

生命機能科学科 Department of Applied Biochemistry and Food Science

生命機能科学科は、**生命化学講座**と**食糧科学講座**の二つの講座で構成されています。本学科では、生化学や分子生物学を基礎として、微生物からヒトにわたる幅広い生物の生命現象のしくみや機能の解明を行うとともに、それらを応用した食品機能の追究と開発、食品の安全性、バイオマスの利用等に関する教育と研究を行っています。

教育面では、生命と食糧に関する分野において、基礎から応用に至る幅広い知識を学びます。そのために、生体における遺伝子発現や物質代謝とそれらの調節機構について分子レベルで理解するライフサイエンスならびに食品の生体調節機能、栄養機能、物性や安全性を学ぶ食糧科学に関して、基礎から専門科目に至る積み上げ方式で教育を行っています。

研究面では、2講座でそれぞれ次に示すような課題について精力的に取り組んでいます。**生命化学講座**は、多様な生物の生命現象を分子レベルで解明するとともに、生物の特異な機能を有効利用するためバイオテクノロジーを駆使して、生物機能の改良と有用物質生産システムの開発を行っています。**食糧科学講座**は、生物資源の生理機能や特性を化学的・栄養生理学的に解析し、機能性食品の開発、食品の品質保持や安全性評価に関する研究を行っています。

生命機能科学科は、学生が教員と共に研究テーマに取り組む過程を通して、生命現象及び食糧について科学的な理解を深め、思考力と実践力に富んだ社会で活躍できる人材の育成を目指しています。



主な授業科目

化学、物理化学、有機化学、分析化学、生物化学、生物有機化学、生化学、生物物理化学、分子生物学、分子細胞生物学、遺伝子工学、微生物学、応用微生物学、栄養化学、食品化学、食品機能化学、食品工学、食品衛生学、食糧安全学、食糧流通貯蔵学、海洋生物資源化学、生物資源化学、農産物利用学、科学英語、専門外書講読、化学実験Ⅰ、化学実験Ⅱ、微生物学実験、生化学実験、生物学基礎実験など

Major Subjects

Chemistry, physical chemistry, organic chemistry, analytical chemistry, biological chemistry, bio-organic chemistry, biochemistry, biophysical chemistry, molecular biology, molecular cell biology, genetic engineering, microbiology, applied microbiology, nutrient chemistry, food chemistry, functional food chemistry, food engineering, food hygienics, food safety and science, food distribution and storage, chemistry of marine bioresources, chemistry of biological resources, use of agricultural products, science English, reading of specialized books in foreign languages, chemical experiments, microbiological experiments, biochemical experiments, basic biological experiments, etc.

The Department of Applied Biochemistry and Food Science consists of the Chair of Life Chemistry and the Chair of Food Science. Based on biochemistry and molecular biology, the life phenomena and functions of diverse living things ranging from microbes to humans are studied in this Department.

Using knowledge about these phenomena and functions, students in this Department receive education and conduct research regarding investigation and development of food functionality, food safety, and use of biomass.

Extensive knowledge about the basics of life and food sciences and their application is provided to students. Specifically, students start from basics and advance to specialized subjects in learning life science and food science. They learn about gene expression, substance metabolism, and regulatory mechanisms at the molecular level in life science, and about food functionality in terms of biological regulation and nutrition as well as food properties and safety in food science.

The two Chairs are dedicated to research on the following topics: In the Chair of Life Chemistry, research focuses on the elucidation of diverse life phenomena at the molecular level. Research utilizing biotechnologies is also conducted to develop systems for the production of useful materials and the enhancement of biofunctions, with the aim of effectively using specific biotic functions. In the Chair of Food Science, physiology and properties of biological resources are analyzed chemically, nutritionally and physiologically, and research is conducted for developing functional foods, preserving food quality, and evaluating food safety.

The Department of Applied Biochemistry and Food Science aims at deepening the students' scientific knowledge of life phenomena and food through the process of research in which students work on specific topics with the help of teachers, so that these students are trained to be useful human resources with high intellect and practical expertise.



■生命機能科学科の構成

Academic fields in the Department of Applied Biochemistry and Food Science

講座 Chair	教育研究分野 Education & Research
生命化学 Life Chemistry	生化学 Biochemistry
	機能高分子化学 Functional Polymer Chemistry
	応用微生物学 Applied Microbiology
食糧科学 Food Science	食品化学 Food Chemistry
	食品栄養化学 Nutrition Biochemistry
	食糧安全学 Food Safety and Science
	生物資源利用学 Biochemistry and Applied Biosciences
	活性天然物学 Science of Naturally Derived Active Substances