

Department of Mathematics,

Guideline for graduation (for students admitted after 2020)

1.The number of credits for graduation shall be no less than 128 credits, which include										
(1) general education	28		Credits							
(2) required for the major	44		Credits							
(3) required for the elective major	15		Credits							
(4) elective for the major	20		Credits							
(5) free elective	21		Credits							
2.The curriculum			1		2		3		4	
(I)General education 28 credits			1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd
Ability of Chinese/English course:										
Chinese Language Knowledge and Application (4 credits of the subtotal courses)			2	2						
English ability training (4 credits of the subtotal courses)			2	2						
Others: Please choose at least a course from Liberal Arts general education 1,2,3,4,5. The rest of the credit is allowed to study computer-ability course, Basic theory course or courses of any degree of Liberal Arts general education.			<p style="margin: 0;">Check out Guideline for Studying General Education of National Chung Cheng University</p> <p style="margin: 0;">★ Nor can you select Basic Theory Course set by this department, nor select the courses this department not allowed in the sheet of the general courses each department not allowed.</p> <p style="margin: 0;">★ Check out the regulation of Study P.E subject of National Chung Cheng University.</p>							
◎ Social service learning course (0 credits of the subtotal courses)										
Students shall serve social service at least 16 hours and attend 2 times of Service-Learning Lecture.										
(II)Required courses for the major 44 credits										
Calculus (I) (II) (8 credits)			4	4						
General physics (I) (II) (6 credits)		2 chose 1	3	3						
Principle of Economics (I) (II) (6 credits)			3	3						
Introductory Mathematics (3 credits)			3							

Programming Languages (3 credits)	3							
Linear Algebra (I) (II) (6 credits)		3	3					
Advanced Calculus (I) (II) (8 credits)			4	4				
Introduction to Probability (3 credits)			3					
Algebra (4 credits)				4				
Geometry (3 credits)				3				

(III) Required for the elective major 15 credits

Introduction to Ordinary Differential Equations (3 credits)

Introduction to Numerical Analysis (3 credits)

Theory and Practice in Mathematical Modeling (3 credits)

Statistical Science (3 credits)

Statistical Methods (3 credits)

Statistical Inference (3 credits)

Algebra (II) (3 credits)

Modern Algebra (I) (3 credits)

Topology (3 credits)

Complex Analysis (I) (3 credits)

(IV). Elective courses for the major 20 credits

To fulfill your elective courses for the major, meet one of the following conditions:

1. The Students must take at least 20 credits among courses of our department (including M.S. degree program in Mathematics, M.S. degree program in Applied Mathematics, or M.S. degree program in Statistical Sciences) and who selects General physics (I) and (II) for the major and still takes Principle of Economics (I) or Principle of Economics (II) are allowed to become elective course for the major at most 3 credits, and who selects Principle of Economics (I) and Principle of Economics (II) for the major and still takes General physics (I) or (II) are allowed to become elective course for the major at most 3 credits.
2. The 20 units must include at least 12 units of credits among required courses of 2nd grade or above of other departments and at least 8 of credits among courses of our department (including M.S. degree program in Mathematics, M.S. degree program in Applied Mathematics, or M.S. degree program in Statistical Sciences).

(V) Free elective courses 21 credits

1. Overloaded professional required courses may be counted into credit of free selective courses when professional selective courses are fulfilled.
2. Basic English course set up by Language center may be counted into credit of free selective, but up to 6 unit of credits.

3. Courses among teacher education program may be counted into credit of free selective when the student who fails to finish the program, but up to 6 units of credits.
4. Overloaded General education courses may not be counted into credit of graduation.
5. The General education courses not allowed for our department or our college may not be counted into credit of graduation.
6. The selective credit of Military training (Nursing) course or P.E course may be counted into credit of free selective, but up to 1 unit of credit each semester.
7. The dual major student who takes required courses and selective courses of other department may be counted into credit of free selective credit in our department.
8. The Students who finish Applied Mathematics Courses (as table A below), Statistics Science Courses (as table B below), Physical sciences Courses (as table C below), Computer Science Courses (as table D below), or Management science Courses (as table E below) planned by the department will be issued the certificate of course completion.

A. Applied Mathematics Courses

Compulsory Subject (At least 6 units of credit)	Elective Subject (At least 12 units of credit)	
Introduction to Ordinary Differential Equations (I)	Optimization Methods	Introduction to Operations Research
	Statistical Methods	Complex Analysis (I)
Introduction to Numerical Analysis	Introduction to Partial Differential Equations	Introduction to Linear Programming
	Introduction to Applied Mathematics	Introduction to Applied Mathematics
Theory and Practice in Mathematical Modeling	Elementary Number Theory	Topic in Modern Mathematics (II)
	Numerical Ordinary Differential Equations	
	Introduction to Numerical Linear Algebra or Numerical Linear Algebra	

B. Statistics Science Courses

Compulsory Subject (At least 6 units of credit)	Elective Subject (At least 12 units of credit)	
Statistical Science	Mathematical Statistics	Stochastic Processes
	Computational Statistics	Experimental design
Statistical Methods	Econometrics	Multivariate Methods
	Statistical Computing Languages and Software	Statistical Consultation
	Regression Analysis	
Statistical Inference		

C. Physical sciences Courses

Compulsory Subject (At least 6 units of credit)	Elective Subject (At least 12 units of credit)	
Introduction to Ordinary Differential Equation (I)	Theoretical Mechanics	Fundamental of Mathematical Physics
	Quantum Physics	Experiments on Fundamental Physics
Introduction to Numerical Analysis	Advanced Techniques in Modern Experiments	Modern Physics
	Geophysics	Environmental Ecology
Complex Analysis (I)	Earthquakes	Geophysical Exploration
	Physical Chemistry Laboratory	Engineering Mathematics
	Electricity and Magnetism	Optics

D. Computer Science Courses

Compulsory Subject (At least 6 units of credit)	Elective Subject (At least 12 units of credit)	
Introduction to Numerical Analysis	Program Design	Object-Oriented Programming
Introduction to Linear Programming	Introduction to Algorithms	Assembly Language
Elementary Number Theory	Discrete Mathematics	Data Structure
	Systems Programming	Computer Organization
	Introduction to Information Science	

E. Management science Courses

Compulsory Subject (At least 6 units of credit)	Elective Subject (At least 12 units of credit)	
Statistical Inference	Principle of Economics	Managerial Economics
	Public Finance	Money and Banking
Statistical Science	Econometrics	Investments
	Microeconomics	Accounting
	Macroeconomics	Intermediate Accounting
Statistical Methods	Introduction to Management Sciences	Financial Management
	Financial Markets and Institutions	Futures and Options