College of Science

Department of Mathematics

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What is Mathematics?

Mathematics is the study of structures of some important concepts such as numbers and spaces. Based on its strict logics, Mathematics provides us with a basic language for understanding and learning many things in nature and society. By learning lots of important concepts in modern mathematics, students can obtain an adequate basis for further study in either pure or applied mathematics. Nowadays, more and more fields in science and sociology require mathematically well-disciplined people, so Mathematics provides an invaluable background for many careers.

Mathematics at Kyung Hee

The Department of Mathematics at Kyung Hee University offers the degree of Bachelor of Science through its undergraduate program. There are nine faculty members working in various areas of pure and applied mathematics. The purpose of the under-graduate program is to equip students with a good understanding of modern mathematics. Each program is designed to stimulate students' interest in each subject and to prepare them for later works in pure and applied mathematics. Our department also has graduate programs leading to the Master of Science and Doctor of Philosophy degrees.

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 84 units of major courses including 21 units of required courses for a major in Mathematics
- complete 69 units of major courses including 21 units of required courses for a minor in Mathematics

Courses

Year 1

Calculus 1, Calculus 2, Combinatorics and Graph Theory, Physics 1, Physics 2, Chemistry 1, Chemistry 2, Biology 1, Biology 2

Year 2

Mathematical Analysis 1, Mathematical Analysis 2, Linear Algebra 1, Linear Algebra 2, Differential Equations 1, Differential Equations 2, Sets Theory, Vector Calculus, Introduction to Probability and Statistics, Introduction to Geometry, Number Theory

Year 3

Modern Algebra 1, Modern Algebra 2, Complex Analysis 1, Complex Analysis 2, Differential Geometry 1, Differential Geometry 2, Topology 1, Topology 2, Mathematical Statistics, Applied Mathematics, Numerical Analysis 1, Numerical Analysis 2, Theory of Probability, Financial Mathematics, Industrial Mathematics, Capstone Design, Teaching Unit Analysis, Lesson Plan for Teaching Materials, Subject Didactics

Year 4

Real Analysis, Topics in Algebra, Topics in Statistics, Topics in Analysis, Topics in Topology, Topics in Applied Mathematics, Independence Learning & Research 1, Independence Learning & Research 2

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 a Ph.D. Also, mathematicians with a 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 computer programmings. Here are some examples:

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

■ High School Teachers

After the first two semesters, one can apply to the qualifying interview for teachers' license. Otherwise, one can achieve teachers' license by studying in the Graduate School of Education. Teaching mathematics in middle and high schools is very exciting if one is really want to do it.

■ Mathematics-Related Jobs

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

Faculty

Jongmin Han, Ph.D. Seoul National University, 2000, Professor, Partial Differential Equations, jmhan@khu.ac.kr

Se-Goo Kim, Ph.D. Indiana University at Bloomington, 2001, Professor, Knot Theory and Low-Dimensional Topology, sgkim@khu.ac.kr

Soojoon Lee, Ph.D. Seoul National University, 2002, Professor, Quantum Computations and Information Sciences, level@khu.ac.kr

Kyungwoo Song, Ph.D. Indiana University at Bloomington, 2002, Professor, Partial Differential Equations, kyusong@khu.ac.kr

Seungil Kim, Ph.D. Texas A&M University, 2009, Associate Professor, Numerical Analysis, sikim@khu.ac.kr

Jong-Do Park, Ph.D. Seoul National University, 2005, Professor, Complex Analysis in One or Several Complex Variables, mathjdpark@khu.ac.kr

Ho Lee, Ph.D. Seoul National University, 2010, Associate Professor, Partial Differential Equations, holee@khu.ac.kr

Myungho Kim, Ph.D. Seoul National University, 2012, Associate Professor, Representation of Quantum group, holee@khu.ac.kr

Sang June Lee, Ph. D. Emory Univeristy, 2012, Associate Professor, Combinatorics, sjlee242@khu.ac.kr

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