

# 分子生物暨人類遺傳學系碩士班課程地圖

112-1學期(112/10/23)分遺系課規會議修訂通過

教育目標	必修/選修	一上	一下	二上	二下	核心能力	未來發展	
培養具備分子生物暨人類遺傳知識與研究能力之專業人才	必修課程	人類分子遺傳學(一) 2	人類分子遺傳學(二) 2			具備分子生物暨人類遺傳專業知識的能力	<p><b>升學</b> 國內、外生醫類博士班</p> <p><b>就業</b></p> <ul style="list-style-type: none"> <li>• 生技研發人員</li> <li>• 生技管理人員</li> <li>• 生技產品專員</li> <li>• 臨床研究人員</li> <li>• 學術研究人員</li> <li>• 醫療院所專業人員 (遺傳諮詢師、生殖醫學個案管理師)</li> <li>• 國高中生物科教師</li> <li>• 公務人員</li> </ul>	
		分子細胞生物學 2						
		文獻討論(一) 1	文獻討論(二) 1	文獻討論(三) 1	文獻討論(四) 1	具備思辨分析、學術口頭表達及論文寫作能力		
		學術研究倫理 0		論文寫作 1				
	生物科技及精準醫學學群選修課程	表觀遺傳學 2	幹細胞學特論 2					具備分子生物暨人類遺傳研究設計的能力
		光學及顯微鏡原理與實務 2	細胞凋亡特論 2					
		動物模式於生物醫學研究的運用 2						
		生物醫學中的次世代定序技術：從原理到應用 2						
	遺傳諮詢師學群選修課程	生化遺傳學 2	實務操作基因型鑑定與突變分析 2	遺傳諮詢師臨床實習 4				
		精準醫學 2	分子癌症學 2					
		人類胚胎發育學 2	臨床分子生物與遺傳學 2					
		諮商技巧與實務 2	遺傳諮詢概論 2					
		遺傳諮詢實驗室實習 2	遺傳諮詢專題討論 1					
			遺傳統計學暨生物資訊 2					
	選修課程		細胞遺傳學(含實驗) 3					

## 【畢業門檻】

- 完成碩士論文初稿。
- 本系碩士班學生得提出論文口試申請之「論文原創性檢核比對報告書」相似度比例：排除「參考文獻」後之全論文原創性相似度以不超過30%為原則。
- 碩士論文口試前須以第一作者身分參加校內或校外公開學術研討會至少1次。

# The Course Map for the Department of Molecular Biology and Human Genetics (Master Program)

Educational Aim	Required/Elective	1 <sup>st</sup> semester	2 <sup>nd</sup> semester	3 <sup>rd</sup> semester	4 <sup>th</sup> semester	Core Competency	Prospect
To train the students to have the knowledge and research ability in molecular biology and human genetics	Required course (Course title/Credits)	Human Molecular Genetics ( I ) 2	Human Molecular Genetics (II) 2			Capable of acquiring professional knowledge in molecular biology and human genetics	<ul style="list-style-type: none"> <li>• Continue to advanced graduated study either here or abroad.</li> <li><b>Job market prospects :</b></li> <li>• Biotech R&amp;D</li> <li>• Biotech management</li> <li>• Biotech QC</li> <li>• Clinical research staff</li> <li>• Academic research staff</li> <li>• Working in health related profession (Genetic counselor)</li> <li>• High school biology teacher</li> <li>• Civil servant</li> </ul>
		Molecular and Cellular Biology 2					
		Seminar ( I ) 1	Seminar (II) 1	Seminar (III) 1	Seminar (IV) 1	Ability to analyze, to evaluate information, to write and to orally present a research paper	
		Research Ethics Education Online Program 0		Thesis Writing 1			
	Program in biotechnology and precision medicine (elective) (Course title/Credits)	Epigenetics 2	Stem Cell Biology 2			Able to design research project of molecular biology and human genetics	
		Principles and practices for optics and microscopy 2	Special topics in cell apoptosis 2				
		Model Animals used in Biomedical Research 2					
		Next-generation Sequencing technologies in Biomedical Sciences: From Principles to Applications 2					
	Program in genetic counseling (elective) (Course title/Credits)	Biochemical Genetics 2	Practical Genotyping and mutational analysis 2	Clinical Internship of Genetic Counselor 4			
		Precision Medicine 2	Molecular Oncology 2				
		Human Embryology 2	Clinical molecular biology and genetics 2				
		Essential Counseling Skills and Practice 2	Introduction to Genetic Counseling 2				
		Genetic Counseling Laboratory Internship 2	Genetic Counseling Seminar 1				
			Statistical Genetics and Bioinformatics 2				
Elective course (Course title/Credits)		Cytogenetics (with Lab) 3					

**Graduation Requirements:**

- Has completed a thesis draft.
- MS candidate of the Department of Molecular Biology and Human Genetics who is submitting thesis draft should compare the thesis draft to the software "iThenticate" , to be sure that the similarity will be less than 30%. This will exclude the reference section.
- Has presented at least one research paper as the first author at in-campus or off-campus symposium, before participating in final oral examination. The student must provide the symposium information to the department.