

中山醫學大學

Chung Shan Medical University

115 學年度入學新生應修科目及學分表

Courses and Credits for Freshmen Admitted in the 115th Academic Year

健康管理學院醫學應用化學系

Department of Medical Applied Chemistry

第一學年 1 st Academic Year						
科目名稱 Course Name in Chinese	英文科目名稱 Course Name in English	必修 Required Elective	合計 學分 Credits Subtotal	第一 學期 1 st Semester Credits	第二 學期 2 nd Semester Credits	備註 Remarks
普通化學	General Chemistry	必修 Required	4	4	0	
普通生物學	General Biology	必修 Required	2	2	0	
微積分(一)	Calculus(I)	必修 Required	2	2	0	
普通化學實驗	General Chemistry Laboratory	必修 Required	1	1	0	
分析化學(一)	Analytical Chemistry(I)	必修 Required	3	0	3	
普通物理學	General Physics	必修 Required	2	0	2	
健康醫學概論	Introduction to Health Medicine	必修 Required	2	0	2	
分析化學實驗(一)	Analytical Chemistry Laboratory (I)	必修 Required	1	0	1	
微積分(二)	Calculus(II)	必修 Required	1	0	1	
英文	English	必修 Required	2	(2)	(2)	遠距教學 Distance Learning
生物技術概論	Introduction to Biotechnology	選修 Elective	2	2	0	
3D 列印：積層製造技術與應用	3D Printing, Additive Manufacturing	選修 Elective	2	2	0	
普通物理學實驗	General Physics Laboratory	選修 Elective	1	1	0	
永續發展探索	Exploration of Sustainability	選修 Elective	1	1	0	★註
檢測應用	Detection Application	選修 Elective	1	1	0	★註
生物統計學	Biostatistics	選修 Elective	2	0	2	
環境化學	Environmental Chemistry	選修 Elective	2	0	2	
光電材料概論	Introduction to Electro-optic Material	選修 Elective	2	0	2	
化妝品調製學	Cosmetic Manufacture	選修 Elective	2	0	2	
應用化學導論	Introduction to Applied Chemistry	選修 Elective	2	0	2	
普通生物學實驗	General Biology Laboratory	選修 Elective	1	0	1	
化學與生物感測技術導論	Introduction to Chemo-and Biosensors	選修	1	0	1	★註

第 一 學 年 1 st Academic Year						
科目名稱 Course Name in Chinese	英文科目名稱 Course Name in English	必選 修 Required Elective	合計 學分 Credits Subtotal	第一 學期 1 st Semester Credits	第二 學期 2 nd Semester Credits	備註 Remarks
	Technology	選修 Elective				
醫學與應用化學	Medicine and Applied Chemistry	選修 Elective	1	0	1	★註
化學醫藥品之智慧財產保護概論	Introduction to Intellectual Property Protection of Chemical Pharmaceuticals	選修 Elective	1	0	1	★註
科學加工	Scientific Processing	選修 Elective	1	0	1	★註
必修學分合計 Required Credits Subtotal			20	9	9	

第 二 學 年 2 st Academic Year						
科目名稱 Course Name in Chinese	英文科目名稱 Course Name in English	必選 修 Required Elective	合計 學分 Credits Subtotal	第一 學期 1 st Semester Credits	第二 學期 2 nd Semester Credits	備註 Remarks
有機化學(一)	Organic Chemistry (I)	必修 Required	3	3	0	
分析化學(二)	Analytical Chemistry (II)	必修 Required	3	3	0	
生物化學(一)	Biochemistry(I)	必修 Required	2	2	0	
分析化學實驗(二)	Analytical Chemistry Laboratory (II)	必修 Required	1	1	0	
有機化學實驗(一)	Organic Chemistry Laboratory (I)	必修 Required	1	1	0	
有機化學(二)	Organic Chemistry (II)	必修 Required	3	0	3	
無機化學(一)	Inorganic Chemistry (I)	必修 Required	3	0	3	
生物化學(二)	Biochemistry(II)	必修 Required	2	0	2	
儀器分析(一)	Principles of Instrumental Analysis(I)	必修 Required	2	0	2	
藥妝品學	Cosmeceuticals	必修 Required	2	0	2	
有機化學實驗(二)	Organic Chemistry Laboratory (II)	必修 Required	1	0	1	
儀器分析實驗(一)	Instrumental Analysis Laboratory(I)	必修 Required	1	0	1	
藥物學	Materia Medica	選修 Elective	2	2	0	
特用化學品	Specialty Chemicals	選修 Elective	2	2	0	
奈米科技概論	Introduction to Nanotechnology	選修 Elective	2	2	0	
芳香療法	Aromatherapy	選修 Elective	2	2	0	
科技英文與數位工具應用 實務	Digital Tools and Practice for Learning Scientific English	選修 Elective	2	2	0	
醫用微生物與免疫化學	Chemistry of Medical Microbiology	選修 Elective	2	2	0	
醫用材料化學概論	Introduction to Medicalmaterials Chemistry	選修 Elective	3	0	3	
綠色化學	Green Chemistry	選修 Elective	2	0	2	★註
生醫材料導論	Introduction to Biomaterials	選修 Elective	2	0	2	
高分子化學與循環設計	Polymer Chemistry and Circular Design	選修 Elective	2	0	2	
必修學分合計 Required Credits Subtotal			24	10	14	

