

# Department of Food Science & Technology

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## What is Food Biotechnology?

Food Biotechnology integrates the application to food with several contributory sciences. It involves knowledge of the chemical composition of food materials; their physical, biological and biochemical behavior; human nutritional requirements and the nutritional factors in food materials; the nature and behavior of enzymes; the microbiology of foods; the interaction of food components with each other, with atmospheric oxygen, with additives and contaminants, and with packaging materials; pharmacology and toxicology of food materials, additives and contaminants; the effects of various manufacturing operations, processes and storage conditions; and the use of statistics for designing experimental work and evaluating the results.

## Food Science and Technology at Kyung Hee

The facilities of the Food Biotechnology major are located in College of Life Science Building 4 of the Global Campus (Yongin). With 7 faculty members, this major forms a nucleus that provides an educational, research, and informational center for food biotechnology. Currently, 200 students are enrolled in the undergraduate programs. The major objectives of our educational program are to integrate the basic scientific principles from different disciplines, apply them to food systems, and to focus the basic nature of food and problems involved in the development of various food products. The major of Food Biotechnology major also recognizes the diversity in the fields of food science and different career interests of students and offers seminars in food science and field trips to food industries regularly. In addition, an annual event held during the fall festival provides opportunities for undergraduate students to cooperate and to get to know each other by participating in seminars and manufacturing food and food products.

## Degree Requirements

To obtain the Bachelor of Science in Food Biotechnology, a student must:

- complete a minimum of 130 credit units.
- satisfy the General Requirements of the School for professional degrees.
- complete 12 units of Required Courses.
- complete 54 units of Technical Electives for Food Biotechnology.
- complete 66 units stated in the common studies program and Humanities/Social Science Electives.
- acquire a minimum English proficiency test score of TOEIC 640.

## Courses

### Year 1

Introduction to Programming, Calculus, Physics, Biology, Chemistry, Differential Equation, Object Oriented Programming

### Year 2

Introduction to Food Science, Food Microbiology I, II and Lab, Food Physical Chemistry, Bio-Organic Chemistry, Bio-Organic Chemistry Laboratory, Analytical Chemistry and Lab, Food Biochemistry I, Food and Health, Food Nanotechnology

### Year 3

Food Chemistry I, II, Food Engineering I, Food Biochemistry II, Food Processing & Laboratory I, II, Food Analysis and Lab, Food Engineering II and Lab, Food Nanomaterials, Bio-Functional Food Materials, Fermentation and Microbial Engineering, Genetically Modified Foods, Food Molecular Biology, Food Bioactives and Lab

### Year 4

Food Preservation, Food Quality Control and Lab, Functional Foods, Alcoholic Beverage Technology and Laboratory, Food & Biotechnology, Special Topics in Food Processing, Food Safety and Toxicology, Food Nutrition, Food Toxicology

## Careers and Graduate Destinations

Students graduating from Food Biotechnology at the undergraduate or graduate levels are very much in demand and will find rewarding careers in the following areas of specialization: food microbiology, food chemistry, food processing, food biotechnology, consulting, quality control & inspection, basic and applied research product development, supervision and management, production and packaging, technical sales, and service teaching. We also strongly recommend students to enter graduate programs related to food biotechnology.

## Faculty

Byung-Yong Kim, Ph.D. North Carolina State University at Raleigh, 1987, Professor, Food Engineering & Rheology, bykim@khu.ac.kr

Seung-Kook Park, Ph.D. University of California, Davis, 1993, Professor, Agricultural & Environmental Chemistry, skpark@khu.ac.kr

Hae-Yeong Kim, Ph.D. Albert Einstein College of Medicine, 1994, Professor, Food Biochemistry, hykim@khu.ac.kr

Cheon-Seok Park, Ph.D. University of California, Davis, 1997, Associate Professor, Food Microbiology & Biotechnology, cspark@khu.ac.kr

Moo-Yeol Baik, Ph.D. University of Massachusetts at Amherst, 2001, Associate Professor, Food Processing, mooyeol@khu.ac.kr

Dae-Ok Kim, Ph.D. Cornell University, USA, 2003, Assistant Professor, Functional Foods, dokim05@khu.ac.kr

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