

# Department of Mathematics

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## What is Mathematics?

Mathematics is the science of order. Mathematicians seek to identify instances of order and to formulate and understand concepts that enable us to perceive order in complicated situations. The Mathematics major is designed to acquaint the student with the most important general concepts underlying modern mathematics.

Majoring in Mathematics will provide an adequate basis for further study in either pure or applied mathematics. Because so many disciplines now rely on mathematics, mathematics provides a valuable background for many different careers.

## Mathematics at Kyung Hee

The Department of Mathematics at Kyung Hee University offers the degree of Bachelor of Science through its undergraduate program. Eight faculty members work in areas ranging from algebra to statistics. Graduate programs leading to the Master of Science and Doctor of Philosophy degrees are also provided. There are about 200 undergraduate mathematics majors. The purpose of the undergraduate program is to give students an understanding of the broad basics of modern mathematics, to stimulate their interest in research, and to prepare them for later work, either in pure mathematics or allied sciences.

## Degree Requirements

To receive the Bachelor of Science degree in Mathematics, a student must:

- complete a minimum of 130 credit units.
- satisfy the General Requirements of the School of Sciences for the bachelor degree.
- complete 63 units of Major Courses including 21 units of Required Courses for a major in Mathematics.
- complete 48 units of Major Courses including 21 units of Required Courses for a minor in Mathematics.

## Courses

### Year 1

Calculus and Recitation 1, Calculus and Recitation 2, Physics 1, Physics 2, Chemistry 1, Chemistry 2, Biology 1, Biology 2, Philosophy

### Year 2

Introduction to Mathematical Analysis, Introduction to Differential Equations, Discrete Mathematics, Sets and Metric Spaces, Introduction to Algebra, Applied Analysis, Introduction to Probability and Statistics, Linear Algebra, Differential Equations, Analysis

### Year 3

Modern Algebra I, Functions of a Complex Variable I, Topology I, Combinatorics, Mathematical Statistics, Modern Algebra II, Functions of a Complex Variable II, Topology II, Modern Geometry, Applied Mathematics, Theory of Probability

### Year 4

Number Theory, Real Analysis, Topics in Topology, Differentiable Manifolds, Topics in Statistics, Numerical Analysis, Topics in Algebra, Topics in Analysis, Calculus of Several Real Variables, Differential Geometry, Applied Mathematics, Seminars on Mathematics

## Careers and Graduate Destinations

### Academic Jobs

A Ph.D. is generally required for positions in a college or university. A strong commitment to both teaching and research is usually expected. Only students who really love mathematics and who are talented at it should plan on this career direction.

### Industry and Government Jobs

There are a number of positions in government and industry for mathematicians with the Ph.D. Also, mathematicians with the B.S. or M.S. degree have a variety of opportunities. Most positions at this level require training in some field of applied mathematics, along with some experience with computers. Here are some examples:

- Statisticians
- Actuaries
- Operations Researchers
- Classical Applied Mathematicians
- Computer Mathematicians

### High School Teachers

Mathematics teachers at the elementary and high school levels are almost always in short supply. Teaching our youths is one of the most important jobs for our society, and few others have the potential for improving the lives of so many.

### Mathematics-Related Jobs

Many people trained in mathematics enter professions where their mathematics background proves to be good training. Examples include computer programmers, computational biologists, accountants, finance theorists and economists.

## Faculty

Il-Won Kang, Ph.D. University of Oxford, 1982, Professor, Differential Geometry, [ik@khu.ac.kr](mailto:ik@khu.ac.kr)

Chang-Hoon Park, Ph.D. Massachusetts Institute of Technology, 1987, Professor, Statistics, [cpark@khu.ac.kr](mailto:cpark@khu.ac.kr)

Chan-Yong Hong, Ph.D. University of Texas at Austin, 1989, Professor, Algebra, [hcy@khu.ac.kr](mailto:hcy@khu.ac.kr)

Young-Min Han, Ph.D. Sungkyunkwan University, 2000, Associate Professor, Analysis, [ymhan2004@khu.ac.kr](mailto:ymhan2004@khu.ac.kr)

Se-Goo Kim, Ph.D. Indiana University, 2001, Assistant Professor, Topology, [sgkim@khu.ac.kr](mailto:sgkim@khu.ac.kr)

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Cho-Hong Min, Ph.D. University of California Los Angeles, 2004, Assistant Professor, Applied Mathematics, [chohong@khu.ac.kr](mailto:chohong@khu.ac.kr)