

**Course Structure for M.A. Program**  
**GPE, Department of Mathematics**  
**National Taiwan Normal University**

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
110	3.0	24.0	0.0	27.0

Note: The first alphabet "E" on the course name refers to the course in English as a medium of instruction

### I. Required Courses: 3.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
MAC8028	1 E Trend of Mathematics Research	1.0	1.0	0.0	This course must be retaken with a passing score for 3 times

### II. Elective Courses: 0.0 credit is required

Master courses are form six divisions: Analysis, Algebra, Geometry, Applied mathematics, Statistics, and Math. education.

### III. Courses Offered to Students in Different Divisions

Required Course, 0.0 credit is required

Elective Course: 24.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
<b>1 Elective courses of the Mathematical analysis</b>					
MAC0084	1-1 E Topics in Convex Analysis	3.0	3.0	0.0	
MAC0193	1-2 E Topics in Nonlinear Analysis(I)	3.0	3.0	0.0	
MAC0194	1-3 E Topics in Nonlinear Analysis(II)	3.0	3.0	0.0	
MAC0197	1-4 E Geometric Measure Theory(I)	3.0	3.0	0.0	
MAC0198	1-5 E Geometric Measure Theory(II)	3.0	3.0	0.0	
MAC8026	1-6 E Topics in Geometric Measure Theory (I)	3.0	3.0	0.0	
MAC8027	1-7 E Topics in Geometric Measure Theory (II)	3.0	3.0	0.0	
<b>2 Elective courses of the Geometry</b>					
MAC0146	2-1 E Topics on Geometric Analysis (I)	3.0	3.0	0.0	
MAC0147	2-2 E Topics on Geometric Analysis (II)	3.0	3.0	0.0	
MAC0177	2-3 E Differential Manifolds(I)	3.0	3.0	0.0	
MAC7001	2-4 E Riemannian Geometry (I)	3.0	3.0	0.0	
MAC7002	2-5 E Riemannian Geometry (II)	3.0	3.0	0.0	
MAC8003	2-6 E Modern Differential Geometry (I)	3.0	3.0	0.0	
MAC8004	2-7 E Modern Differential Geometry (II)	3.0	3.0	0.0	
MAC8010	2-8 E Topics in Differential Geometry (I)	3.0	3.0	0.0	
MAC8011	2-9 E Topics in Differential Geometry (II)	3.0	3.0	0.0	
MAC8019	2-10 E Geometry and Topology (I)	3.0	3.0	0.0	
MAC8020	2-11 E Geometry and Topology (II)	3.0	3.0	0.0	
<b>3 Elective courses of the Applied mathematics</b>					
MAC0081	3-1 E Topics in Optimization Theory (I)	3.0	3.0	0.0	
MAC0082	3-2 E Topics in Optimization Theory (II)	3.0	3.0	0.0	
MAC0086	3-3 E Topics in Complementarity Problems	3.0	3.0	0.0	
MAC0143	3-4 E Nonlinear Programming (I)	3.0	3.0	0.0	
MAC0144	3-5 E Nonlinear Programming (II)	3.0	3.0	0.0	
MAC0003	3-6 E Advanced Operation Research	3.0	3.0	0.0	
MAC9022	3-7 E Image Processing and Analysis (I)	3.0	3.0	0.0	
MAC9023	3-8 E Image Processing and Analysis (II)	3.0	3.0	0.0	
MAC9025	3-9 E Combinatorics Mathematics (IB)	3.0	3.0	0.0	
MAC9040	3-10 E Mathematical Models in Epidemiology	3.0	3.0	0.0	
<b>4 Elective courses of the Statistics</b>					
MAC9026	4-1 E Regression Analysis (IB)	3.0	3.0	0.0	
<b>5 Elective courses of the Mathematics education</b>					
MAC0025	5-1 E Research on Mathematical Thinking and Process (I)	3.0	3.0	0.0	
MAC0026	5-2 E Research on Mathematical Thinking and Processes (II)	3.0	3.0	0.0	
MAC0103	5-3 E Comparative Studies in Mathematics Education	3.0	3.0	0.0	
MAC0191	5-4 E Topics in Mathematics Education(I)	3.0	3.0	0.0	
MAC0192	5-5 E Topics in Mathematics Education(II)	3.0	3.0	0.0	
MAC9027	5-6 E Problem-Solving in Mathematical Teaching (I) (IB)	3.0	3.0	0.0	
MAC9028	5-7 E History of Mathematics (IB)	3.0	3.0	0.0	
MAC9036	5-8 E English Language of Mathematics Teaching	2.0	2.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
MAC9041	5-9 E Teaching Practicum: Mathematics (II) (IB)	2.0	2.0	0.0	

IV. Free Elective Credits: 0.0 credit is required