

Course Requirements

□ Undergraduate Program

General Course			Basic Course			Major Course			Research	Elective Course	Total
Mandatory	Elective	Subtotal	Mandatory	Elective	Subtotal	Mandatory	Elective	Subtotal			
7(8AU)	21	28(8AU)	23	9	32	0	40	40	3	27	130

A. Graduation Credits: At least 130 credits in total

B. General Course Requirements : At least 28 credits and 8 AU

○ Mandatory General Courses: 7 credits and 8 AU

- Students who entered the KAIST in or before 2006

· "English I," "English II," and "Writing" : 7 credits

· 4 AU of "Community Service"(64 hours), 4 AU of "Physical Education"(64 hours) : 8 AU

- Students who enter the KAIST in or after 2007

· "English Communication I", "English Communication II", "English Reading & Writing", and "Writing" : 7 credits

· 2 AU of "Community Service"(32 hours), 4 AU of "Physical Education"(64 hours), 2 AU of "Humanity/Leadership": 8 AU

※ AU is not counted for GPA but required for graduation.

Note: AU means 1 hour activity/work a week for a semester

○ Elective General Courses in Humanities and Social Science: At least 21 credits

- One course from each of 5 tracks (15 credits): Science Technology; Literature and Art; History and Philosophy; Social Science; Foreign Language and Linguistics (second foreign language)

- The remaining courses can be chosen from any of the five tracks.

C. Basic Course Requirements : At least 32 credits.

○ Mandatory Basic Courses: 23 credits (choose from the following list)

① Choose one of Fundamental Physics I (3), General Physics I (3), or Advanced Physics I (3)

② Choose one of Fundamental Physics II (3), General Physics II (3), or Advanced Physics II (3)

③ 1 course of General Physics Lab I (1)

④ Choose either Basic Biology (3) or General Biology (3)

⑤ Choose either Calculus I (3) or Honors Calculus I (3)

⑥ Choose either Calculus II (3) or Honors Calculus II (3)

⑦ Choose one of Basic Chemistry (3), General Chemistry I (3), or Advanced Chemistry (3)

⑧ Choose either General Chemistry Lab I (1) or Honors Chemistry Lab (1)

⑨ Choose either Basic Programming (3) or Advanced Programming (3)

○ Elective Basic Courses: At least 9 credits including at least two courses from MAS109, MAS201, MAS202

D. Major Course Requirements : At least 40 credits.

○ Must include 4 courses selected from the following courses:

Linear Algebra (3), Analysis I (4), Modern Algebra I (4), Introduction to Differential Geometry (4),

Topology (4), Complex Variables (3), Probability and Statistics (3)

○ A maximum of 12 credits may be taken in major courses from other departments.

(Credits applied to any other minor or double major can not be applied again)

○ Semiminors (Optional)

- If at least four courses on the list below are completed, 'Semiminor in Financial Mathematics' is written in

the transcript:

Mathematical Statistics, Introduction to Numerical Analysis, Introduction to Financial Mathematics,

Lebesgue Integral Theory, Computer Simulations in Financial Mathematics

- If at least four courses on the list below are completed, 'Semiminor in Applied Mathematics' is written in

the transcript:

Applied Mathematics and Modeling, Elementary Probability Theory, Mathematical Statistics,
Introduction to Numerical Analysis, Optimization Theory, Introduction to Partial Differential
Equations

- If at least four courses on the list below are completed, 'Semiminor in Information Mathematics' is
written

in the transcript:

Discrete Mathematics, Modern Algebra II, Mathematical Statistics, Information Mathematics,
Introduction to Cryptography

- If semiminor requirements are met for more than one, then only one semiminor of the student's choice is
written in the transcript.

E. Research Courses: At least 3 credits including 3 credit hours of graduation research

F. Elective Courses : At least 27 credits

G. English Language Requirements

○ One of the following requirements should be satisfied before graduation, and preferable before entering
KAIST

- PBT TOEFL score: At least 560

- CBT TOEFL score: At least 220

- iBT TOEFL score: at least 83

- TOEIC score: At least 760

- TEPS score: At least 670

※ A student who is pursuing a major in another department may complete a second major in the Department by
successfully completing all of the required major courses.

(Credits applied to the first major can not be used again)

※ A minor may be completed by a student with a major in another department by earning at least 18 credits
among the courses offered by the Department.