第 三 學 年 3 st Academic Year						
科目名稱 Course Name in Chinese	英文科目名稱 Course Name in English	必選 修 Required Elective	合計 學分 Credits Subtotal	第一 學期 1 st Semester Credits	第二 學期 2 nd Semester Credits	備註 Remarks
物理化學(一)	Physical Chemistry(I)	必修 Required	3	3	0	
無機化學(二)	Inorganic Chemistry(II)	必修 Required	3	3	0	
醫藥品設計與合成	Drug Design and Synthesis	必修 Required	2	2	0	
書報討論(一)	Discussion in Literature (I)	必修 Required	1	1	0	
物理化學實驗(一)	Physical Chemistry Laboratory(I)	必修 Required	1	1	0	
物理化學(二)	Physical Chemistry(II)	必修 Required	3	0	3	
藥物化學	Medicinal Chemistry	必修 Required	2	0	2	
書報討論(二)	Discussion in Literature (II)	必修 Required	1	0	1	
儀器分析(二)	Principles of Instrumental Analysis(II)	選修 Elective	2	2	0	
有機光譜	Spectroscopy for Organic Chemistry	選修 Elective	2	2	0	
專題研究(一)	Independent Study(I)	選修 Elective	2	2	0	
保健科技學	Introduction to Health Science	選修 Elective	2	2	0	
藥物與化妝品分析	Pharmaceutical and Cosmetic Analysis	選修 Elective	2	2	0	
醣化學	Introduction of Carbohydrate Chemistry	選修 Elective	2	2	0	
深度學習在化學上的應用	Deep Learning in Chemistry	選修 Elective	2	2	0	
儀器分析實驗(二)	Instrumental Analysis Laboratory(II)	選修 Elective	1	1	0	
專題研究(二)	Independent Study (II)	選修 Elective	2	0	2	
專案管理	Project Management	選修 Elective	2	0	2	
生物質譜學	Biological Mass Spectrometry	選修 Elective	2	0	2	
有機合成	Organic Synthesis	選修 Elective	2	0	2	
材料分析	Material Analysis	選修 Elective	2	0	2	
醫藥無機化學概論	Introduction to Medicinal Inorganic Chemistry	選修 Elective	2	0	2	
美容藥物學	Cosmetic Pharmacology	選修 Elective	2	0	2	
有機人名反應與應用	Organic Name Reactions and Applications	選修 Elective	2	0	2	
配位化學	Coordination Chemistry	選修 Elective	2	0	2	
臨床生醫材料	Clinical Biomedical Materials	選修 Elective	2	0	2	
計算材料化學	Computational Material Chemistry	選修 Elective	2	0	2	

