
College of Knowledge-Based Services Engineering
Department of Food Science & Biotechnology
at Sungshin Women's University

Department Introduction

Department of Food Science & Biotechnology covers the entire process from the physicochemical characteristics of food raw materials to the overall processes of food production, distribution, and consumption.
Based on fundamental sciences such as food chemistry, food analysis, biochemistry, and microbiology, we provide theoretical lectures and practical training in food engineering, food processing and storage, food biotechnology, food hygiene and safety, as well as the impact on health.
Through our curriculum, we educate students to possess the ability to discover various bio-related materials related to food, conduct research on the safety and functionality of materials, and develop practical skills to commercialize high-value-added food products. Our goal is to nurture creative individuals with practical adaptability, capable of contributing effectively in the field.

Educational Goals

We nurture professionals with the practical competence to understand, analyze, and address on-site challenges effectively.
Our program cultivates individuals with the creativity and applied skills to discover bio-based materials, evaluate their functionality, and systematically implement practical technologies for commercialization.
By fostering leadership in guiding innovative industries, we develop specialized professionals equipped with the ability to lead and excel through interdisciplinary networks.

Desired Student Model

A globally-oriented professional with a sense of responsibility and ethics, grounded in expertise, contributing to public health by supplying safe food.

Professors

Yoon Hyungeun, PhD

Field	Functional Foods Engineering, Food Chemistry
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Hyeon Jeong-eun, PhD

Field	Molecular microbiology, Food microbiology, Industrial microbiology
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Na Hyekyung, PhD

Field	Anti-oxidant, anti-inflammatory, and anti-carcinogenic activities of dietary and medicinal phytochemicals
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Jang Haewon, PhD

Field	Food Analytical Chemistry & Flavor Profiles
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Kim Jonghun, PhD

Field	Food-bio Engineering Research-lab Advanced
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Curriculum

Freshman

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
Food Science & Biotechnology	Primary	Prospects of food science and biotechnology(LF000100)	Annual	First	2	
Food Science & Biotechnology	Primary	Introduction to food science and biotechnology(LF00200)	Annual	Second	3	
Food Science & Biotechnology	Primary	Human Physiology(LF000300)	Annual	Second	3	
Food Science & Biotechnology	Primary	Introduction to Instrumental Analysis(LF000400)	Annual	Second	3	
School of Creativity and Convergence Studies	Core	Critical Thinking and Discussion(SA011100)	Annual	First	3	
School of Mathematics, Statistics and Data Science	Core	Introduction to Calculus and Vector Analysis(SA045900)	Annual	First	3	
School of Chemistry and Energy	Distribution	General Chemistry 1(SB030300)	Annual	First	3	
Department of Biotechnology	Distribution	General Biology 1(SB030500)	Annual	First	3	
School of Creativity and Convergence Studies	Core	Creative thinking and writing(SA011200)	Annual	Second	3	
College of Knowledge-Based Services Engineering	Core	Python Programming for Scientists(SA046600)	Annual	Second	3	

Curriculum

Freshman

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Mathematics, Statistics and Data Science	Core	Advanced Mathematics for Natural Sciences(SA046000)	Annual	Second	3	
School of Chemistry and Energy	Distribution	General Chemistry 2(SB030400)	Annual	Second	3	
Department of Biotechnology	Distribution	General Biology 2(SB030600)	Annual	Second	3	

Curriculum

Sophomore

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
Food Science & Biotechnology	Primary	Physical Chemistry for Food Technology(LF000500)	Annual	First	3	
Food Science & Biotechnology	Primary	Biochemistry 1(LF000600)	Annual	First	3	
Food Science & Biotechnology	Primary	Organic chemistry(LF000700)	Annual	First	3	
Food Science & Biotechnology	Primary	BioFood microbial engineering (LF000800)	Annual	First	3	
Food Science & Biotechnology	Primary	Bioengineering(LF001300)	Annual	First	3	
Food Science & Biotechnology	Primary	Food analysis laboratory (LF001600)	Annual	First	2	
Food Science & Biotechnology	Primary	Molecular biology(LF001700)	Annual	First	3	
Food Science & Biotechnology	Primary	Protein engineering(LF000900)	Annual	Second	3	
Food Science & Biotechnology	Primary	Biochemistry 2(LF001000)	Annual	Second	3	
Food Science & Biotechnology	Primary	Biochemistry Laboratory (LF001100)	Annual	Second	2	
Food Science & Biotechnology	Primary	BioFood microbial engineering laboratory(LF001200)	Annual	Second	2	
Food Science & Biotechnology	Primary	Food Technology Applied Mathematics(LF001800)	Annual	Second	3	

