國立陽明交通大學生物科技學系跨域學程實施要點

National Yang Ming Chiao Tung University
Department of Biological Science and Technology
Implementation Guidelines for Cross-Disciplinary Program

生物科技學系、分子醫學與生物工程研究所、生物資訊及系統生物所聯席課程委員會修訂(112 年 3 月 22 日)
生物科技學院院課程委員會修訂(112 年 4 月 12 日)
111 學年度第 3 次校課程委員會通過(112 年 5 月 16 日)
111 學年度第 4 次教務會議核備通過(112 年 5 月 30 日)
生物科技學系、分子醫學與生物工程研究所、生物資訊及系統生物所聯席課程委員會修訂(113 年 10 月 11 日)
生物科技學院院課程委員會修訂(113 年 10 月 18 日)
113 學年度第 2 次校課程委員會通過(113 年 11 月 25 日)

一、依據國立陽明交通大學跨域學程實施辦法，國立陽明交通大學生物科技學系(以下簡稱本系)為鼓勵學生進行跨領域學習，建立跨域學習深度，協助學生拓展第二專長，提供學生可以在畢業學分不增加(或僅少量增加)情況下，修畢跨域學程，特訂定本要點。

Article 1 These Implementation Guidelines are prescribed by National Yang Ming Chiao Tung University Department of Biological Science and Technology (hereinafter referred to as Our Department) based on NCTU Cross-Disciplinary Program Implementation Regulations to provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits (or only a few extra credits) in order to encourage students to conduct cross-disciplinary study, build the depth of cross-disciplinary study, and assist students to expand second specialty.

二、本要點所稱跨域學程係指由各學系、研究所、或學院提出模組課程，模組課程應包含該領域基礎核心知識，且總學分數以30學分為原則(最低可為28學分，最高不可超過32學分)，學生修習跨域學程，其課程將包含所屬學系的跨域學程模組課程以及第二專長系所或學院的跨域學程模組課程，並可於畢業證書上加註第二專長模組課程為「跨域專長」。

Article 2 The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes or colleges in National Yang Ming Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (the minimum 28 credits and no more than 32 credits). The cross-disciplinary program that students take will include the cross-disciplinary program module curriculum of the department they belong to as well as the cross-disciplinary program module curriculum from the second specialty department or college. The module curriculum of the second specialty could be remarked as “Cross-Disciplinary Specialty” on the diploma.

三、本要點實施對象

Article 3 Implementation objects of these Guidelines

1. 本系學生欲修習跨域學程者

1. For the student of our department who would like to take cross-disciplinary program

(1) 得於下學期向本系提出申請，申請時註明欲申請的第二專長系所或學院，申請期限將由本系課程委員會提前一個月進行公告，公告中說明需準備的審查資料以及當年度本系開放給本系學生修讀跨域學程的名額，申請案經本系課程委員會審查通過後，需送到第二專長系所或學院審查，通過雙邊審查後，方可進入跨域學程。

(1) The application could be submitted to our department during the second semesters. The department or college of the second specialty that the student would like to apply for must be remarked on the application form, and the application deadline would be announced one month in advance by the Curricular Committee at our department. The information of evaluation documents needed to be prepared as well as the quota opened to the students of our department to study for this program in the given year will be released on the announcement. The application should be sent to the department or college of the second specialty for evaluation after it is approved by the Curricular Committee at our department. Students could only take the cross-disciplinary program after evaluation by both sides.

(2) 本系甲組學生修習跨域學程的課程，列示於「生物科技學系跨域學程本系學生必修科目表(A1)」，其課程包含：校必修(含共同必修24學分)、本系基礎必修課程、本系跨域模組課程、以及第二專長系所或學院的跨域模組課程(以下簡稱他系跨域模組課程)，畢業學分以128學分為原則。他系跨域模組課程認定為跨域專長，於畢業證書本系名稱後加註此跨域專長。

(2)The courses of cross-disciplinary program studied by students in our department should be listed on “The Required Course List (A1) for the students at our department study cross-disciplinary program in Department of Biological Science and Technology.” The courses include required courses of the university (including 28 credits of general education subjects), core curriculum at our department, cross-disciplinary module curriculum at our department, and the cross-disciplinary module curriculum of the second specialty department or college (hereinafter referred to as cross-disciplinary module curriculum at other department) with at least 128 graduate credits. The cross-disciplinary module curriculum at other department would be recognized as cross-disciplinary specialty, and it will be remarked after the title of our department on the diploma.