有機化學特論	Special Topics in Organic Chemistry	選修 Elective	1	0	1	
核醫藥物暨放射化學概論	Introduction to Radiochemistry and Nuclear Pharmacy	選修 Elective	1	0	1	
物理化學實驗(二)	Physical Chemistry Laboratory(II)	選修 Elective	1	0	1	
人工智慧與有機化學	Artificial Intelligence in Organic Chemistry	選修 Elective	1	0	1	
必修學分合計 Required Credits Subtotal			16	10	6	
第 四 學 年 4th Academic Year						
科目名稱 Course Name in Chinese	英文科目名稱 Course Name in English	必/選修 Required Elective	合計 學分 Credits Subtotal	第一 學期 1 st Semester Credits	第二 學期 2 nd Semester Credits	備註 Remarks
書報討論(三)	Discussion in Literature(III)	必修 Required	1	1	0	
書報討論(四)	Discussion in Literature(IV)	必修 Required	1	0	1	
無機化學特論	Special Topics in Inorganic Chemistry	選修 Elective	2	2	0	
專題研究(三)	Independent Study (III)	選修 Elective	2	2	0	
有機金屬化學	Organometallics	選修 Elective	2	2	0	
醫藥化學實習	Practicum Courses in Medicinal Chemistry	選修 Elective	2	2	0	
人工智慧與分子模擬	Artificial Intelligence and Molecular Simulation	選修 Elective	2	2	0	
化學產業發展	Development of Chemical Industries	選修 Elective	2	0	2	
專題研究(四)	Independent Study (IV)	選修 Elective	2	0	2	
生物無機化學導論	Introduction to Bioinorganic Chemistry	選修 Elective	2	0	2	
必修學分合計 Required Credits Subtotal			2	1	1	
最低畢業學分數 128 學分，必修 62 學分，通識 20 學分，體育 2 學分，選修 44 學分 Minimum graduation credits: 128 credits, compulsory 62 credits, general education 20 credits, physical education 2 credits, elective 44 credits						
說明： 一、 通識教育課程總學分數為 20 學分，學生需修滿學分數，始得申請畢業。課程內容分為「基礎通識」及「博雅通識」等兩大部分，修習原則如下：(一)「基礎通識」課程：必修，共 6 學分。含括：「多元文化與語文」、「人工智慧概論與應用」、「大學之道」及「服務學習」等課程。(二)「博雅通識」課程：必修，共 14 學分(醫資系除外，需 16 學分)。含括：文藝領域、社會領域、醫學人文領域和科普領域等四個領域，每個領域至少需修習 2 學分。通識教育課程畢業學分的認列，以 20 學分為上限。通識教育課程修習方式依照「中山醫學大學通識課程選課須知」辦理。「服務學習」依照「中山醫學大學服務學習課程實施辦法」辦理。 二、 學生須於畢業前修滿 2 學分「體育」，始得畢業，但超修不列入畢業學分數。 三、 大一「英文」分級及修課依照「雙語教學推動資源中心」所公告之規定辦理。 四、 學生須於畢業前擇一修習雙主修、輔系、跨域學程或跨域微學程，符合修習規範者，始得畢業。 五、 學生須於畢業前擇一參加經認定之校外官方英文能力檢定考試或校內「中山醫大英文能力檢測」(CEPT)英文檢定考試，相當全民英檢中級初試，並於每學期開學後繳交通過之成績證明文件至各系登錄，以作為畢業資格審定之依據。 六、 學生須依「中山醫學大學深化醫能力百分百實施辦法」參加各項符合增益基本能力之活動並累積至少 100 點，始得畢業。 七、 系選修至少須滿 20 學分，方可畢業。						

註★：為本系「科學與應用跨域微學程」課程，主系之科目與跨域微學程科目不能重複認列學分數。

若本系同學選讀醫化系(主系)「科學與應用跨域微學程」，該科目僅能認列一次學分。

Instructions :

1.The total number of credits required for the General Education Curriculum is 20. Students must complete these credits to apply for graduation. The curriculum is divided into two main parts: Fundamental General Education and Liberal Arts General Education. The guidelines for course completion are as follows:

Fundamental General Education Courses: These are mandatory and total 6 credits. They include courses such as Multiculturalism and Languages, Introduction to Artificial Intelligence and Applications, Foundation of University Education, and Service Learning.

Liberal Arts General Education Courses: These are also mandatory and total 14 credits (16 credits for the Department of Medical Informatics). They cover four domains: Literature and Arts, Social Sciences, Medical Humanities, and Science and Technology. At least 2 credits must be completed in each domain.

The maximum number of credits recognized from the General Education Curriculum towards graduation is 20. Enrollment procedures for the General Education Curriculum are governed by the Guidelines for General Education Course Selection at Chung Shan Medical University. The Service Learning component must be conducted in accordance with the Implementation Guidelines for Service Learning Courses at Chung Shan Medical University.

2.Students must complete 2 credits of Physical Education before graduation. However, excess credits will not be counted toward the total graduation credits.

3.English course placement and enrollment are subject to the regulations of the English-Medium Instruction Center.

4.Students are required to choose a double major, a minor, an interdisciplinary program, or an interdisciplinary micro-program before graduation. Only those who complete the requirements of their chosen program are eligible to graduate.

5.Students must pass an officially recognized external English proficiency test or the CSMU's internal English Proficiency Test (CEPT) before graduation. The required proficiency level is equivalent to the preliminary test of the GEPT Intermediate Level. Within the designated period at the start of each semester, students must submit their official score reports to their respective departments to verify graduation eligibility..

6.Students must participate in various activities that enhance their basic competencies in accordance with the Implementation Guidelines for Enhancing Soft Skills at Chung Shan Medical University and accumulate at least 100 points in order to graduate.

7.Students need to complete at least 20 credits of specialized elective courses offered by their department in order to graduate.