

# Biomedical Science and Engineering Interdisciplinary Program

Department website:  
[gsmse.kaist.ac.kr/mini](http://gsmse.kaist.ac.kr/mini)

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## ■ Overview

Biomedical Science and Engineering Interdisciplinary Program (BSEIP), which seeks to enhance understanding of mechanisms behind human diseases and to develop new therapeutics, is offered at the master's level, integrated master's and doctoral level, and doctoral level. Under this interdisciplinary research-oriented program, students develop interdisciplinary skills, collaborative practices for joint research, expertise, and independence. Accordingly, they are required to complete mandatory courses in medical science, and choose elective courses from affiliated departments.

The faculty of BSEIP is composed of faculty from various departments, such as the Department of Biological Sciences, Department of Bio and Brain Engineering, Department of Chemistry, Department of Physics, Department of Mechanical Engineering, Department of Nuclear and Quantum Engineering, Department of Civil and Environmental Engineering, Department of Materials Science and Engineering, School of Electrical Engineering, School of Computing, and the Department of Chemical and Biomolecular Engineering. Faculty of medical schools outside of KAIST are also serving as invited faculty. The participating faculty specialize in diverse areas, including biopolymers, metabolism, genetic engineering, protein engineering, viruses, genetic diseases, organic biochemistry, biomechanics, electromagnetics, advanced materials, nuclear magnetic resonance, biosystem control, instrumentation, data analysis, and image processing technique development. Lectures and research on basic and clinical medicine are supervised by invited faculty in related fields. The wide spectrum of research establishes a platform for organic, professional collaboration within and beyond the program.

BSEIP is open to not only master's and doctoral students of KAIST, but also science and engineering universities nationwide. Students who complete the program will gain extensive research experience, and at the same time, creative thinking and research competence. They will ultimately improve medical welfare for humankind by playing critical roles in clinical research at medical research institutes and hospitals.

## ■ Academic and Research Activities

Medical research conducted by BSEIP is aimed at laying a foundation for the development of new therapeutics by examining the mechanism behind various diseases. The types of diseases covered by research include vascular diseases, infectious diseases, autoimmune diseases, metabolic disorders such as diabetes and obesity, neurological disorders, genetic disorders, and rare diseases. To support research activities undertaken by graduate students, the graduate school offers funding for dormitory fees. Most graduate students receive a scholarship from the government or a research grant for participation in an industry project. Alumni can be found working in universities, hospitals, national research institutes, and related industries, making significant contributions to the development of basic and applied fields of medical science. Their excellence and commitment have helped to secure a brighter future for BSEIP.