

國立暨南國際大學 應用化學 學系學士班必選修科目一覽表

Undergraduate Program Course Catalog of Department of Applied Chemistry ,National Chi Nan University

本表(115)學年度入學新生適用 Effective for students admitted in Fall,2026

最低畢業學分：128 學分，全校共同課程 16 學分，通識領域課程 15 學分，系必修 57 學分，選修 40 學分(其中學系專業課程選修至少 **25** 學分。) Undergraduate requirements: a minimum of 128 required credits, including 16 credits in the school-wide curriculum, 15 credits of General Education courses, 57 credits of Departmental required courses and 40 credits of elective courses (**25** of the elective credits must be the credits offered by this department.)

壹、全校共同課程 1.School-Wide Curriculum

一、共同課程(必修16學分) A. School-Wide Required Courses (16 credits)

課程代號 Course Code	課 程 名 稱(中文及英文) Course Name (Chinese and English)	學分數 Credits	備 註 Notes
	應化系跨域專業學術英文(一)：文本解析與書寫 Department of Applied Chemistry Cross-disciplinary ESAP: Textual Interpretation and Composition	2	自110學年度起，英文能力分班改為依照本校自辦英檢(OOPT)作依據，分為三級上課：前10%的同學將分配至「跨域專業學術英文(一)：文本解析與書寫(進階)/跨域專業學術英文(二)：思辨與表達(進階)/跨域專業學術英文(三)：跨文化溝通與表達(進階)」上課；中間80%的同學將分配至原班英文上課；後10%的同學將分配至「跨域專業學術英文(一)：文本解析與書寫(基礎)/跨域專業學術英文(二)：思辨與表達(基礎)/跨域專業學術英文(三)：跨文化溝通與表達(基礎)」上課。 Since the first semester of 110 Academic Year (September 2021), the competence-based class grouping policy of Freshmen English (Course Title: Cross-disciplinary ESAP: Textual Interpretation and Composition) will be based on registered student's OOPT scores; Students will be accordingly divided into three different levels: advanced (top 10%), general (middle 80%) and basic (bottom 10%).
	應化系跨域專業學術英文(二)：思辨與表達 Department of Applied Chemistry Cross-disciplinary ESAP: Critical Thinking and Expression	2	
	應化系跨域專業學術英文(三)：跨文化溝通與表達 Department of Applied Chemistry Cross-disciplinary ESAP: Cross-Cultural Communicative Skills	2	
	中文思辨與表達 Critical Thinking And Expression In Chinese	2	僑外生修習「僑外生華語文」可抵通識人文領域課程，不得以「僑外生華語文」抵免中文思辨與表達課程。(Overseas students who take Chinese for Overseas Students can be credited in field of Humanities, but cannot be certified as Critical Thinking And Expression In Chinese.)

	資訊科技 Information Technology	2	上學期修課，不分學系上課。 資訊工程學系、電機工程學系、科技學院學士班及資訊管理學系學生得免修課程，符合免修條件者，仍須以其他課程補足免修之學分數。 (First-year students are required to take "Information Technology " in the first semester. Students from the Department of Computer Science and Information Engineering, Department of Electrical Engineering, Bachelor of Science and Technology, and Department of Information Management may waive the course. Students who choose to waive the course must complete the equivalent credits with other courses.)
	AI探索 AI Exploration	2	下學期修課，分學系上課。 資訊工程學系、電機工程學系、科技學院學士班及資訊管理學系學生得免修課程，符合免修條件者，仍須以其他課程補足免修之學分數。 (First-year students are required to take "AI Exploration" in the second semester. Students are arranged to take AI Exploration by their original department. Students from the Department of Computer Science and Information Engineering, Department of Electrical Engineering, Bachelor of Science and Technology, and Department of Information Management may waive the course. Students who choose to waive the course must complete the equivalent credits with other courses.)
	大一體育(上)Physical Education (1)	1	上學期依所屬學系分班上課，無特殊原因不得跨班選課，惟未達40人之學系、院學士班班級，則採合併班開課；下學期則依運動項目分班，自由選課。(In the first semester of freshman, students are arranged to take Physical Education (1) by their original department. Without any proper reasons, change will be prohibited. If a class of the department or the interdisciplinary program that is less than 40 students, the combined class will be adopted. In the second semester of freshman, students are able to take Physical Education (2) by their interesting.)
	大一體育(下)Physical Education (2)	1	
	特色運動 (Featured Sports)	2	大二開始，每學期限修一項，畢業前須完成至少2項特色運動 (Students are limited to take 1 featured sports course each semester since sophomore. At least 2 featured sports courses are required before graduation.)
通識講座 General Education Seminar		0	畢業前至少應出席6場。(Students are required to attend at least 6 lectures before graduation.)

