘤幹細胞學實驗	Experiment of nano-pharmaceutics and cancer stem cell	M	B	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
神經幹細胞學	Clinical Neural Stem Cell Biology	M	A	S	2	ABC	1~3	生命科學系 Department of Life Sciences	
神經幹細胞學實驗	Experiment for Germ Clinical Neural Stem Cell Biology	M	B	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
發育生物學研究法	Methods in Developmental Biology	M	A	S	3	ABC	1~3	生命科學系 Department of Life Sciences	
生醫微機電	Bio Microelectromechanical Sys	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
奈米生醫	Nanobiotechnology	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	

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生醫工程導論	Introduction to Biomedical Engineering	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生物醫學英文選讀與論文寫作(一)	English Reading and Writing (I)	D	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
生物晶片技術(一)	Biochip Technology (I)	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
醫用生物技術(一)	Medical Biotechnology (I)	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
基因及幹細胞醫學科技特論(一)	Gene and Stem Cell Medical Technology (I)	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
細胞與系統生物醫學	Cellular and System Medicine	D	A	S	3	ABCDE	1~3	組織工程與再生醫學博士學位學程 Doctoral Program in Tissue Engineering and Regenerative Medicine	
細胞訊息傳遞導論	Introduction to Cell Signaling	M	A	S	3	ABC	1~3	動物科學系 Department Of Animal Sciences	
成體幹細胞學導論	Introduction to Adult Mesenchymal Stem Cells	M	A	S	3	ABC	1~3	生命科學系 Department of Life Sciences	

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奈米仿生學	Nano-biomimetics	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
細胞訊息傳遞特論	Special Topics in Signal Trans	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
基因體學	Genomics	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
藥物傳遞系統	Drug Delivery System	M	A	S	3	ABC	1~3	化學系 Department of Chemistry	
生殖幹細胞學	Germ Cell Biology	M	A	S	2	ABC	1~3	生命科學系 Department of Life Sciences	
生殖幹細胞學實驗	Experiment for Germ Cell Biology	M	B	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
生醫微奈米製程	Biomedical Micro/nano Fabrication and Characterization	M	A	S	2	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生醫微奈米製程實作	Experiment of Biomedical Micro/nano Fabrication and Characterization	M	B	S	1	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	

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醫材開發	The Developments of Biomaterials for Biomedical Application	M	A	S	2	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
醫材開發實作	The Experimental Exercises of Biomaterials for Biomedical Application	M	B	S	1	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生醫光電導論	Introduction to Biophotonics	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
藥物設計與生物標記	Development of Drugs and Biomarkers	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
醫用奈米技術	Nanomedicine	M	A	S	3	ABC	1~3	化學系 Department of Chemistry	
高等醫藥化學(一)	Advanced Medicine-Drug Chemistry (I)	M	A	S	3	ABC	1~3	化學系 Department of Chemistry	
蛋白質工程學	Protein Engineering	M	A	S	2	ABC	1~3	基因體暨生物資訊學研究所 Graduate Institute of Genomics and Bioinformatics	
免疫學概論	Introduction to Immunology	M	A	S	2	ABC	1~3	生命科學系 Department	

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								of Life Sciences	
動物毒物病理學特論(一)	Advanced Toxicologic Pathology in Animals (I)	D	A	S	2	ABC	1~3	獸醫病理生物學研究所 Graduate Institute of Veterinary Pathobiology	
動物毒物病理學特論(二)	Advanced Toxicologic Pathology in Animals (II)	D	A	S	2	ABC	1~3	獸醫病理生物學研究所 Graduate Institute of Veterinary Pathobiology	
分子診斷技術	Techniques for Molecular Diagnostics	M	A	S	3	ABC	1~3	生物科技學研究所 Graduate Institute of Biotechnology	
分子生物學原理與技術	Principle & Techniques in Molecular Biology	M	A	S	4	ABC	1~3	生物科技學研究所 Graduate Institute of Biotechnology	
動物試驗設計實習	Practice on Experimental Design in Animal Science	M	B	S	1	ABC	1~3	動物科學系 Department Of Animal Sciences	
醫用生物技術(二)	Medical Biotechnology(II)	M	A	S	2	ABC	1~3	生物醫學所 Graduate Institute of Biomedical Sciences	
生物電化學感測技術特論	Special Topics in Bio-Electrochemical Sensing	D	A	S	3	ABC	1~3	生物產業機電工程學系 Department of Bio-industrial	

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	Technology							Mechatronics Engineering	
生技醫材設計與開發		M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生醫奈米製程		M	A	S	2	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
微創醫材		M	A	S	2	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生醫檢測		M	A	S	2	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生物感應器的原理及應用	Biosensor: Principles and Applications	M	A	S	2	ABC	1~3	食品暨應用生物科技學系 Department of Food Science and Biotechnology	
醫學電子學導論	Introduction to Medical Electronics	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
現代光譜學-生物物理學與生物化學解析	Modern Optical Spectroscopy: With Exercises And Examples From Biophysi	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	

