

# 國立交通大學應用數學學系跨域學程實施要點

## National Chiao Tung University

### Department of Applied Mathematics

#### Implementation Guidelines for Cross-Disciplinary Program

- 一、依據國立交通大學跨域學程實施辦法，國立交通大學應用數學學系(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情況下，修畢跨域學程，特訂定本實施要點。

Article One These Implementation Guidelines are prescribed by National Chiao Tung University Department of Applied Mathematics (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 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、依據國立交通大學跨域學程實施辦法，跨域學程係指由交通大學的學系、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 Two The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes or colleges in National Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (with a minimum of 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 Three Implementation objects of these Guidelines

- 1.凡本校 104 學年度(含)之後入學之學士班學生均適用本實施要點。

1. The implementation guidelines are applicable to the students in 104<sup>th</sup> academic year or thereafter.

- 2.本系學生欲修習跨域學程者

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

- (1) 得於大一下學期或大二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 semester of the first year or the second semester of the second year. The department or college of the second specialty that the student would like to apply for must be remarked on the application form, while 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 of our department. Students could only take the cross-disciplinary program after successful evaluation by both sides.

(2) 本系學生修習跨域學程的課程，列示於『應用數學學系跨域學程本系學生必修科目表』，其課程包含:校必修(含共同必修 28 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 (A)” These 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，改修習原本學系的學士學位課程。

(3) 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) 得於大一下學期或大二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 semester of the freshman year or the second semester of the sophomore year. 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 28 學分)，原系基礎必修課程，原系跨域模組課程，以及列示於『應用數學學系跨域模組課程必修科目表』

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應用數學為其跨域專長。

- (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)” with at least 128 graduate credits. Applied Mathematics will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

四、 本系指定一至二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 Four Our department assigned one or two 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.

五、 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 Five 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.

六、 本要點由本系課程委員會訂定，經系務會議通過，依序經院及校課程委員會審查，教務會議核備後實施，修訂時亦同。

Article Seven These guidelines were designated by Curricular Committee at department level and passed at the Department Affair meeting, approved by Curricular Committee at college and university level sequentially then submitted to the Council of Academic Affairs for approval-for-reference before putting it into practice; the same shall be done upon any amendment thereto.

應用數學學系跨域學程本系學生 必修科目表(A)

The Required Course List (A)

for the students in Department of Applied Mathematics applying for cross-disciplinary program.

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
本系基礎必修 (36 學分) Core curriculum at our department (36 credits)	微積分 (一) (二) Calculus(I)(II)	8	應用數學系 Department of Applied Mathematics	必修 Required course
	線性代數 (一) (二) Linear Algebra(I)(II)	6		
	計算機概論 (一) (二) Introduction to Computer Science(I)(II)	6		
	物理 (一) (二) Physics(I)(II)	8		
	分析導論 (一) (二) Introduction to Analysis(I)(II)	8		
	向量微積分 Vector Calculus	3		
本系跨域模組 (30 學分) Cross-disciplinary modules at our department (30 credits)	微分方程 Differential Equations	3		
	偏微分方程導論 Introduction to Partial Differential Equations	3		
	機率論 Probability Theory	3		
	數學軟體實作 Introduction to Practice of Mathematics Software	3		
	代數學 (一) Algebra(I)	3		
	離散數學 Discrete Mathematics	3		
	計算數學 Computational Mathematics	3		
	統計學 Statistics	3		
	複變函數論 Complex Analysis	3		
	他系跨域模組 (28-32 學分) Cross-disciplinary modules at	本校各系所或學院所提供之跨域 模組學程，擇一修畢		

other department ( 28-32 credits )	The cross-disciplinary modules offered by departments or colleges at our university; choose one to complete.		
合計 Total	122- 126	校必修（含共同必修 28 學分 （含外語課程畢修 8 學分）， 至多採計 40 學分） 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)	
最低畢業學分 Minimum Graduate Credits	128		

應用數學學系跨域模組課程 必修科目表(B)

The Required Course List (B)

in cross-disciplinary module curriculum of Applied Mathematics

for the students of other departments

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
<p>本系跨域模組 (29 學分) Cross-disciplinary modules at our department (29 credits) 修畢於畢業證書加註『跨域專長：應用數學』 It could be remarked as “Cross-Disciplinary Specialty: Applied Mathematics” on the diploma after the module curriculum is completed.</p>	分析導論 (一) (二) Introduction to Analysis(I)(II)	8	應用數學系 Department of Applied Mathematics	必修 Required course
	線性代數 (一) Linear Algebra(I)	3		<p>12 棵至少選修 7 科 At least 7 of the 12 courses should be completed</p>
	線性代數 (二) Linear Algebra(II)	3		
	代數學 (一) Algebra(I)	3		
	代數學 (二) Algebra(II)	3		
	微分方程 Differential Equations	3		
	偏微分方程導論 Introduction to Partial Differential Equations	3		
	機率論 Probability Theory	3		
	向量微積分 Vector Calculus	3		
	離散數學 Discrete Mathematics	3		
	計算數學	3		

	Computational Mathematics			
	統計學 Statistics	3		
	複變函數論 Complex Analysis	3		
總學分 (29 學分) Total Credits (29 credits)				