二、共同選修課程 (各系依共同選修加列課程) B. School-Wide Elective Courses

	第二外語 (Second Foreign Languages)	含日文、韓文、法文、德文及西班牙文等。 (Including Japanese, Korean, French, German and Spanish, etc.)
	東南亞語言(Southeast Asia Languages)	含泰語、越南語、緬甸語、印尼語及馬來語， 可抵特色通識領域。(Including Thai, Vietnamese, Burmese, Indonesian and Malay. These courses can be credited course credits in Topical General Education)
	進階語文(Advanced English)	
	其他選修(Other Elective Course)	

貳、通識領域課程(至少15學分) 2.General Education Courses

領域 Field (須修習資訊科技與自主學習課程) (Information Technology and Self-directed Learning courses are required)		學分數 Credits	備 註 Notes
人文領域 Humanities	文學與藝術(Literature and Art)	3	至少修習3學分。(Students should attend a total of at least 3 credits.)
	歷史哲學與文化(History, Philosophy and Culture)		
	AI文創協作(AI Collaboration in Cultural Creativity)		
	多元敘事與媒體識讀(Diverse Narratives and Media Literacy)		
社會領域 Society	法政與教育(Law, Politics and Education)	3	至少修習3學分。(Students should attend a total of at least 3 credits.)
	社經與管理(Society, Economy and Management)		
	資料科學分析(Data Science Analysis)		
自然領域 Nature	工程與科技(Engineering and Technology)	3	至少修習3學分。(Students should attend a total of at least 3 credits.)
	生命與科學(Life and Science)		
	程式設計(Programming)		
特色通識領域 Topical General Education	國際連結(International Connection)	3	至少修習3學分。(Students should attend a total of at least 3 credits.)
	淨零永續(Net-Zero Sustainability)		
	社會創新(Social Innovation)		

通識各主領域課程(人文、社會、自然及特色通識)得單一領域跨域認抵，至多4學分(需經通識教育中心認定之)

General education courses from various fields (humanities, social, natural, and topical general education) can be cross-credited within a single field, up to a maximum of 4 credits (subject to approval by the General Education Center).

領域課程15學分中，學生須至少修習二門資訊科技課程，且須包括自主學習類型課程1學分。

Students are required to take at least two Information Technology courses and get 1 credit of Self-directed Learning courses out of the 15 credits of General Education Courses.

參、學系專業課程 3.Departmental Courses

課程代號 Course Code	課程名稱(中文及英文) Course Name (Chinese and English)	學分數 Credits	修別 Course type (required/elective)	開課年級 Course availability (freshman/sophomore/junior/senior)	備註Notes
240001	普通化學(上) General Chemistry (1)	3	必 required	一上 Freshman 1st Semester	
240013	普通化學(下) General Chemistry (2)	3	必 required	一下 Freshman 2nd Semester	
240005	微積分(上) Calculus (1)	3	必 required	一上 Freshman 1st Semester	
240016	微積分(下) Calculus (2)	3	必 required	一下 Freshman 2nd Semester	
240087	生物化學導論 Introduction To Biochemistry	3	必 required	一下 Freshman 2nd Semester	
240088	普通物理 General Physics	3	必 required	一上 Freshman 1st Semester	
240082	普通化學實驗 Experiments in General Chemistry	1	必 required	一上 Freshman 1st Semester	
240083	分析化學實驗 Experiments in Analytical Chemistry	1	必 required	一下 Freshman 2nd Semester	
240009	英語聽講(上) Listening Comprehensive and Spoken English (1)	1	選 elective	— Freshman	
240021	英語聽講(下) Listening Comprehensive and Spoken English (2)	1	選 elective	— Freshman	
240079	普通物理實驗 Experiments in General Physics	1	選 elective	— Freshman	
240004	專題研究一(上) Undergraduate Research (1)	1	選 elective	— Freshman	
240015	專題研究一(下) Undergraduate Research (2)	1	選 elective	— Freshman	需先修習普通化學(上) Prerequisite courses: General Chemistry (1)
240089	化學通論 Comprehensive Chemistry	3	選 elective	— Freshman	為全英語授課 English as a Medium of Instruction
240081	普通生物學 Biology	3	選 elective	— Freshman	

