

# Department of Horticultural Biotechnology

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## What is Horticultural Biotechnology?

The Horticultural Biotechnology major strives to examine new biological phenomena with forefront technologies such as genetic engineering and cell manipulation. Simultaneously, Horticultural Biotechnology strives to create forefront technology by systematically collecting and researching new information regarding the generation and usage of gardening products including cultivation technology, production, crop protection, and the rearing and usage of new varieties. To this end, the program focuses on combining basic scientific research with practical science that can be applied to practical fields such as the production and improvement of vegetables, fruits, and flowers to enrich human lives.

## Horticultural Biotechnology at Kyung Hee University

Horticultural Biotechnology offers its students a variety of courses that will provide both basic and applied knowledge of horticulture and biotechnology. To give students direct exposure to practice in olericulture, pomology, floriculture, plant pathology, plant breeding and plant biotechnology, the Department of Horticultural Biotechnology maintains various experimental facilities such as experimental plots, an orchard, green-house, and laboratories for tissue culture, plant physiology, plant pathology, plant breeding, and molecular genetics. Through hands-on work in such facilities, the students will acquire creative potential in horticulture and biotechnology. The Department also strongly encourages juniors and seniors to participate in various research programs. Through such participation, students will be able to obtain the most current knowledge in the discipline necessary for a successful career. The Department of Horticulture was established in 1974, with 30 regular undergraduate freshmen on the Seoul campus, and moved to the Suwon campus in 1983. The number of regular students has increased to 40 per year since 1984. The Graduate School has been operating the master's program in horticulture since 1974, and the Ph.D. program in horticulture since 1976. With the educational goals of Kyung Hee University and the scientific nature of Horticultural Biotechnology, the Department of Horticultural Biotechnology endeavors to educate each student to become a scholar who can contribute to the creation of a civilized world through acquiring profound knowledge and theories of Horticultural Biotechnology.

## | Degree Requirements |

**To receive the Bachelor of Science in Horticultural Biotechnology, a student must**

- complete a minimum of 130 credit units
- satisfy the general requirements of the School for professional degrees
- complete 15 units of required courses for Horticultural Biotechnology
- complete 40 units of technical electives for Horticultural Biotechnology

## | Courses |

### Year 1

Science of Bio-resources, General Physics, Biology I, Biology II, Chemistry I, Introduction to Statistics, Calculus I, Integral Calculus I, Introduction of Horticultural Biotechnology

### Year 2

Tissue Culture and Laboratory, Plant Genetics, Plant Cytology, Plant Physiology, Plant Hormones, General Plant Pathology, Functional Plants, Plant Nutritional Science

### Year 3

Pomology, Olericulture, Floriculture, Breeding of Horticultural Plants, Advanced Material of Plants, Plant Molecular Breeding, Engineering of Horticultural Production, Reproduction of Plants, Crop Protection, Independent Learning & Research 1-2.

### Year 4

Advanced Seed Processing Technology, New Techniques of Plant Transformation, Experimental Design and Analytics, Applied Horticultural Biotechnology, Science of Ornamental Plants, Horticultural Ornament and Design, Design of Flowering Plants, Analytics of Functional Substances. Applied Science of Plant and Food microbiology, Environmental Horticulture, Horticultural Biotechnology Capstone Design 1-2, Independent Learning & Research 1-2.

## | Careers and Graduate Destinations |

Upon graduating from the Department of Horticulture Biotechnology, students can apply for a seed engineer or a plant protection engineer certificate of qualification as well as taking agricultural technician tests. They can acquire positions at subsidiary research organizations of the Rural Development Administration, the National Agricultural Cooperative Federation, seed companies, and agricultural chemical companies. After the acquisition of a master's or doctoral degree, advancement to a research organization or college is also possible.

## | Faculty |

\_\_\_ Seok-Hyun Eom, Ph.D. Cornell University, 2004, Professor, Development of Horticultural Products, se43@khu.ac.kr

\_\_\_ Choon-Tak Kwon, Ph.D. Seoul National University, 2015, Associate Professor, Plant Genetics and breeding, ctkwon@khu.ac.kr

\_\_\_ Dae-Hyun Jung, Ph.D. Seoul National University, 2020, Assistant Professor, Biosystems Engineering, daehyun@khu.ac.kr

\_\_\_ Woo-Jong Hong, Ph.D. Kyung Hee University, 2021, Assistant Professor, Crop Bioinformatics, hwj0602@khu.ac.kr

\_\_\_ Young-Joon Park, Ph.D. Seoul National University, 2020, Assistant Professor, Plant Biochemistry, youngjoonpark@khu.ac.kr

\_\_\_ Jongmin Kim, Ph.D. Seoul National University, 2022, Assistant Professor, Plant Remote Sensing, Jongminkim@khu.ac.kr