

Department of Clinical Plant Science



Learning clinical
plant
science

HOSEI UNIVERSITY

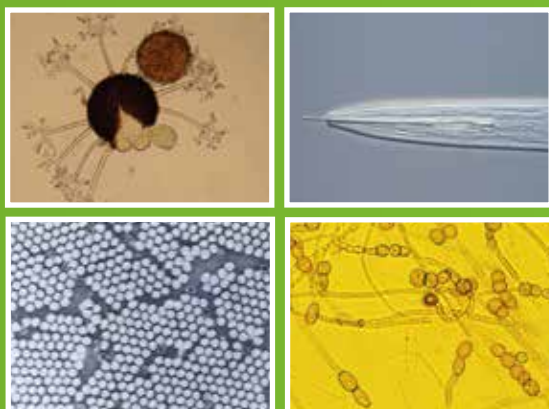


Studying in the Department of Clinical Plant Science can help the students develop a rich sensitivity and creativity towards nature and the environment.

Protect the health of plants

Understand plants and the causes of disease

Microorganisms, harmful insects and sometimes weeds threaten the health of plants. In order to protect their health, you must know the enemy. Among these enemies, some play a role in Earth's environment despite causing damage to crops. Therefore you may grow fond of these enemies during your study.



Causes of disease in various plants

Learn the cutting-edge technology of life science

Clinical plant science in the future cannot be practiced without the cutting-edge technology of bioscience, including molecular biology, genomics, bioinformatics, etc., and without the knowledge and techniques from information science such as image analysis and large data processing, etc. We study broadly, from the basics to the application level, coupled with experiment and practice.



Virulence gene detection and expression analysis

Establishing Clinical Plant Science Center

The Clinical Plant Science Center was established to not only publicly announce the educational study results from the Department of Clinical Plant Science but also aid in learning the practices of diagnosis/treatment/control of plant disease in order to develop applicable capabilities in using the latest technology and knowledge of life science and environment science in the field.



Transmission type electron microscope

Utilizing in future society

Understand the world's food supply and environmental problems

It is said that the current world population of approximately 7 billion people will surpass 9 billion in 2050. However, the rate of food production is expected to slow down, leading to an inevitable food shortage. Tackling disease, insect and weed damage, as well as post-harvest disease, which eliminate 30 to 40 percent of food production in the world, will lead to a solution to food supply problems in the future. Clinical plant science will look at these problems as well as environmental problems such as energy concerns, etc.



Vegetables soon to be harvested

Develop a broad perspective

By 1) promoting the achievement of a cycloid type society in which sustainable progress is aimed at the regeneration of nature or a natural symbiosis on a global scale, and 2) being highly aware of food supply problems, global environment issues, food safety concerns and international projects in order to contribute to mankind and society, our department will attempt to develop a combined natural and social perspective and multifaceted understanding/thinking capability that will link environmental preservation/control to the achievement of material cycling. Based upon the standpoint of clinical plant science, we intend to educate and develop human resources that are necessary for our society.



Enjoyable campus life –Study and fun–

Useful onsite knowledge and technology

By carrying out programs which are focused on experiments and practice from the first year, students learn about plants and the causes of plant disease, and then about their control. They can acquire knowledge and techniques that will make them an immediate asset.



Microscope observation for plant pathogen



Studying insect pests and natural enemy insects



Practice and work using large monitors

State-of-the-art equipment

Using cutting edge devices, students can experience the most advanced learning, ranging in areas from environment control cultivation, microorganism culture, microscope observation, genome analysis and proteome.



The isolation/cultivation of pathogenic microbes, protein analyses and gene amplifiers are indispensable.

Problem solving powers

Students can develop the ability to "think and solve by yourself" while they actually experience basic education in their first year, to a disease survey as their graduation study.



Field surveys where damage from new pathogens has occurred.

