

# 國立交通大學奈米科學及工程學士學位學程跨域學程實施要點

## National Chiao Tung University Cross-disciplinary Program Implementation Guidelines for Undergraduate Honors Program of Nano Science and Engineering

105.06.20 一〇四學年第二學期第三次學位學程會議通過  
105.09.23 一〇五學年第一次工學院課程會議通過  
Endorsement by departmental affairs council on Jun., 20 nd, 2016  
Passed by institutional curriculum committee on Sep., 23th, 2016

一、依據國立交通大學跨域學程實施辦法，國立交通大學「奈米科學及工程學士學位學程」（簡稱奈米學士班，下稱本班）課程規劃以跨領域學習為主軸，為鼓勵學生再建立及增加跨域學習深度，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，特訂定本實施要點。

1. The guidelines are set up for Undergraduate Honors Program of Nano Science and Engineering (hereinafter refer to as Our Undergraduate Honors Program) of National Chiao Tung University in accordance with NCTU Cross-disciplinary Program Implementation Regulations. These guidelines provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits (or only a few extra credits) as well as encourage students to conduct cross-disciplinary studies, build the depth of cross-disciplinary studies, and assist students to expand second specialties.

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29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。

2. The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by departments, institutes or colleges of NCTU. In general, module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 29 credits (however 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 are from (hereinafter refer to the original department) 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

3. Article Three Implementation objects of these Guidelines

1. 凡本校在學學生均適用本實施要點。

3.1 These Rules apply to all bachelor program students admitted by NCTU.

2. 本班學生欲修習跨域學程者：

3.2 Students of our Undergraduate Honors Program who would like to study for cross-disciplinary program

- (1) 得於大二下學期或大三下學期向本班提出申請，申請案經本班學位學程委員會審查通過後，需送到第二專長學系或學院審查，通過雙邊審查後，方可進入跨域學程。
- 3.2.1 Students can submit their applications with the department or college of the second specialty they wish to apply in the 2<sup>nd</sup> semester of sophomore or junior year. The application shall be submitted to the department or college of the second specialty for review after being verified by curriculum committee of our Undergraduate Honors Program; students can only enroll in the cross-disciplinary program once they pass both reviews.
- (2) 本班學生修習本班跨域學程的課程，列示於『奈米科學及工程學士學位學程 跨域模組課程 必修科目表』，其課程包含：校必修(含共同必修28學分)，本班基礎必修課程，本班跨域模組課程，以及第二專長學系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130學分為原則。他系跨域模組課程認定為跨域專長，於畢業證書本班名稱後加註此跨域專長。
- 3.2.2 Curriculum of cross-disciplinary program for students from our Undergraduate Honors Program is listed in “Compulsory courses list of cross-disciplinary program for students from Undergraduate Honors Program of Nano Science and Engineering”. The curriculum must include compulsory courses at the university (including 28 credits of common compulsory), core curriculum of our Undergraduate Honors Program, cross-disciplinary program module curriculum of our Undergraduate Honors Program, and the cross-disciplinary program module curriculum of the second specialty department or college (hereinafter refer to as cross-disciplinary program module curriculum of other departments). The graduate credit needed for this cross-disciplinary program is at the basis of 130 credits. The module curriculum of the cross-disciplinary program of other departments will be recognized as cross-disciplinary specialty and be remarked on the diploma after the original department.
- (3) 本班學生修習跨域學程，若無法修畢跨域學程課程，得選擇放棄跨域學程，改修習本班的學士學位課程。
- 3.2.3 If the student from our Undergraduate Honors Program is not able to finish his/her cross-disciplinary program, students could give up this program and take the undergraduate honors program of the original department instead.
3. 外系學生欲修習跨域學程且選擇本班做為其跨域專長者
- 3.3 For students from other departments who would like to study for cross-disciplinary program and choose our Undergraduate Honors Program 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，通過原系以及本班的雙邊審查後，方可進入跨域學程。
- 3.3.1 Students can submit application to the department they are from (hereinafter refer to the original department) in the 2<sup>nd</sup> semester of freshman or sophomore year; students can only enroll in the cross-disciplinary program after they pass both reviews of the original department and our Undergraduate Honors Program.
- (2) 外系學生修讀跨域學程且選擇本班做為其跨域專長者，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『奈米科學及工程學士學位學程 跨域模組課程 必修科目表』的模組課程，畢業學分以130學分為原則，並於畢業證書原系名稱後加註奈米科技為其跨域專長。

