College of Applied Science

Department of Applied Mathematics

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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 72 credits in Applied Mathematics including 12 credits of required courses
- satisfy the general requirements of the Department

Courses

Year 1

Calculus I, Calculus II, Linear Algebra, Differential Equation, Physics and Laboratory I, General Chemistry and Lab I

Year 2

Analysis I, Numerical Analysis, Introduction to Applied Mathematics, Mathematical Programming, Advanced Linear Algebra with Applications, Geometry, Probability and Statistics and Its Applications, Linear Programming, Applied Vector Analysis, Analysis II, Set and Fuzzy, Calculus III, Complex Analysis and Its Applications

Year 3

Modern Algebra I, Differential Geometry I, Statistics I, Topology and Its Applications I, Numerical Differential Equation, Advanced Differential Equations, Computer Aided Geometric Design, Topology and Its Applications II, Modern Algebra II, Statistics II, Algorithms with Mathematics, Mathematical Modeling and Applications, Theoretical Development and Analysis of Subjects, Study of Unit Plans

Year 4

Differential Geometry II, Mathematics Education, Real Analysis, Special Lectures on Abstract Algebra, Topics in Numerical Analysis, Applied Probability Theory, Partial Differential Equations, Modern Geometry, Functional of Several Variables, Numerical Partial Differential Equations, Mathematics for Finance, Internship in Applied Mathematics, Logics and Essay in Mathematical Education, Introduction to Mathematics Education

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

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