Faculty of Science

The Faculty of Science provides graduates with a wide knowledge of general science and the ability to comprehend natural phenomena from a broad perspective. They are capable of identifying and probing unresolved issues, and as well-rounded human beings with an awareness of global issues can effectively apply their knowledge. The Faculty has four departments (Applied Mathematics, Applied Physics, Chemistry and Earth System Science) and two institutes (Social Mathematics Information Institute and Nanoscience Institute), offering seminars, lectures, and practice and experimentation with the goal of producing graduates equipped with logical, creative minds, broad perspectives, and social skills applicable on the regional and global levels.

Department of Applied Mathematics

The Department of Applied Mathematics offers a selection of courses designed to efficiently instill the skills needed to identify the core of mathematical problems. These courses include academic guidance in small groups. To ensure that students can handle computers and information, they also study information-related subjects, gaining the abilities needed to identify problems and develop solutions.

Graduates of the course are capable of developing methods of approaching problems and resolving them. Many of them obtain teaching certificates in mathematics or information technology, or find employment in the information services industry. Some students advance to graduate school for further education.

Department of Applied Physics

Born out of essentially simple questions about familiar phenomena, physics reveals the fundamental principles of the universe. On a practical level, physics has served as the driving force in the evolution of our highly industrialized modern world as represented by leading-edge technologies embodied in products like semiconductors, superconductors and high polymers. In this age of rapid progress and radical change, the Department of Physics sees its mission as cultivating students' logic and problem-solving capabilities as well as their practical knowledge and technical skills.

The curriculum is mainly comprised of lectures, laboratory classes and seminars. The Department places an emphasis on experimental classes in which students tackle a wide range of research themes in small groups. In their first and second years, students start with an introduction to the field through basic seminars and classes in physics and mathematics, then build on their knowledge of physics and acquire scientific ways of thinking by taking courses in subjects such as dynamics, electromagnetics, thermodynamics, modern physics and quantum physics. In the third and fourth years, the staff work to help each student achieve his or her maximum potential, including studying topics such as solid state physics, functional organic materials sciences and laser physics to bring them into contact with the frontiers of modern physics.

Department of Chemistry

Students learn about a diverse range of revolutionary new materials, chemicals and other substances. The curriculum has been designed to allow students to study basic theory and experiment in a parallel fashion, helping them to experience the excitement of chemistry and discover its diversity and depth.

In the first and second years, study focuses on the six basic experimental courses. From their third year, students advance to more specialized studies and experimentation in one of the Department's two main courses: Material Chemistry or Life Chemistry. In their final year, they undertake graduation research to complete their studies, selecting themes ranging from fundamental questions in chemistry to cutting-edge developments.

Department of Earth System Science

The earth changes continuously and naturally, on various scales and in different time scales. Students of the Department of Earth System Science engage in interdisciplinary study of and research into the mechanisms and components of the atmosphere, hydrosphere, lithosphere and biosphere. The Department provides graduates with the broad perspectives needed to deal with a diverse range of natural phenomena and resolve social issues.

In their first and second years, students learn about the foundations of science in courses that cover practically every scientific field, including physics, chemistry, biology, geology and mathematics. In their third year, students are exposed to the specialties of geology, geophysics and biology, and select one for in-depth experimentation. Their four years of study and research culminate in the graduation theses all students are required to write in their fourth year.

Social Mathematics Information Technology Institute

Modern society is composed of a multitude of systems, and specialists who understand and can effectively use these complex systems are in demand. Students learn to express these social systems using mathematical models, thereby clarifying the fundamental principles involved and learning how to adapt them to the changing world for utilization in a wide range of applications. Mathematical models are studied from both the theoretical and practical utility approaches, and students are trained in the development and construction of the network systems required to accurately model real-world systems.

Nanoscience Institute

Modern industry looks to science and technology to create nanomaterials with powerful new functions, by controlling atoms and molecules. This Institute provides a focused course of study on the fundamentals of the field, limited to 20 students. The curriculum combines chemistry and physics, providing students with the ability to perform the full sequence of tasks from nanomaterial synthesis to analysis and evaluation, and is designed to nurture graduates who can put their knowledge to work in new creations, instructors with strong backgrounds in both physics and chemistry, and other specialists in the field.