(3) 本系乙組學生修習跨域學程的課程，列示於「生物科技學系跨域學程本系學生必修科目表(A2)」，其課程包含：校必修(含共同必修24學分)、本系基礎必修課程、本系跨域模組課程、以及第二專長系所或學院的跨域模組課程(以下簡稱他系跨域模組課程)，畢業學分以128學分為原則。他系跨域模組課程認定為跨域專長，於畢業證書本系名稱後加註此跨域專長。

(3)The courses of cross-disciplinary program studied by students in our department should be listed on “The Required Course List (A2) for the students at our department study cross-disciplinary program in Department of Biological Science and Technology.” The courses include required courses of the university (including 28 credits of general education subjects), core curriculum at our department, cross-disciplinary module curriculum at our

department, and the cross-disciplinary module curriculum of the second specialty department or college (hereinafter referred to as cross-disciplinary module curriculum at other department) with at least 128 graduate credits. The cross-disciplinary module curriculum at other department would be recognized as cross-disciplinary specialty, and it will be remarked after the title of our department on the diploma.

(4) 本系學生修習跨域學程，若無法修畢跨域學程課程，得選擇放棄跨域學程，改修習原學系的學士學位課程。

(4) For students at our department who study for cross-disciplinary program but are not able to complete the program, they shall give up the cross-disciplinary program and transfer to study for the bachelor degree program at the original department.

2. 外系學生欲修習跨域學程且選擇本系做為其跨域專長者

2. For students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty

(1) 得於下學期向其所屬學系（以下簡稱原系）提出申請，通過原系以及本系的雙邊審查後，方可進入跨域學程。

(1) They could submit the application to the department that they belong to during the second semesters, they could only take the cross-disciplinary program after approved by both their original department and our department.

(2) 外系學生修讀跨域學程且選擇本系做為其跨域專長者，其課程包含：校必修(含共同必修24學分)、原系基礎必修課程、原系跨域模組課程、以及列示於「生物科技學系跨域模組課程必修科目表(B)」的模組課程，畢業學分以128學分為原則，並於畢業證書原系名稱後加註生物科技或分子醫學與生物工程為其跨域專長。

(2) The courses for the students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty include required courses of the university (including 28 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on “The Required Course List (B) for the students study cross-disciplinary module curriculum in Department of Biological Science and Technology” with at least 128 graduate credits. The Biological Science and Technology or Molecular Medicine and Bioengineering will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

四、 跨域模組課程與學生本系應修課程及學分重複者，由第二專長的系所或學院指定與專長相關選修課程補足。

Article 4 If the credits of the cross-disciplinary program module curriculum are the same with those of the required courses at the Major department, the duplication must be made up with the elective courses related to the specialty appointed by the department or college of the second specialty.

五、 本系指定一名專任教師擔任跨域學程導師，與外系所或學院的跨域學程導師組成導師群，專責輔導跨域學程的學生。

Article 5 Our department assigned one full-time teacher to be the mentor of the cross-disciplinary program and formed mentor group with teachers of cross-disciplinary program at other department or college to give guidance to cross-disciplinary program students.

六、 為鼓勵不同系所或學院合作提出跨域共授課程，兩位以上教師開授跨領域之創新整合式課程，得依本校教師授課時數核計原則規定辦理。

Article 6 In order to encourage different departments or colleges working together for the proposal of cross-disciplinary curriculum, the number of teaching hours for the innovating integrated curriculum offered by more than two teachers could be calculated by the actual time of teaching according to National Yang Ming Chiao Tung University Teaching Hours Accounting Principle.