3.3.2 For students from other departments who would like to study for cross-disciplinary program and choose our Undergraduate Honors Program as their cross-disciplinary specialty, the curriculum must include compulsory courses at the university (including 28 credits of common compulsory), core curriculum of the original department, cross-disciplinary module curriculum of the original department, and module curriculum listed in “Compulsory courses list of cross-disciplinary module curriculum for Undergraduate Honors Program of Nano Science and Engineering”. The graduate credit needed for this cross-disciplinary program is at the basis of 130 credits and Nano Technology could be remarked as “cross-disciplinary specialty” on the diploma after the original department.

四、 本班指定一名學程委員擔任跨域學程導師，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。

4. Our Undergraduate Honors Program assigns a full-time faculty member as the mentor of cross-disciplinary program and form mentor groups with mentors from cross-disciplinary program of original departments or colleges to give guidance to the students in this program.

五、 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，得依本校教師授課鐘點核計原則第9條第6款規定，教師的授課鐘點數可按到場時數計，但以開課前該門課程實際簽呈為依據。

5. 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 Subparagraph 6, Article 9 of National Chiao Tung University Teaching Hours Accounting Principle; however, it will be in accordance with the official approval of the curriculum before the course starts.

六、 本實施要點如有未盡事宜，悉依本校學則及其他相關規定辦理。

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

七、 本要點由學位學程委員會議制訂，並經校級課程委員會通過後提教務會議核備後實施，修訂時亦同。

7. The guideline is approved by school-level curriculum committee and submitted to Academic Affairs Meeting for approval reference before putting it into practice, and shall do the same upon any amendment thereto.

『奈米科學及工程學士學位學程 跨域模組課程 必修科目表』

**Cross-disciplinary Program for Students from Undergraduate Honors  
Program of Nano Science and Engineering Compulsory Courses List (A)**

類別 Category	科目名稱 Course Title	學分 Credit	備註 Remarks
本班基礎必修 (44 學分) Fundamental Compulsory Course of Our Undergraduate Honors Program (44 credits)	物理(一)(二) Physics	8	
	物理實驗(一)(二) Physics Labs.	2	
	化學(一)(二) Chemistry	6	
	化學實驗 Chemistry Labs.	1	
	微積分(一)(二) Calculus	8	
	奈米與生涯規劃 Nano and Career Planning	0	
	線性代數 Linear Algebra	3	
	普通生物實驗 General Biology Lab.	1	
	服務學習(一) Service Learning	0	
	服務學習(二) Service Learning	0	
	有機化學(一)(二) Organic Chemistry	6	
	電子學(二) Electronics(II)	3	
	電磁學(一)(二) Electromagnetics	6	
	本班跨域模組 (29 學分) 2 學分為自由選修 Cross-disciplinary Module of Our Undergraduate Honors Program (29 credits) 2 credits from chosen elective courses	微分方程 Differential Equations	3
普通生物學 General Biology		3	
材料科學與工程導論 Introduction to Materials Science and Engineering		3	
電子學(一) Electronics( I )		3	
電子實驗 Electronics Labs.		1	
近代物理 Modern Physics		3	
奈米科技導論 Int. to Nano Science		3	
奈米材料簡介 Int. to Nanostructured Materials		3	
生物化學(一)(二) Biochemistry		4	
奈米科學與工程實驗 Nano science and engineering Lab.		1	
彈性修讀：自由選修 Free electives:chosen elective courses		2	
他系跨域模組 (29 學分) Cross-disciplinary Module of Other Departments(29credits)	本校各系所或學院所提供之跨域 模組學程，擇一修畢 Select one cross-disciplinary module program provided by any department or college of NCTU.	29	
最低畢業學分(合計) Minimum Credits for Graduation		130	

註 1：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 28 學分以上，本校至多可採至 40 學分於最低畢業學分內，但各學系另有規定者，從其規定。

#### Remarks

1. 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 28 credits, our university could calculate 40 credits to the minimum graduate credits; please follow the regulations from each department if it is specially defined.