HIROSAKI
UNIVERSITY

Hirosaki University Graduate School of Agriculture and Life Science

Overview

The graduate school consists of five programs: Biology, Biochemistry and Molecular Biology, Applied Biosciences, Agriculture and Horticulture, and Agricultural and Environmental Engineering. These programs offer interdisciplinary and internationally-oriented educational and research opportunities, and also it aims to raise highly competent human resources like follows:

- Specialists who can contribute to the development and growth of their communities
- Highly skilled engineers with the ability to work in locations throughout the world
- Researchers who can engage in the exploration of cutting-edge issues.

In general, two years of study are required to obtain a master' s degree. After then, Students who desire to obtain a doctorate degree can proceed to the doctoral program of the United Graduate School of Agricultural Sciences, Iwate University (UGAS). Hirosaki University is a member of the united graduate school dedicated to doctoral courses in agricultural sciences.

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Biology

Basic Biology

Understanding how the common and diversified rules in living organisms evolve.

This program will help students deepen their understanding of life through the study of metabolics, environmental responses, reproduction, heredity traits, births, behaviors, and the evolution of living organisms. Students will research the different phenomena that occur in animals, plants, fungi, algae, and bacteria at the cellular, individual, and collective levels.

Ecology, Evolution, and Environmental Biology

Considering biological evolution and conservation from the perspectives of ecological and environmental sciences.

Through fieldwork, students will learn how humans and other creatures live together harmoniously. Students will also study how to preserve the environments of living creatures as well as understand the diversity of animals, their adaptation strategies, and their evolution mechanisms.

Biochemistry and Molecular Biology

Basic Life Science

In this program, students who are curious about the biological functions of living organisms (from microbes to mammals) can learn about such functions at the cellular, genetic, molecular, and atomic levels. In general, there are various functions of a cell (the fundamental unit of a body) and many discoveries have been made regarding biological phenomena and mechanisms. However, we still have a limited understanding of their processes. Therefore, this program will provide students with the state-of-the-art knowledge and technology necessary for revealing how the cellular mechanisms are highly regulated and properly maintained.

Applied Life Science

This program focuses on the development of new biotechnologies through the exploitation and investigation of useful biological functions. Natural bioprocesses have provided us with benefits such as food, medicine, materials, and energies. In the applied life science program, students who are interested in revealing cellular mechanisms as well as their uses can learn about the application of biological products and functions. In addition, they can acquire essential knowledge for understanding biochemical reactions and cellular mechanisms.

Applied Biosciences

This graduate program is designed to nurture skilled specialists and develop food resources through multidisciplinary approach in plant breeding, microbiology, soil and pest management, food functionality and food safety.

Food Development

Development of food resources using advanced biotechnology.
RESEARCH AREA: Plant Breeding, Environmental Plant Science, Microbial Genetics, Molecular Nutrition Food functionality, Food Safety, Food Physical Chemistry etc.

Production Environment

Research for creating a safe production environment that sustains biological resources through cross-interactions between crops, soil and various insects and microorganisms.
RESEARCH AREA: Agrology, Plant Pathology, Insect Physiology, etc.

Agriculture and Horticulture

Agriculture and Horticulture

This program focuses on creating new value for the field of Agriculture and Horticulture.
This purpose of this program is to provide students with strong, multifaceted, comprehensive, and practical knowledge of a wide variety of food productions, ranging from fruits, farm-produced food, vegetables, herbs, and farm animals to farming machines and equipment.
Students also focus on both the theory and practicality of agriculture and food, which are two aspects that are greatly connected to the future of our world and humanity.

Agricultural Economics

A solution to the problem of agriculture and food can move regions and the world.
This program focuses on various issues related to the management, economics, and marketing of food and agriculture from the viewpoints of natural science and social science.
Students also acquire theoretical and practical knowledge about how to improve farming, agricultural, and livestock product marketing. In addition, from the economical problems of agriculture and food, students determine the best approach toward agricultural and regional vitalization in the future.

Agricultural and Environmental Engineering

The program is designed to help graduate students become highly skilled experts with independent problem-solving skills and the highly specialized knowledge and skills necessary for the management of production infrastructure, the maintenance of a living environment for local residents, and development of planning methods, all with the aim of protecting and conserving the natural environment. All programs therefore require that students take courses on research methodology and presentation skills. Required courses also include research, hands-on exercises, and seminars customized for each academic discipline, as well as courses on water, soil, infrastructure, and the environment that are specifically designed for this Course.

Research fields of this program include:

- Environmental Water Use Engineering
- Irrigation, Drainage and Hydraulic Engineering
- Irrigation, Drainage Water Use Engineering
- Agricultural Land Engineering
- Agricultural Land Physics
- Agricultural Land Conservation
- Agricultural Information Engineering
- Agricultural Facilities Engineering
- Rural Energy Engineering
- Rural Planning
- Watershed-based Erosion Control Engineering