Department of Applied Mathematics

Tel : +82 31 201 2404 Fax : +82 31 204 8122 E-mail : mathkk@khu.ac.kr URL : http://math.khu.ac.kr

What is Applied Mathematics?

Mathematics is one of the oldest and richest areas in human history. Mathematics is ubiquitous. Being curious about everything around us is human nature. Some problems are simple enough to figure out and some problems are too complex to understand or are often beyond the limit of human intellectual abilities. Problem solving is a key component of mathematics. This involves the ability to explore, think through an issue, and reason logically to solve problems arising in our everyday life. Mathematics often provides an important tool to identify, formulate and understand the underlying core ideas and main concepts in complicated problems. Mathematics often relates to other subjects such as natural, social, and life sciences, engineering, art, music and in fact, almost everything we see in our daily life. Applied mathematics helps students connect mathematical knowledge and reasoning with real life problems and engage them in many different interesting applications. The department of applied mathematics is designed for students who are interested in: 1) the theory of mathematics to prepare for a career in research or teaching in middle or high schools, or 2) the mathematical modeling and applications of computing/simulations in order to seek employment in the industry, utilizing their techniques to solve engineering and computer related problems.

Applied Mathematics at Kyung Hee

The department of applied mathematics offers a broad and solid educational program including a wide range of areas in fundamental and classical mathematics as well as interdisciplinary and applied mathematics. Upon graduation, talented students are able to serve as middle and high school teachers, information processing engineers, government officials, etc. In addition, students can enter a graduate school to continue their academic careers by completing a master's or doctoral degree. This major, which includes both fundamental and applied mathematics, is broadly classified into four pursuits:

• to cultivate competent individuals who able to take on a leading role in an advanced society
• to produce manpower to guide industrial technology and to conduct in depth study of mathematics and contiguity technology in the academic world or area of research
• to cultivate experts in science education
• to provide basic knowledge and a scientific way of thinking about mathematics necessary for study in science and engineering as well as other areas.

Degree Requirements

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

• complete a minimum of 130 credit units
• complete at least 75 credits in Applied Mathematics including 21 credits of required courses
• satisfy the general requirements of the Department

Courses

Year 1

Calculus I, Calculus II, Linear Algebra, Differential Equations, Physics and Laboratory I, General Chemistry and Lab I, Advanced Linear Algebra with Applications

Year 2

Analysis I, Numerical Analysis, Mathematical Programming, Geometry, Probability and Statistics and Its Applications, Applied Vector Analysis, Analysis II, Set and Fuzzy, Advanced Differential Equations, Computer Aided Geometric Design, Algorithms with Mathematics

Year 3

Modern Algebra I, Differential Geometry I, Topology and Its Applications I, Numerical Differential Equation, Modern Algebra II, Differential Geometry II, Complex Analysis and Its Applications, Numerical Linear Algebra, Statistics and its Appication, Partial Differential Equations, Mathematical Statistics and its Application, Capstone Design in Applied Mathematics I, Capstone Design in Applied Mathematics II, Independent Learning & Research I, Independent Learning & Research II, Theoretical Development and Analysis of Subjects, Study of Unit Plans

Year 4

Mathematics Education, Real Analysis, Topics in Numerical Analysis, Modern Geometry, Functions of Several Variables, Mathematics for Finance, Topology and Its Applications II, Mathematical Modeling and Applications, Stochastic Integration and its Application, Insurance Mathematics, Topics in Applied Mathematics, Information Theory, Topics in Analysis and its Applications, Capstone Design in Applied Mathematics I, Capstone Design in Applied Mathematics II, Independent Learning & Research I, Independent Learning & Research II, Subject Didactics

Careers and Graduate Destinations

Graduates pursue careers in research and education in middle or high schools, or universities. They can also find jobs in business, information technology, economics, finance, actuarial, engineering, and computer science. As the market, technology, and industry develop and diversify, it is expected that there will be a higher demand for applied mathematicians.

Faculty

Jin Yong Kim, Ph.D. Korea University, 1987, Professor, Algebras, jykim@khu.ac.kr

Byung Hak Kim, Ph.D. Hiroshima University, 1990, Professor, Geometry, bhkim@khu.ac.kr

Bum Il Hong, Ph.D. Purdue University, 1990, Professor, Applied Mathematics, bihong@khu.ac.kr

Chang Yong Han, Ph.D. Seoul National University, 2002, Associate Professor, Applied Geometry, cyhan@khu.ac.kr

Hyea Hyun Kim, Ph.D. KAIST, 2004, Professor, Numerical Analysis, hhkim@khu.ac.kr

Kyung soo Kim, Ph.D. KAIST, 2003, Professer, Applied Mathematics, kyungsoo@khu.ac.kr

Sunmi Lee, Ph.D. UCLA, 2005, Associate Professor, Applied Mathematics, sunmilee@khu.ac.kr

Jeong San Kim, Ph.D. Seoul National University, 2006, Associate Professor, Applied Mathematics, freddie1@khu.ac.kr

Sun Ho Choi, Ph.D. Seoul National University, 2011, Assistant Professor, Partial Differential Equations, sunhochoi@khu.ac.kr

Jun kee Jeon, Ph.D. Seoul National University, 2016, Assistant Professor, Financial Mathematics, junkeejeon@khu.ac.kr

Junpyo Park, Ph. D. Kyungpook National University, 2014, Assistant Professor, Evolutionary dynamics, junpyopark@khu.ac.kr