Linkage to actual society

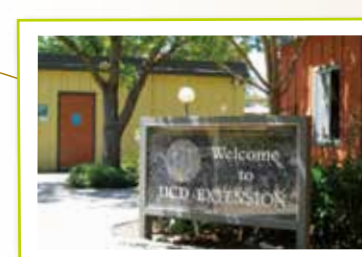
Students can gain actual experience in the field of clinical plant science during their compulsory internship in their second year and learn the framework of society to obtain a broad perspective.



Pruning a tree during an internship

English communication ability

Students can polish their communication ability in English by utilizing a short-term study abroad program at the University of California, Davis (UCD).



Education facility at UCD for short-term study abroad

Everything will be useful for the future by studying with well planned programs!



Mankind is currently facing various issues.
 For example, an ever increasing population may cause food shortage concerns.
 There are environmental problems, such as global warming.
 In addition, modern society is filled with stress.
 Plants are a key part of material cycling as they perform the role of creating food and energy from water and carbon dioxide after receiving sunlight, as well as the role of absorbing carbon dioxide in the air to balance the environment.
 The health of plants in the world is a key in achieving a sustainable global community in the future.
 Furthermore, people feel soothed when they see a flower in a window or greenery between tall buildings.
 The health of plants will determine the future of mankind.
 We are therefore currently studying plants scientifically for the benefit of the world.
 This is “Clinical Plant Science.”

Lessons “aiming for immediate assets” centered on experiments/practice

General clinical plant science

Students will understand the outline of a new field called clinical plant science to learn about concept, technology, and its relationship with food safety, environmental preservation and the social economy. Students will also attempt to find the basic idea of clinical plant science by reviewing the recent phenomena of plant disease.

Food safety

There is high interest in the food safety issue including residual agricultural chemicals, mycotoxin pollution, cadmium pollution, etc. We will discuss the current status and the future direction of food safety issues based on the quality control method and risk analysis of food hygiene.

Plant disease diagnosis

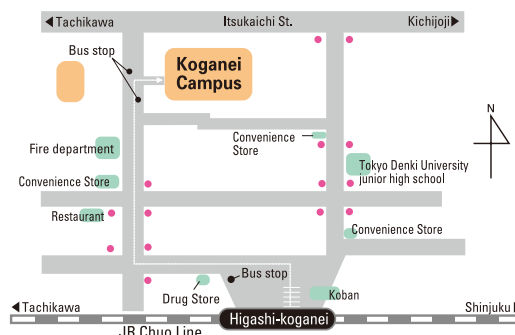
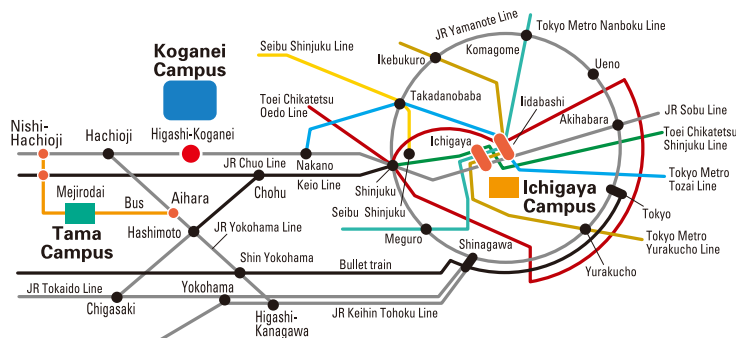
Students will understand accurate diagnosis methods through etiological cause observations of plant disease. They can acquire basic methods and procedures for diagnosing microorganism disease and insect or nematode damage, etc. These experiences and knowledge can become the foundation of an associate tree doctor or associate nature restoration promoter.

Plant medical system

Students will understand each data base and expert systems used in diagnosing plants to investigate their utilization needs, possibilities and issues. Also we will look at the application of information technology in agriculture.

<http://depcps-e.ws.hosei.ac.jp/wp/>

Campus Access



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