240086	普通生物學(二) Biology(2)	3	選 elective	— Freshman	
240022	科技英文 Scientific English	3	選 elective	— Freshman	
240090	基因遺傳研究以「族群」為基礎的倫理議題 Ethical concerns: the use of racial classification in genealogical base studies	2	選 elective	— Freshman	
240092	科技創發與正義實踐 Scientific and Technological Innovation and Justice Practice	2	選 elective	— Freshman	
240102	生醫科學的種族主義 Ethical concerns: the use of racial classification in genealogical base studies	2	選 elective	— Freshman	
210036	計算機概論 Introduction to Computer Science	3	選 elective	— Freshman	資訊工程學系開課 Department of Computer Science & Information Engineering
210099	程式設計 Computer Programming	3	選 elective	— Freshman	資訊工程學系開課 Department of Computer Science & Information Engineering
240028	化學數學 Chemical Mathematics	3	必 required	二上 Sophomore 1st Semester	需先通過微積分(上)、微積分(下) Prerequisite courses : Calculus (1), Calculus (2)
240035	物理化學(一) Physical Chemistry (1)	3	必 required	二下 Sophomore 2nd Semester	
240026	分析化學(上) Analytical Chemistry (1)	3	必 required	二上 Sophomore 1st Semester	
240033	分析化學(下) Analytical Chemistry (2)	3	必 required	二下 Sophomore 2nd Semester	
240024	有機化學(上) Organic Chemistry	4	必 required	二上 Sophomore 1st Semester	需先修習普通化學(上)、普通化學(下) Prerequisite courses : General Chemistry (1), General Chemistry (2)
240034	有機化學(下) Organic Chemistry (2)	4	必 required	二下 Sophomore 2nd Semester	需先修習普通化學(上)、普通化學(下) Prerequisite courses : General Chemistry (1), General Chemistry (2)
240084	分析化學暨有機化學實驗 Experiments in Analytical and Organic Chemistry	2	必 required	二上 Sophomore 1st Semester	

240085	有機化學實驗 Experiments in Organic Chemistry	2	必 required	二下 Sophomore 2nd Semester	
240029	專題研究二(上) Undergraduate Research II (1)	1	選 elective	二 Sophomore	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)
240032	專題研究二(下) Undergraduate Research II (2)	1	選 elective	二 Sophomore	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)
240043	生物化學(上) Biochemistry (1)	3	選 elective	二 Sophomore	
240103	人工智慧與質譜數據分析 Artificial Intelligence and Mass Spectrometry Data Analysis	3	選 elective	二 Sophomore	
240049	生物化學(下) Biochemistry (2)	3	選 elective	二 Sophomore	
280020	奈米科技導論 Introduction to Nano-technology	3	選 elective	二 Sophomore	應用材料及光電工程系開課 Applied Materials and Optoelectronic Engineering
240038	物理化學(二) Physical Chemistry (2)	3	必 required	三上 Junior 1st Semester	需曾修習化學數學 Prerequisite courses: Chemical Mathematics
240040	無機化學(上) Inorganic Chemistry (1)	3	必 required	三上 Junior 1st Semester	
240045	無機化學(下) Inorganic Chemistry (2)	3	必 required	三下 Junior 2nd Semester	
240039	物理化學實驗 Experiments in Physical Chemistry	2	必 required	三上 Junior 1st Semester	
240062	生物化學實驗 Experiments in Biochemistry	2	選 elective	三 Junior	
240044	專題研究三(上) Undergraduate Research III (1)	1	選 elective	三 Junior	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)

240047	專題研究三(下) Undergraduate Research III (2)	1	選 elective	三 Junior	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)
240041	儀器分析 Instrumental Analysis	3	選 elective	三 Junior	需先通過普通化學(上)、普通化學(下)、分析化學(上)、分析化學(下)、普通化學實驗、分析化學實驗、分析化學實驗暨有機化學實驗、有機化學實驗 Pre-requisite including General Chemistry (1), General Chemistry (2), Analytical Chemistry (1), Analytical Chemistry (2), Experiments in General Chemistry, Experiments in Analytical Chemistry, Experiments in Analytical and Organic Chemistry, Experiments in Organic Chemistry must be passed
240080	有機光譜分析 Introduction to Spectroscopic Analysis of Organic Compounds	3	選 elective	三 Junior	
240048	材料科學導論(上) Introduction to Material Science (1)	3	選 elective	三 Junior	
240060	材料科學導論(下) Introduction to Material Science (2)	3	選 elective	三 Junior	
240042	儀器分析實驗 Experiments in Instrumental Analysis	2	選 elective	三 Junior	需先通過普通化學(上)、普通化學(下)、分析化學(上)、分析化學(下)、普通化學實驗、分析化學實驗、分析化學實驗暨有機化學實驗、有機化學實驗 Pre-requisite including General Chemistry (1), General Chemistry (2), Analytical Chemistry (1), Analytical Chemistry (2), Experiments in General Chemistry, Experiments in Analytical Chemistry, Experiments in Analytical and Organic Chemistry, Experiments in Organic Chemistry must be passed
240066	基礎材料化學實驗 Experiments in Fundamental Material chemistry	2	選 elective	三 Junior	
240077	材料化學實驗 Experiments in Material Science	2	選 elective	三 Junior	
240091	無機合成 Inorganic Synthesis	3	選 elective	三 Junior	