七、 修讀跨域學程學生在獲核准前已修習及格之科目學分，若合於第二專長模組課程應修課程學分，得經第二專長的系所或學院審查同意後，予以追加採認。

Article 7 The credits of cross-disciplinary program module curriculums obtained before the student has been admitted to take the cross-disciplinary program can only be counted if the credits are recognized by the department or college of the second specialty.

八、 修讀跨域學程學生之選課手續應於加退選期限內完成，且每學期所修之第二專長模組課程科目、學分及成績均列記於其歷年成績表內。

Article 8 Students taking a cross-disciplinary program shall enroll courses of the program by the deadlines of course registration. The courses, credits, and grades of the cross-disciplinary program module curriculums should be listed in the annual transcripts in each semester.

九、 學生之第二專長模組課程學分及成績分別併入學期修讀學分總數及學期平均成績計算。

Article 9 The courses, credits, and grades of cross-disciplinary program are incorporated into the student’s semester credits and average grade.

十、 修讀跨域學程學生，擬終止修讀跨域學程者，應至教務處申請撤銷其跨域學程資格，並回復至所屬學系修課規定。其已修習及格之第二專長模組課程學分，經所屬學系核定，報教務處備查後得抵免其所屬學系選修課程學分。

Article 10 Students taking a cross-disciplinary program and intending to terminate the study in the cross- disciplinary program shall register with the Office of Academic Affairs for withdrawal from the program and follow the regulations and requirements of major department. The passed courses of the crossdisciplinary program can be used as credit waiver against the core courses of the major with the approval of the Major department. The approval should be submitted to the Office of Academic Affairs for archiving purposes.

十一、 修讀跨域學程學生凡符合跨域學程規定畢業者，其畢業生名冊、歷年成績表及學位證書應加註跨域專長名稱。但畢業時如尚未修滿跨域學程規定之科目與學分，不得申請發給有關跨域學程之任何證明。

Article 11 For students who earn sufficient credits and meet the requirements of the cross-disciplinary program, the department of the cross-disciplinary program will be noted in the graduates roster, transcripts, and diplomas, otherwise, no certificate of the cross-disciplinary program will be issued.

十二、 本要點如有未盡事宜，悉依本校學則及其他相關規定辦理。

Article 12 If there is any unaccomplished matter of these guidelines, it shall be handled in accordance with the school constitution of our university as well as other relevant regulations.

十三、 本要點經系課程委員會、院課程委員會及校級課程委員會通過後實施，修訂時亦同。

Article 13 These guidelines were approved by Curricular Committee at university level before putting it into practice; the same shall be done upon any amendment thereto.

生物科技學系跨域學程 本系甲組「生物科技組」學生 必修科目表（A1）

The Required Course List (A1) for the students in the Division of Biological Science and technology at Department of Biological Science and Technology

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
	化學 Chemistry	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	核心課程 Core courses 45 學分 45 credits are required
	化學實驗 Chemistry Labs.	1		
	物理(一)(二) Physics (I)(II)	6		
	物理實驗(一) Physics Labs. (I)	1		
	普通生物學(一)(二) General Biology (I)(II)	6		
	普通生物學實驗 General Biology Lab.	1		
	微積分(一)(二) Calculus (I)(II)	8	微積分教學小組 Calculus Teaching Group	
	計算生物概論 Introduction to Computational Biology	2	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	有機化學(一) Organic Chemistry (I)	4		
	生物化學(一) Biochemistry(I)	3		
	生物化學實驗 Biochemistry Lab.	1		
	分子生物學(一) Molecular Biology (I)	3		
	分子生物學實驗 Molecular Biology Lab.	1		
	書報討論 Seminar	1		
	服務學習(一)(二) Service Learning (I)(II)	2		
	生涯規劃及導師時間 Career Planning and Mentor's Hours	0		
	生物科技概論(一)(二) Introduction to Biotechnology (I) (II)	2		
	物理化學(一)(二)(三) Physical Chemistry (I) (II) (III)	9	生技系	進階課程 Advanced courses

