

Department of Genetics and Biotechnology

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What is the Genetics and Biotechnology?

Genetics and Biotechnology is a key field of life science which contributes to the improvement of human health and welfare by uncovering the mystery of life phenomena and studying various functions of living organisms including microorganisms, animals and plants. In addition to the basic nature of life science that seeks an understanding of all biological phenomena, it leads the development of bio-industries in medical and pharmaceutical fields(Red-Bio), agriculture(Green-Bio), and energy and environment(White-Bio). Currently, in-depth knowledge in genetics and the advanced biotechnology should be integrated with the latest OMICs via bioinformatics. Multidisciplinary integrative approaches provide basic and applied resources and hold great promises in our future by offering cheaper pharmaceuticals, food security, sustainability and climate change.

Genetics and Biotechnology at Kyung Hee University

The goal of our Genetics and Biotechnology Program is to provide highly motivated and creative students with practical knowledge of genetic engineering as well as basic knowledge of life sciences. Genetic engineering techniques are essential in achieving the eventual goal of harnessing the biological system that is beneficial to human life. The genetic engineering program draws much attention from incoming students because of recent progress in this field such as the duplication of animals, gene therapy, and the human genome project. All the faculty members in our program have excellent careers both in education and research. Their research areas cover biochemistry, molecular and cell biology, biotechnology, microbiology, immunology, and plant molecular biology. In addition, our program is equipped with many cutting-edge biotechnological machines, which are accessible by the students. Our genetic engineering program has already achieved many successes and will continue to open new horizons in the fields like medicine, food, energy, and environmental protection. Based on the founding spirit of our university, "Promotion of Shared Humanity," our genetic engineering program will educate students to become professional and competitive in their major as well as good citizens in our global world.

| Degree Requirements |

To receive the Bachelor of Science in Genetics and Biotechnology, a student must

- complete a minimum of 130 credit units
- satisfy the general requirements of the school for the professional degrees
- complete 15 units of required courses
- complete 46 units of technical electives for genetic engineering
- complete 29 units stated in the common studies program and humanities/social science elective

| Courses |

Year 1

Biology I, Biology II, Chemistry I, Chemistry II, Introduction to Genetic Biotechnology, Biostatistics

Year 2

Biochemistry I, Biochemistry II, Biochemistry Laboratory, Genetics, Microbiology I, Microbiology II, Microbiology Laboratory, Genetically Modified Crops, Biopython, Bio Management and Entrepreneurship, Bioinformatics, Introduction of Bio-Related and Intellectual Property

Year 3

Molecular Biology I, Molecular Biology II, Molecular Biology Laboratory, Cell Biology 1, Cell Biology 2, Cell Biology Laboratory, Skin Biotechnology, Cell Culture Engineering, Human Physiology, Genetic Engineering, Medical Genetics, Internship in Research 1,2(Genetics and Biotechnology), Cancer Biology, Omics, Biological Therapeutics, Clinical Trial Methodology for Biopharmaceutical, Analysis and Application of Bio Intellectual Properties, Synthetic Biology

Year 4

Microbial Biotechnology, Graduation Thesis, Genetic Engineering Capstone Design 1,2, Immunology, Instrumental Analysis in Biochemistry, Plant Molecular Biology, Virology, Developmental Biology

| Faculty |

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- ___ Jong-Seong Jeon, Ph.D. Seoul National University, 1996, Professor, Plant Functional Genomics, jjeon@khu.ac.kr
- ___ Seong-Hee Bhoo, Ph.D. University of Nebraska-Lincoln, 1998, Professor, Biochemistry, shbhoo@khu.ac.kr
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- ___ Jae-Sung Hwang, Ph.D. Ajou University, 2003, Professor, Skin Biology, jshwang@khu.ac.kr
- ___ Sang-Won Lee, Ph.D. KyungHee University, 2000, Professor, Biochemistry, swlee6803@khu.ac.kr
- ___ Ki-Hong Jung, Ph.D. Pohang University of Science and Technology, 2003, Professor, Plant Functional Genomics, khjung2010@khu.ac.kr
- ___ Sun-Hwa Ha, Ph.D. Kyungpook National University, 1999, Professor, Microbiology, sunhwa@khu.ac.kr
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- ___ Weon-Sang Simon Ro, Ph.D. University of Alberta, Associate Professor, Medical genetics, simonro@khu.ac.kr
- ___ Ji-Hye Kim, Ph.D. Seoul National University/UC Davis, 2004, Professor, Clinical Nutrition, kjhye@khu.ac.kr
- ___ Seung-Ja Oh, Ph.D. Pennsylvania State University, 2011, Professor, medical biotechnology, seungja.oh@khu.ac.kr
- ___ Won Kyung Kim, Ph.D. Seoul National University, 2017, Assistant Professor, Pharmacy, wkkim0321@khu.ac.kr