240093	生物醫學導論 Introduction to Biomedicine	3	選 elective	三 Junior	
240073	固態化學 Solid State Chemistry	3	選 elective	三 Junior	
240101	現代醫學概論 Introduction to Modern Medicine Science	3	選 elective	三 Junior	
240104	分離技術 Separation Science	2	選 elective	三 Junior	
240105	有機合成及反應機構(一) Organic Synthesis (1)	3	選 elective	三 Junior	需先通過有機化學 (上)、有機化學(下) Pre-requisite including Organic Chemistry(1), Organic Chemistry (2)
240106	有機合成及反應機構(二) Organic Synthesis (2)	3	選 elective	三 Junior	需先通過有機化學 (上)、有機化學(下) Pre-requisite including Organic Chemistry(1), Organic Chemistry (2)
240100	生理學 Physiology	3	選 elective	三 Junior	
240099	腫瘤生物學 Oncology	3	選 elective	三 Junior	
240095	微生物與免疫學 Microbiology & Immunology	3	選 elective	三 Junior	
240107	生化分析 Bioanalytical Science	3	選 elective	三 Junior	
240096	物理化學(三) Physical Chemistry (3)	3	選 elective	三 Junior	
240098	雜環化學 Heterocyclic Chemistry	3	選 elective	三 Junior	需先通過有機化學 (上)、有機化學(下) Pre-requisite including Organic Chemistry(1), Organic Chemistry (2)
240055	生物化學特論 Special Topics on Biochemistry	3	選 elective	三 Junior	
240097	電化學特論 Special topics in Electrochemistry	3	選 elective	三 Junior	
240108	電化學 Electroanalytical Chemistry	3	選 elective	三 Junior	
240059	生物醫學實驗 Experiments in Biomedicine	2	選 elective	三 Junior	
240094	材料分析暨實驗 Experiments in Material Science	2	選 elective	三 Junior	

280033	奈米製作技術 Nano Fabrication Techniques	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280063	材料分析 Materials Analysis	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280042	平面顯示器概論 Introduction to Flat Panel Display	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280043	光纖元件原理與應用 Optical Fiber Devices - Principles and Applications	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280034	材料微結構分析 Microstructural Analysis of Materials	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280102	光電工程實驗 Optoelectronic Engineering Lab.	2	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280101	材料實驗 Materials Lab.	2	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
280049	奈米光電材料與元件 Nano Optoelectronic Materials and Devices	3	選 elective	三 Junior	應用材料及光電工程系 開課 Applied Materials and Optoelectronic Engineering
240109	細胞生物學 Cellular Biology	3	選 elective	三 Junior	
240110	生醫技術 Biomedical Skill	3	選 elective	三 Junior	
240111	分子生物學 Molecular Biology	3	選 elective	三 Junior	
240115	超分子化學導論 Introduction to Supramolecular Chemistry	3	選 elective	三 Junior	
240114	藥物化學導論 Introduction to Medicinal Chemistry	3	選 elective	三 Junior	

240112	計算化學 Computational chemistry	3	選 elective	三 Junior	需同時修習計算化學實驗 requisite courses Computational Chemistry Lab at same time
240113	計算化學實驗 Computational Chemistry Lab	1	選 elective	三 Junior	需同時修習計算化學 requisite courses Computational Chemistry
280040	奈米製作實驗 Nano Manufacturing Lab.	1	選 elective	三 Junior	應用材料及光電工程系開課 Applied Materials and Optoelectronic Engineering
240056	書報討論(上) Seminar (1)	1	必 required	四上 Senior 1st Semester	
240057	書報討論(下) Seminar (2)	1	必 required	四下 Senior 2nd Semester	
240052	專題研究四(上) Undergraduate Research IV (1)	1	選 elective	四 Senior	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)
240058	專題研究四(下) Undergraduate Research IV (2)	1	選 elective	四 Senior	需先修習普通化學(上)、普通化學(下) Prerequisite courses: General Chemistry (1), General Chemistry (2)
280145	虛擬儀控程式設計 Programming of Virtual Instruments	3	選 elective	四 Senior	應用材料及光電工程系開課 Applied Materials and Optoelectronic Engineering

備註： 1. 大四學生聽演講的次數，由書報討論(上)(下)之任課老師規定之。

The number of lectures that senior (fourth-year) students are required to attend shall be determined by the instructors of the Seminar (I) and (II).

2. 如需至校外暑修課程，需先完整修習系上相同課程。

Students wishing to take summer courses at other institutions must have first completed the full equivalent course offered by the department.

3. 3年級以上可選修系上碩士班課程作為專業選修。

Students in their junior year (3rd year) or above are eligible to enroll in departmental Master's program courses to fulfill their professional elective requirements.

填表人：

系(所)主管：

院長：

填表日期：