	程式語言及演習 Programming Language and Exercise	3	Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	至少修習 16 學分 at least 16 credits are required
	有機化學 (二) Organic Chemistry (II)	4		
	生物化學 (二) Biochemistry (II)	3		
	分析化學 Analytical Chemistry	3		
	儀器分析 Instrumental Analysis	3		
	細胞生物學(一)(二) Cell Biology (I)(II)	4		
	分子生物學(二) Molecular Biology (II)	3		
	微生物學 Microbiology	3		
	神經生物學 (一)(二) Neurobiology (I)(II)	4		
	生理學 (一)(二) Physiology (I)(II)	4		
	遺傳學 Genetics	3		
	演化生物學 Evolutionary Biology	3		
	免疫學 Immunology	3		
	結構生物學 Structural Biology	3		
	生科應用數學 Applied Math for Biological Science and Technology	3		
	腫瘤生物學 Oncology	3	分醫所 Institute of Molecular Medicine and Bioengineering 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	生物序列分析與高通量技術 Sequencing Technology and High-throughput Data Analysis	3	生資所 Institute of Bioinformatics and Systems Biology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	結構生物資訊 Structural Bioinformatics	3		
	生物統計 Biostatistics	3		
	生物機器學習 Machine Learning in Computational Biology	3		

	有機化學實驗 (一) Organic Chemistry Lab.(I)	2	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	至少修習 3 學分 at least 3 credits are required
	有機化學實驗 (二) Organic Chemistry Lab. (II)	2		
	細胞生物學實驗 Cell Biology Lab.	1		
	微生物學實驗 Microbiology Lab.	1		
	計算生物實驗 Computational Biology Lab.	1		
	專題研究 (一) Research (I)	1		
	寒暑期專題實習 Summer/Winter Internship	1		
他系跨域模組（28-32 學分） Cross-disciplinary modules at other department（28-32 credits）	本校各系所或學院所提供之跨域模組學程，擇一修畢 The cross-disciplinary modules offer by departments or colleges at our university; choose one to complete.			
合計 Total			1.校必修（含共同必修 24 學分（含外語課程必修 6 學分），至多採計 40 學分）[註 2] Required courses of the university (including 28 credits of general education subjects, 8 credits of foreign language course inclusive with the maximum 40 credits countable) [Note 2] 2.須滿足工程生物科學學院內總學分 **70**，核心課程 **45** 學分，進階課程至少 **16** 學分，實驗課程至少 **3** 學分 Student shall complete at least 128 credit hours of courses to graduate. These must include **70** credits within the College of Engineering Bioscience, **45** core courses credits, **16** advanced courses credits, and **3** credits for experiment courses.	
最低畢業學分 Minimum Graduate Credits		128		

生物科技學系跨域學程 本系乙組「工程與計算生物科學組」學生必修科目表（A2）

The Required Course List (A2) for the students in the Division of Engineering and Computational Bioscience at Department of Biological Science and Technology

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
	化學 Chemistry	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	核心課程 Core courses 66 學分 66 credits are required
	物理(一)(二) Physics (I)(II)	6		
	普通生物學(一) General Biology (I)	3		
	普通生物學實驗 General Biology Lab.	1		
	微積分(一)(二) Calculus (I)(II)	8	微積分教學小組 Calculus Teaching Group	
	計算機概論與程式設計 Intro. to Computers and Programming	3	資工系 Department of Computer Science 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	線性代數 Linear Algebra	3		
	資料結構與演算法 Data Structures and Algorithms	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	計算生物概論 Introduction to Computational Biology	2		
	計算生物實驗 Computational Biology Lab.	1		
	有機化學(一) Organic Chemistry (I)	4		
	物理化學 (一) Physical Chemistry (I)	3		
	生物化學(一) Biochemistry(I)	3		
	分子生物學(一) Molecular Biology (I)	3		
	分子生物學實驗 Molecular Biology Lab.	1 二選一		
	生物化學實驗 Biochemistry Lab.	1		
	工程數學 Engineering Mathematics	3		
	光譜與分子量測學 Spectroscopy and Molecular Measurement	3		