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免疫學	Immunology	M	A	S	2	ABC	1~3	生科院碩士在職專班 Executive Master Program in Life Sciences	
細胞分子生物學	Molecular Biology of the Cell	M	A	S	2	ABC	1~3	生科院碩士在職專班 Executive Master Program in Life Sciences	
分子生物學	Molecular Biology	M	A	S	2	ABC	1~3	生科院碩士在職專班 Executive Master Program in Life Sciences	
腫瘤生物學	Tumor Biology	M	A	S	2	ABC	1~3	生科院碩士在職專班 Executive Master Program in Life Sciences	
當代英文論文寫作與簡報	Contemporary English Thesis Writing & Presentation	M	A	S	3	ABCDE	1~3	行銷系 Department of Marketing	
生物資料處理與分析	Biological Data Processing and Analysis	M	A	S	2	ABC	1~3	動物科學系 Department Of Animal Sciences	
基礎解剖及生理學(上)	Basic Anatomy and Physiology (I)	D	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	

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電子顯微鏡實驗技術	Electron Microscopic Techniques	M	A	S	3	ABC	1~3	植物病理學系 Department of Plant Pathology	
抗體技術	Antibody Technology	M	A	S	2	ABC	1~3	動物科學系 Department Of Animal Sciences	
細胞生長與凋亡	Cell Growth and Apoptosis	M	A	S	3	ABC	1~3	分子生物學研究所 Graduate Institute of Molecular Biology	
藥物與腫瘤特論	Chemicals and Cancers	M	A	S	3	ABC	1~3	生命科學系 Department of Life Sciences	
基礎解剖及生理學(下)	Basic Anatomy and Physiology (II)	D	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
先進感測技術	Advanced Sensing Technology	M	A	S	1	ABC	1~3	工學院 College of Engineering	
分子細胞生物學	Molecular Cell Biology	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
蛋白質工程學特論	Protein Engineering	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生醫儀表學	Biomedical Instrumentation	M	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	

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		1	2	3	4				
慢性炎症性疾病的藥物傳遞策略	Drug Delivery Strategies for Chronic Inflammatory Diseases	D	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
生物材料與血管新生	Biomaterials and Angiogenesis	D	A	S	3	ABC	1~3	生醫工程所 Graduate Institute of Biomedical Engineering	
基因體醫學之技術發展與應用	Genomic Medicine-Technical Development and Application	M	A	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
細胞與基因治療之發展與臨床應用	Development and Clinical Application of Cell and Gene Therapy	M	A	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
精準醫學之分子篩檢，診斷與治療	Molecular Screening Diagnosis and Treatment in Precision Medicine	M	A	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
精準醫學國際行銷，經營策略與法規	Precision Medicine: International Marketing, Business Strategy and Regulations	M	A	S	1	ABC	1~3	生命科學系 Department of Life Sciences	
醫學影像系統原理	Principles of medical imaging systems	M	A	S	3	ABC	1~3	生命科學系 Department of Life Sciences	

說明：

1. 生物科技倫理、科技管理、專利、智慧財產權、科技創業管理...等相關課程，最多可承認 2 學分為畢業學分。
2. 英文寫作相關課程最多可承認 1 門課為畢業學分。

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3. 學生擬選修「課程規劃表」以外之課程，須經指導教授同意後提出申請，並經執行委員會通過，否則不得計入畢業學分。 Note: 1. A maximum of 2 credits can be recognized as graduation credits for related courses such as biotechnology ethics, technology management, patents, intellectual property rights, technology entrepreneurship management, etc. 2. A maximum of one course in English writing-related courses can be recognized as graduation credit. 3. Students who plan to take courses other than those listed in the "Curriculum Plan" must apply with the approval of their supervisor and the application must be approved by the Executive Committee meeting. Otherwise, it will not be counted toward graduation credits.									

附註：規劃要點填表說明：(1 到 4 各欄位請填正確代表字母)

Note : Instructions for completing this form are provided below (please provide the correct English alphabet letters in fields 1 to 4)"

1 : U-學士課程、M-碩士課程、D-博士課程。

1: U-Bachelor's program, M-Master's program, D-Doctoral program.

2 : A-正課、B-實習課、C-台下指導之科目如學生講述或邀請演講之專題討論、專題研究……等。

2 : A-Lecture, B-Internship, C-Subjects with private guidance such as student presentations or invited speeches, topic discussions, topic research, etc.

3 : S-學期課、Y-學年課。3: S-Semester course, Y-Year-long course.

4 : 科目 (全期或全年) 總學分數 (請填阿拉伯數字)。4: Total course (full-semester or full-year) credits (in Arabic numerals).