

The Undergraduate Program for the Department of Applied Mathematics (Jurisdiction Clause for 99 Academic-year Entering Freshmen)

99.01.06 Passed at the Department Curriculum Committee Meeting

99.01.14 Passed at the College Curriculum Committee Meeting

99.03.09 Passed at the University Curriculum Committee Meeting

99.04.20 Passed at the Academic Affairs Meeting

I. Development Policies and Characteristics

The main purpose of the Department of Applied Mathematics is to cultivate professionals who possess computing, computer and mathematical analysis skills. The department offers both bachelor's and master's degree programs. Our programs emphasize not only the learning and application of professional knowledge of mathematical science, but also the cultivation of rigorous working attitude and personal morality.

The curriculum planning and design of our department underlie theory, implementation and applications. To follow the development trends of national and global science and technology, we offer courses in the three main areas: computational science, probability and statistics and information science. There are computer classrooms and labs established in our department that are intended to support the implementation requirements of various courses and to provide students and teachers with excellent and diverse learning, teaching and research environments.

The teaching and research of our department can be divided into three main groups: computational science, probability and statistics and information science. The departmental teaching covers the following areas (our major research directions): micro and nano computing, digital information content, applied computer software components, biology statistics, industry statistics design of experiments and quality control. The future goals of the department are to develop and integrate interdisciplinary technologies, to strengthen technology transfer, and to improve industrial and technological cooperation.

II. Course Objectives

1. Our students have information processing and the mathematical analysis

knowledge ability.

2. Our students can establish the computation technology and the information science and technology ability.
3. Our students can strengthen team cooperation and specialized question solution ability.
4. Our students are trained to have the perfect person to develop with the citizen basic accomplishment.

III. Targets of Basic Core Abilities

1. Knowledge and Ability: Our students can deal with information properly. They also have plenty of knowledge of science and possess the ability of calculating.
2. Technical Skills: Our students are capable of executing and verifying experiments, which include collecting, maintaining, managing and analyzing data.
3. Creative Thinking: Our students acquire the abilities of analyzing, designing and executing. Besides, independent thinking and integrated creativity toward solving problems are also possessed.
4. Self-realization: Our students are trustworthy, diligent, honest, and practical. By these distinguishing characteristics and their technical skills, our students prove themselves.
5. Collaboration: Our students can organize, consult and communicate with others. Identification among instructors and the same generation is acquired by cooperating with co-workers in dealing with problems.
6. Learning: Our students are well aware that learning is essential for the life.
7. Social Moralities: Our students have the humanities, enterprise morality and the capacity for concerning about the society.
8. Global Vision: Our students are capable of assimilating the latest knowledge of modern science such that they can face the variation in the multiplex open society

1 st year			
Courses	Subject Name	Fall	Spring
General Requirement Courses	Chinese(I)	2	
	Chinese(II)		2
	English(I)	2	
	English(II)		2
	History, Geography and Culture	2	
	Constitution & Government		2
	Physical Education	(0) 2	(0) 2
	Military Training	(0) 2	(0) 2
	Learning by service	(0) 2	(0) 2
	Courses of General Education	2	2
	Sub-total	8	8
Professional Requirement Courses	Introduction to Computer Science	3	
	General Physics (I)	3	
	General Physics Laboratory (I)	1	
	Set Theory	3	
	Calculus (I)	4	
	Linear Algebra (I)	3	
	General Physics (II)		3
	General Physics Laboratory (II)		1
	Design of Programming		3
	Calculus (II)		4
	Linear Algebra (II)		3
	Discrete Mathematics(I)		3
	Sub-total	17	17
Total	25	25	

2 nd year			
Courses	Subject Name	Fall	Spring
General Requirement Courses	English(III)	2	
	Chinese(III) : Chinese Practical Writing		2
	Physical Education	(0) 2	(0) 2
	Courses of General Education	2	4
	Sub-total	4	6
Professional Requirement	Abstract Algebra (I)	3	

Courses	Advanced Calculus (I)	4	
	Probability Theory	3	
	Advanced Calculus (II)		4
	Differential Equations(I)		3
	Sub-total	10	7
Selective Courses	Introduction to Mathematics Education	2	
	Data Structures (I)	3	
	Statistics (I)		3
	Development of Mathematics Curriculum		3
	Abstract Algebra (II)		3
	Sub-total	5	9
Total		19	22

3rd year			
Courses	Subject Name	Fall	Spring
General Requirement Courses	Courses of General Education	2	2
	Sub-total	2	2
Professional Requirement Courses	Numerical Analysis (I)	3	
	Sub-total	3	0
Selective Courses	A Preliminary Course to Interval Computation	3	
	Design of Mathematics Instruction	2	
	Complex Analysis (I)	3	
	Multimedia Designs and Applications (I)	3	
	Information Security	3	
	Mathematical Programming(I)	3	
	Introduction to Partial Differential Equations		3
	Numerical Analysis (II)		3
	Learning & Assessment of Mathematics		2
	Multimedia Designs and Applications (II)		3
	Mathematical Programming(II)		3

	Mathematical Statistics		3
	Sub-total	17	17
Total		22	19

4th year			
Courses	Subject Name	Fall	Spring
Professional Requirement Courses	Project on Mathematics	1	
	Sub-total	1	0
Selective Courses	Insurance Mathematics(I)	3	0
	Geometry (I)	3	
	Topology	3	
	Real Analysis	3	
	Insurance Mathematics(II)		3
	Geometry (II)		3
	Operating Systems		3
	Stochastic Processes		3
	Sub-total	12	12
Total		13	12

Others

Subject Name	Credits
Introduction of Applied Geometric Software	2
MatlabFundamental Mathematics Using Matlab	3
Discrete Mathematics(II)	3
Geometric Design	3
Computer-Aided Geometric Design	3
Computer Graphics	3
Data Strucrure (II)	3
Coding Theory and Cryptography	3
Econometrics (I)	3
Quantitative Research and Statistical Analysis (I)	3
Vector Analysis	3
Statistics (II)	3
Assembly Language	3
Modern Calculus	3
Differential Equations(II)	3
Introduction to Convex Analysis	3

Object Oriented Programming Design	3
Animation Design and Applications	3
Introduction to Micro and Nano Computing	3
Game Theory	3
Biology Statistics	3
Econometrics (II)	2
Regression Analysis	3
Quantitative Research and Statistical Analysis (II)	2
C-XSC Programming for Interval Computation	3
Introduction to Dynamical Systems	3
Theory and Practice in Micro and Nano Computing	3
History of Mathematics	3
Queue Theory	3
Windows Programming Design	3
Mathematics Software	3
Quality Control	3
Time Series Analysis	3
Design of Experiments	3
Medical Statistics	3
Analysis of Variance	3
Topics in Statistics	3
Topics in Analysis	2
Special Topics in Mathematics Education	2
Complex Analysis (II)	3
Seminar in Computer Science	2
Topics in Numerical Computation	2
Topics in Mathematics Education	2
Topics in Applied Mathematics	2
Multivariate Analysis	3
Total	129