

Plant Protection

Programmes

- Master of Plant Protection Technology
- Master of Molecular and Applied Microbiology
- M.Sc. in Plant Protection Technology
- M.Sc. in Molecular and Applied Microbiology
- Master of Philosophy (M.Phil.)
- Doctor of Philosophy (Ph.D.)

About the Board of Study

Plant Protection has gained prominence in intensive agriculture due to the ever increasing losses caused by pest species infesting cultivated crops and harvested agricultural produce. Thus, the mission of the Board of Study in Plant Protection is to educate and train postgraduates on the theoretical and practical aspects of plant protection and to give leadership in this field in government and private agriculture sectors of the country.

The Board offers a number of courses to provide students a substantial scientific knowledge in plant protection and related fields. Students get the opportunities to acquire theoretical knowledge and practical training to deal with pest problems and their management at farm level. The Board undertakes research in Plant Pathology, Entomology, Microbiology, Biotechnology and Nematology, with a major emphasis on environmentally friendly, economically sound and sustainable pest management systems. The Board of Study in Plant Protection works in close collaboration with the scientists of the Department of Agriculture, and national research institutes. The Board also has close links with academics and scientists in Sri Lanka as well as in foreign countries. The Board of Study conducts short term practical training courses for researchers in Molecular Biology and Pesticide Application Technology to pesticide marketing sectors and farmers. The students of the Board of study conduct their Ph.D. research on nationally important issues.

Recent Research

- An investigation of secondary transmission of sugarcane white leaf disease in Sri Lanka
- Diversity of parasitoids of major vegetable insect pests in the mid country region of Sri Lanka
- Impact of microbial biopesticides on host-pathogen interactions of *Rhizoctonia solani* pathosystem of rice (*Oryza sativa* L.)
- Investigation of the diversity of predators of insect pests in vegetable ecosystems of mid country regions of Sri Lanka
- Diversity and ecology of leafhoppers (*Hemiptera: Cicadellidae*); mealybugs (*Hemiptera: Psudococcidae*) and scales (*Hemiptera: coccidae*) in Sri Lanka
- Biological control of cabbage vegetable pests and rice leaf folder using *Trichogramma* egg parasitoids
- Conservation of natural enemies

Master of Plant Protection Technology

Overview

Plant protection is an important aspect of crop production, demanding continuous improvement in pest management technologies and innovative research to develop new crop protection tools that are effective, efficient, sustainable and environmentally and user friendly. A steady demand for crop protectionists exist in local

and overseas institutes and organizations involved in education, research and development. Moreover, research opportunities are being created across the world with the understanding of negative consequences of toxic pesticides. Environmentally-safer, green chemicals are the future need for crop protection. Further, non-chemical crop protection tools require continuous improvement with better understanding of biology and behaviour of insects. The objectives of the Master of Plant Protection Technology are to train students to cater the needs of the country and global communities, producing graduates with sound theoretical backgrounds and very high practical skills in all major aspects of crop protection.

Key features

Students following the Master of Plant Protection Technology programme have the opportunity to study Agricultural Entomology, Plant pathology and Weed sciences, focusing on any of these disciplines. The programme includes both theory as well as applied courses. In addition, the practicum includes a series of practical projects, facilitating students to develop their laboratory skills. Excursions in the programme expose student to problems existing in the real world. The Directed study facilitates students to develop their skills on proposal writing, conducting research, data collection, data analysis and report writing. Overall, after completing the programme, the student will graduate as a plant protectionist with a sound knowledge on plant protection with all necessary skills as a practical plant protectionist.