□ Master's Programs

1) Thesis Master's Degree

General Course	Major Course		Research	Total
	Mandatory	Elective		
3	0	21	12	36

A. Graduation Credits: at least 36 credits

B. General Course Requirements: 3 credits

○ One course (3 credits) from CC500, CC510, CC511, CC513, CC530

○ Leadership Class (CC010), for which credits are not granted, but which is a required course for those
students who entered during the 2002 academic year or later. (This requirement does not apply to general
scholarship students and foreign students)

C. Major Course Requirements (Elective): at least 21 credits

Must include 4 courses selected from the following 8 courses:

Algebra I, Differential Geometry I, Algebraic Topology I, Real Analysis, Complex Function Theory,
Probability Theory, Advanced Statistics, Numerical Analysis

D. Research Course Requirements: at most 12 credits, including 1 credit for MAS966 seminar and 1 credit for
MAS967 'How to Teach Mathematics I.'

2) Coursework Master's Degree

General Course	Major Course		Research	Total
	Mandatory	Elective		
3	0	30	3	36

A. Graduation Credits: at least 36 credits

- B. General Course Requirement: at least 3 credits
 - One course (3 credits) from CC500, CC510, CC511, CC513, CC530
 - Leadership Class (CC010), for which credits are not granted, but which is a required course for those students who entered during the 2002 academic year or later. (This requirement does not apply to general scholarship students and foreign students)
- C. Major Course Requirements (Elective): at least 30 credits
 Must include 4 courses selected from the following 8 courses:
 Algebra I, Differential Geometry I, Algebraic Topology I, Real Analysis, Complex Function Theory, Probability Theory, Advanced Statistics, Numerical Analysis
- D. Research Course Requirements: at most 3 credits, including 1 credit for MAS966 seminar and 1 credit for MAS967 'How to Teach Mathematics I.'

□ Doctoral Program

General Course	Major Course		Research	Total
	Mandatory	Elective		
3	0	39	30	72

- A. Graduation Credits: at least 72 credits
- B. General Course Requirements: 3 credits (those students who completed the required common courses in the master's program do not need to repeat them)
 - One course (3 credits) from CC500, CC510, CC511, CC513, CC530
- C. Major Course Requirements (Elective): at least 39 credits
 Must include 4 courses selected from the following 8 courses:
 Algebra I, Differential Geometry I, Algebraic Topology I, Real Analysis, Complex Function Theory, Probability Theory, Advanced Statistics, Numerical Analysis
- D. Research Course Requirements: at least 30 credits, including 2 credits for MAS986 seminar and 1 credit for MAS967 'How to Teach Mathematics I.'
 - Students who have taken MAS967 in the master's program may omit it in the Ph.D. program.
 - ※ Credits(for general courses and major courses) earned in the master's program can be included in the doctoral program.
 - ※ If course A can be replaced by course B, then only one of A and B should be taken.

□ Interim Accommodations

- A. Undergraduate Course
 - These requirements apply to all students of Department of Mathematical Sciences from 2007 academic year. Those who are students of Division of Mathematics or Division of Applied Mathematics before 2006 may choose to follow the then requirements.
 - Those who are students of Division of Applied Mathematics in December 2006 and are graduating by February 2008 may have 'Semiminor in Applied Mathematics' written on their transcript.
 - If more than one mutually replaceable courses of Mathematical Sciences are taken before 2006, then only one of them is counted in major course requirements and the rest are counted as elective courses.
 - Students entering during the 2001 academic year or later must fulfill the research course requirement by taking graduation, seminar, or individual research. Those entering during the 2000 academic year or earlier may substitute credits from major I courses for the research course requirement.
 - Certain courses existing prior to the 2007 academic year may be substituted for courses in the current curriculum as described below:
 AM320 → MAS364
 AM222 → CS202
 AM451 → IE332
 AM453 → EE321

AM455 → MAS455

- Certain courses existing prior to the 1999 academic year may be substituted for courses in the current curriculum as described below:

MA201 Applied Mathematics I → MAS201 Differential Equations and Applications

MA202 Applied Mathematics II → MAS202 Applied Mathematical Analysis

MA241 Advanced Calculus I → MAS241 Analysis I

MA242 Advanced Calculus II → MAS242 Analysis II

MA441 Real Analysis I → MAS441 Lebesgue Integral Theory

- MA240 Differential Equations may be substituted for MAS201 Differential Equations and Applications for those students who entered school prior to the 1999 academic year.

B. Master's and Doctoral Programs

- These requirements apply to all students of Department of Mathematical Sciences from 2007 academic year. Those who are students of Division of Mathematics or Division of Applied Mathematics before 2006 may choose to follow the then requirements.

- Those who are PhD students of Division of Mathematics in December 2006 and have earned 2 credits for MA966 may omit MA986.

※ Request for other changes and accommodations must be approved by the department.