	生物分子熱力學 Biomolecular thermodynamics	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	核心課程 Core courses 66 學分 66 credits are required
	生化反應工程 Biochemical Reaction Engineering	3		
	生物大數據與人工智慧 Biological big data and AI	3		
	書報討論 Seminar	1		
	專題研究(一) Research	1		
	服務學習(一)(二) Service Learning (I)(II)	2		
	生涯規劃及導師時間 Career Planning and Mentor's Hours	0		
	有機化學 (二) Organic Chemistry (II)	4	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	進階課程 Advanced courses 至少修習 6 學分 at least 6 credits are required
	物理化學(二) Physical Chemistry (II)	3		
	生物化學 (二) Biochemistry (II)	3		
	細胞生物學(一)(二) Cell Biology (I)(II)	4		
	生物統計 Biostatistics	3	生資所 Institute of Bioinformatics and Systems Biology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	生物機器學習 Machine Learning in Computational Biology	3		
	統計熱力學 Statistical Thermodynamics	3		
	生物序列分析與高通量技術 Sequencing Technology and High-throughput Data Analysis	3	生資所 Institute of Bioinformatics and Systems Biology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	工程生物整合課程 Engineering Biointegration Course 至少修習 9 學分 at least 9 credits are required
	計算系統生物學 Computational Systems Biology	3		
	分子演化 Molecular Evolution	3		
	結構生物資訊 Structural Bioinformatics	3		
	分子模擬 Molecular Simulation	3		

	合成生物學(一) Synthetic Biology(I)	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	結構生物學 Structural Biology	3		
	生物資料庫理論與實作 Biological Databases: Theories and Practice	3		
	微生物基因工程 Microbial Genetic Engineering	3	分醫所 Institute of Molecular Medicine and Bioengineering 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	微流體系統工程 Microfluidic Systems Engineering	3		
他系跨域模組 （28-32 學分） Cross-disciplinary modules at other department （28-32 credits）	本校各系所或學院所提供之跨域模組學程，擇一修畢 The cross-disciplinary modules offer by departments or colleges at our university; choose one to complete.			
合計 Total			1.校必修（含共同必修 24 學分（含外語課程必修 6 學分），至多採計 40 學分）[註 2] Required courses of the university (including 24 credits of general education subjects, 6 credits of foreign language course inclusive with the maximum 40 credits countable) [Note 2] 2.須滿足工程生物科學學院，核心課程 66 學分，進階課程至少 6 學分，工程生物整合課程至少 9 學分 Student shall complete at least 128 credit hours of courses to graduate. These must include 66 core courses credits, 6 advanced courses credits, and 9 engineering biointegration course credits.	
最低畢業學分 Minimum Graduate Credits		128		

註 1：生物科技學系學生須必修(A)表甲或乙組課程，且(A1)甲、(A2)乙組不可跨組，跨入生物科技跨域學程之外系學生須修讀(B)表

Note 1: The cross-disciplinary modules at our department on list (A) ,and (A1) A and (A2) Group B cannot cross groups. Students who enter beyond the biotechnology cross-domain course must take (B) table.

註 2：本校共同必修科目表規定，外語課程必修至少 6 學分。如大學部學生修習共同必修學分數超過 24 學分以上，本校至多可採至 40 學分於最低畢業學分。

Note 2: According to the rules prescribed by Table of General Education Subject of our university, at least 6 credits of foreign language courses must be taken. For the students in the bachelor degree program who study general education subjects more than 24 credits, our university could calculate 40 credits to the minimum graduate credits.

註 3：甲、乙兩組學生須申請並經系課程委員會同意後跨組。

Note 3: Students in groups A and B must apply and cross-group after approval by the department curriculum committee.