Curriculum

Junior

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
Food Science & Biotechnology	Advanced	BioFood chemistry 1(LF001500)	Annual	First	3	
Food Science & Biotechnology	Advanced	Food Fermentation Engineering (LF002100)	Annual	First	3	
Food Science & Biotechnology	Advanced	Physiological & Molecular Mechanisms of Functional Foods (LF002200)	Annual	First	3	
Food Science & Biotechnology	Advanced	BioFood safety laboratory (LF002600)	Annual	First	2	
Food Science & Biotechnology	Advanced	BioFood safety and law (LF001900)	Annual	Second	3	
Food Science & Biotechnology	Advanced	Bioprocess Engineering (LF0021000)	Annual	Second	3	
Food Science & Biotechnology	Advanced	BioFood engineering(LF002300)	Annual	Second	3	
Food Science & Biotechnology	Advanced	BioFood chemistry laboratory (LF002400)	Annual	Second	2	
Food Science & Biotechnology	Advanced	BioFood chemistry 2(LF002500)	Annual	Second	3	
Food Science & Biotechnology	Advanced	Theoretical-practical training of food quality(LF004200)	Annual	Second	2	

Curriculum

Senior

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
Food Science & Biotechnology	Advanced	Functional food(LF002800)	Annual	First	3	
Food Science & Biotechnology	Advanced	BioFood processing(LF002900)	Annual	First	3	
Food Science & Biotechnology	Advanced	BioFood processing and engineering laboratory(LF003000)	Annual	First	2	
Food Science & Biotechnology	Advanced	Experiment for Evaluating Efficacy of Food Materials (LF003100)	Annual	First	2	
Food Science & Biotechnology	Advanced	BioFood design(LF003400)	Annual	First	3	
Food Science & Biotechnology	Advanced	BioFood packaging(LF003500)	Annual	First	3	
Food Science & Biotechnology	Advanced	Capstone-Design on Bioactive Food Development(LF002700)	Annual	Second	3	
Food Science & Biotechnology	Advanced	Theory and application of HACCP(LF003300)	Annual	Second	3	
Food Science & Biotechnology	Advanced	Trend in biofood industry and marketing(LF003600)	Annual	Second	3	
Food Science & Biotechnology	Advanced	Industry & Academy Cooperation Work Experience(LF003700)	Annual	Second	2	

Biofood Development Track

Track Description

Track for Cultivating Experts in Biofood Development, Creating New Value from Materials by Developing Safe Conventional Foods and Health Functional Foods with Guaranteed Safety

Related Major Competencies

Professional Practical Skills

Specialized Career Paths

Research Positions, Production Positions in the Food Industry

Curriculum

Section	Semester	Course Title	Credit
3	1	BioFood chemistry 1	3
3	1	Food Fermentation Engineering	3
3	2	BioFood chemistry 2	3
3	2	Theoretical-practical training of food quality	3
3	2	BioFood engineering	3
4	1	BioFood processing	3
4	2	BioFood packaging	3
4	2	Trend in biofood industry and marketing	3
4	2	Capstone-Design on Bioactive Food Development	3

Biofood Safety Track

Track Description

Track for Cultivating Food Safety Experts Responsible for Ensuring Safety in Food Manufacturing and Distribution Processes

Related Major Competencies

Professional Practical Skills

Specialized Career Paths

Public Institution, Government-Owned Enterprise, Food Manufacturing Industry

Curriculum

Section	Semester	Course Title	Credit
2	1	BioFood microbial engineering	3
2	2	BioFood microbial engineering laboratory	2
3	1	BioFood safety laboratory	2
3	1	BioFood engineering	3
3	2	BioFood safety and law	3
4	1	BioFood processing	3
4	1	BioFood packaging	3
4	2	Theory and application of HACCP	3

Food Bioprocess Track

Track Description

Track for Cultivating Experts in Food Bioprocessing, Focused on Developing and Manufacturing Food Biomaterials and Pharmaceuticals Using Organisms and Bio-derived Substances, and Establishing Production Processes

Related Major Competencies

Professional Practical Skills

Specialized Career Paths

Biotechnology-related Industry

Curriculum

Section	Semester	Course Title	Credit
1	1	Food Technology Applied Mathematics	3
1	2	Introduction to Instrumental Analysis	3
2	1	Physical Chemistry for Food Technology	3
2	1	BioFood microbial engineering	3
2	2	Protein engineering	3
2	2	BioFood microbial engineering laboratory	2
3		Food Fermentation Engineering	3
3	2	Bioprocess Engineering	3
4	2	Capstone-Design on Bioactive Food Development	3

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