

## Course Requirements

### □ Undergraduate Program

General Course			Basic Course			Major Course			Elective Course	Research	Total
Mandatory	Elective	Subtotal	Mandatory	Elective	Subtotal	Mandatory	Elective	Subtotal			
7 (8 AU)	21	28 (8 AU)	23	9	32	16	24	40	27	3	130

#### A. Graduation Credits

At least 130 credits in total

#### B. General Courses: At least 28 credits.

- 1) Mandatory General Courses: 7 credits and 8 AU ("AU" stands for "activity unit." 1 AU corresponds to 1 hour activity/work per week during the period of a semester)
  - English I, English II, Writing Course : 7 credits
    - ※ The student who enter school with high TOEFL score can transfer it to credits for English I or II
  - AU is not counted for GPA but required for graduation.
- 2) Elective General Courses in Humanities & Social Science : at least 21 credits (at least 7 courses)
  - Take at least 1 course in each of the 5 divisions: Science and Technology; Literature and Art; History and philosophy; Social Science; Foreign Language and Linguistics (including secondary foreign languages).

#### C. Basic Courses: At least 32 credits.

- 1) Mandatory Basic Courses: 23 credits
 

Take 1 course from each of the following course groups:

  - ① 1 course: Fundamental Physics I (3), General Physics I (3), or Advanced Physics I (3)
  - ② 1 course: Fundamental Physics II (3), General Physics II (3), or Advanced Physics II (3)
  - ③ 1 course of General Physics Lab. I (1)
  - ④ 1 course of Basic Biology (3) or General Biology (3)
  - ⑤ 1 course of Differential & Integral I (3) or Advanced Differential & Integral I (3)
  - ⑥ 1 course of Differential & Integral II (3) or Advanced Differential & Integral II (3)
  - ⑦ 1 course: Basic Chemistry (3), General Chemistry I (3) or Advanced Chemistry (3)
  - ⑧ 1 course of General Chemistry Lab. I (1) or Advanced Chemistry Lab. II (1)
  - ⑨ 1 course of Basic Programming (3) or Advanced Programming (3)
- 2) Elective Basic Courses: at least 9 credits including MA201.

#### D. Major Courses: at least 40 credits.

- 1) Mandatory Major Courses: 16 credits
 

Matrix Computation and Numerical Methods (AM220), Analysis I (AM241). Probability, Statistics and Their Applications (AM250), Algorithms for Scientific Computation (AM320), Applied Complex Analysis (AM343).
- 2) Elective Major Courses: at least 24 credits.
 

Up to 4 in the following courses are accepted as Elective major courses:

  - ① From Mathematics: Discrete Mathematics (MA 260), Modern Algebra I (MA 311), Intro to Differential Geometry (MA 321), Topology (MA 331).
  - ② From Physics: Mathematical Methods in Physics I (PH 211), Classical Mechanics I (PH 221), Classical Elettromagnetism (PH 231).
  - ③ From Mechanics: Fluid Mechanics (MAE 220), Solid Mechanics (MAE 230).
  - ④ rom Industrial Engineering: Engineering Statistics I (IE 241), O.R. I (IE 331), Regression Analysis and Experimental Designs (IE 342).
  - ⑤ From Electrical Engineering: Signals and Systems (EE 202), Elettromagnetics I (EE 204), Communication Engineering (EE 321), Control System Engineering (EE 381).
  - ⑥ From Computer Science: Discrete Mathematics (CS 204), Data Structure (CS 206), System

Programming (CS 230), Algorithms (CS 300), Operating Systems and Lab. (CS 330).

**E. Elective Courses: at least 27 credits.**

**F. Research Courses: at least 3 credits including Thesis Research(AM490).**

**G. English Language Requirements for Graduation**

- 1) One of the following requirements should be satisfied for graduation of students who enter the school in or after 1998.
  - PBT TOEFL (ITP) score : at least 560
  - CBT TOEFL score : at least 220
  - TOEIC score : at least 760
  - TEPS score : at least 670

**H. Requirements for Minor and Double Major**

- 1) Minor : at least 18 credits on some major courses.
- 2) Double Major : at least 40 credits on some major courses.
  - Students entering in or after the year 2001 are exempt from the research courses of the Division of Applied Mathematics.

**□ Master’s and Doctoral Programs**

**A. Graduation Credits**

1) Master’s Program

General Course	Major Course		Research (including seminar credits)	Total
	Mandatory	Elective		
3	6	15	12	36

(a) Thesis Master’s Degree Program: at least 36 credits

< at least 24 credits for coursework + research credits (thesis research, thesis seminar, and seminar ) >

(b) Coursework Master’s Degree Program: at least 36 credits

< at least 24 credits for coursework + at least 6 credits for additional coursework + research credits (independent study, seminar ) >

- Students involved in master’s degree program coursework do not submit the master’s thesis but complete additional course-work (at least 6 credits).
- The case which does not acknowledge course work master’s degree
  - In case of earning credits only for course-work without completing additional course-work or earning research hours for thesis research and thesis seminar

2) Doctoral Program: at least 72 credits

General Course	Major Course		Research (including seminar credits)	Total
	Mandatory	Elective		
3	6	33	30	72

< at least 42 credits for coursework + at least 30 research hours (dissertation research, dissertation seminar, and seminar) >

**B. Mandatory General Courses**

- 1) Be sure to take Leadership class (CC010), for which credits are not granted, but which is a required course for all students who entered in and after academic year 2002.
- 2) Be sure to take at least 3 credits
- 3) The students who completed required common courses in the master’s program do not need to take them in the doctoral program.

**C. Special Courses**

- A total of 9 credits may be taken as part of the master’s program (The subtitles are needed for special courses and they are recorded in the grade report).

**D. Taking Undergraduate Courses in Doctoral Program**

- Doctoral students can take up to 6 credit hours of undergraduate courses, subject to the approval of the adviser and the division chair.

**E. Measures for Changes**

- 1) Students who have not completed coursework because a general course (CC030) was not provided since academic year 1998 should take a seminar course (1 credit) as a substitute in the division or other departments/divisions (general scholarship students are exceptions).
- 2) Matters regarding curriculum are based on each student's admission year unless any exceptions are specified; in the case that courses have been changed or are no longer available, substitute courses should be taken.