生物科技學系跨域模組課程 必修科目表（B）

The Required Course List (B) for the students study cross-disciplinary module curriculum in Department of Biological Science and Technology

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
(一)生物科技跨域模組（共 32 學分） (I) Cross-disciplinary modules at Department of Biological Science and Technology（32 credits）	化學 Chemistry	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	必修 24 學分 Core curriculum 24 credits 註：普通生物學及近代生物學二擇一 General Biology、Modern Biology (choose one courses out of the two)
	普通生物學(一)(二) General Biology(I) (II)	3+3		
	近代生物學(一)(二) Modern Biology(I) (II)	3+3		
	有機化學(一) Organic Chemistry(I)	4		
	生物化學(一) Biochemistry (I)	3		
	分子生物學(一) Molecular Biology (I)	3		
	細胞生物學(一) Cell Biology (I)	2		
	遺傳學 Genetics	3		
修畢於畢業證書加註「跨域專長：生物科技」 It could be remarked as "Cross-Disciplinary Specialty: Biological Science and Technology" on the diploma after the module curriculum is completed.	微生物學 Microbiology	3	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	左列課程 至少選 8 學分 at least 8 credits are required
	生物化學(二) Biochemistry (II)	3		
	分子生物學(二) Molecular Biology (II)	3		
	細胞生物學(二) Cell Biology (II)	2		
	免疫學 Immunology	3		
	病毒學 Virology	3		
	神經生物學 (一) Neurobiology (I)	2		
	神經生物學 (二) Neurobiology (II)	2		
	腫瘤生物學 Oncology	3	分醫所 Institute of Molecular Medicine and Bioengineering 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	生物科技之專利趨勢分析 Patent Analysis of Biotechnology	3		

生物科技跨域模組 總學分 Cross-disciplinary modules at Department of Biological Science and Technology Total Credits		32		
類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
(二)分子醫學與生物工程跨域模組 **(**共 28 學分) (II) Cross-disciplinary modules of Molecular Medicine and Bioengineering at Department of Biological Science and Technology （28credits） **修畢於畢業證書加註「跨域專長：分子醫學與生物工程」** It could be remarked as "Cross-Disciplinary Specialty: Molecular Medicine and Bioengineering" on the diploma after the module curriculum is completed.	普通生物(一)(二) General Biology (I)(II)	6	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	必修 18 學分 Core curriculum 18 credits 註：普通生物學及近代生物學二擇一 General Biology、Modern Biology (choose one courses out of the two)
	近代生物學(一)(二) Modern Biology (I)(II)	6		
	生物化學(一)(二) Biochemistry(I)(II)	6		
	分子生物(一)(二) Molecular Biology (I) (II)	6		
	細胞生物學(一) Cell Biology (I)	2	生技系 Department of Biological Science and Technology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	左列課程 至少選 10 學分 At least 10 credits are required
	細胞生物學(二) Cell Biology (II)	2		
	免疫學 Immunology	3		
	微生物學 Microbiology	3		
	結構生物學 Structural Biology	3		
	遺傳學 Genetics	3		
	代謝工程應用於再生能源與材料 Metabolic Engineering for Renewable Fuel and Chemicals	3		
	人體生理學 Human Physiology	3	分醫所 Institute of Molecular Medicine and Bioengineering 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	腫瘤生物學 Oncology	3		
	細菌致病機制 Bacterial Pathogenesis	2		
	高等生物工程 Advanced Bioengineering	2		
	高等分子醫學 Advanced Molecular Medicine	2		
	組織學 Histology	3		

	轉譯醫學：病理學 Translational Medicine: Pathology	2		
	神經工程 Neural Engineering	3	生資所 Institute of Bioinformatics and Systems Biology 或經系課程委員會認定同意 Or be approved by the Curriculum Committee	
	生物機器學習 Machine Learning in Computational Biology	3		
分子醫學與生物工程跨域模組 總學分 Cross-disciplinary modules of Molecular Medicine and Bioengineering at Department of Biological Science and Technology Total Credits		28		