No. of Credits: 30

Minimum Programme Duration: 3 semesters

Entry Requirements: B.Sc. in Biological Sciences acceptable to the Board of Study in Plant Protection, PGIA and the Senate of the University of Peradeniya

Code	Title	Credits	Option
First Semester			
PP 5102	Plant Pathology	2	Compulsory
PP 5103	Insect Morphology	3	Compulsory
PP 5106	Pesticide Toxicology	2	Compulsory
PP 5107	Pesticide Technology	1	Compulsory
PP 5197	Practicum in Plant Protection Technology	2	Compulsory
PP 5198	Directed Study	5	Compulsory
PP 5101	General Microbiology	2	Elective
PP 5104	Insect Physiology	2	Elective
PP 5105	Clinical Plant Pathology	2	Elective
PP 5151	Plant Molecular Biology	2	Elective
PP 5152	Indigenous Technology for Plant Protection	2	Elective
PP 5153	Soil Borne Pathogens and Root Diseases	2	Elective
PP 5154	Epidemiology	2	Elective
PP 5158	Methods of Invertebrate Ecology	2	Elective
PP 5195	Integrated Pest Management	2	Elective
PP 5199	Seminar	1	Elective
CS 5103	Weed Biology	2	Elective
SS 5106	Environmental Pollution and Control	2	Elective
Second Semester			
PP 5202	Insect Ecology and Behaviour	2	Compulsory
PP 5204	Biological Control of Agricultural Pests	2	Compulsory
PP 5210	Acarology	2	Compulsory
PP 5201	Insect Systematics and Identification	2	Elective
PP 5203	Nematology	2	Elective
PP 5207	Plant Resistance to Insect Pests	2	Elective
PP 5208	Molecular Diagnostic for Plant Protection	2	Elective
PP 5209	Postharvest Protection	2	Elective
PP 5214	Molecular Plant Microbial Interactions	2	Elective
PP 5251	Insect Toxins and Insect Transmission of Plant disease	2	Elective
PP 5252	Molecular Virology	2	Elective
PP 5253	Insect pests and Diseases of Forests	2	Elective
PP 5254	Disease Management in Floricultural Crops	2	Elective
PP 5255	Insect Pathology and Microbial Control of Insect Pests	2	Elective
PP 5256	Techniques and Strategies in Plant Molecular Biology	3	Elective
PP 5259	Insect Pest Management in Horticultural Crops	2	Elective
CS 5202	Weed Control	2	Elective
CS 5212	Scientific Writing and Proposal Presentation	2	Elective



Master of Molecular and Applied Microbiology

No. of Credits: 30

Minimum Programme Duration: 3 semesters

Entry Requirements: B.Sc. in Biological Sciences acceptable to the Board of study in Plant Protection, PGIA and the Senate of the University of Peradeniya

Overview

The Masters degree in Molecular and Applied Microbiology aims to offer graduates the possibility of acquiring extensive and pluridisciplinary knowl-edge on applied microbiology, focus-ing at molecular level. At the end, the graduates complement their theoretical knowledge with hands-on experience on an array of disciplines of microbiol-ogy provided by a team of experienced academics and research scientists. The comprehensive knowledge on theo-retical and practical aspects acquired through the Master's degree in Molecu-lar and Applied Microbiology prepares graduates to undertake challenges in their future careers, either academic or professional.

Key features

Microorganisms play vital roles in the en-vironment, either harmful or beneficial, hence exploration of their applied use, elucidation of the cellular mechanisms at molecular level and exploitation of the microorganisms in the fields of ag-riculture, food industry, biotechnology and medicine are essential.

This degree programme explores the molecular and applied aspects of micro-organisms and integrates the practical skills essential to a practical molecular microbiologist through the intensive practical training in microbiology and molecular biology related techniques.

Code	Title	Credits	Option
First Semester			
PP 5101	General Microbiology	2	Compulsory
PP 5108	Methods in Microbiology and Microbial Technology	3	Compulsory
PP 5109	Molecular Microbiology	2	Compulsory
PP 5110	Microbial Genomics	2	Compulsory
PP 5196	Practicum in Molecular and Applied Microbiology	2	Compulsory
PP 5198	Directed Study	5	Compulsory
PP 5199	Seminar	1	Compulsory
PP 5155	Immunology	2	Elective
AE 5107	Water Quality for Agriculture and Environment	3	Elective
AE 5152	Environmental Impact Assessment	2	Elective
AE 5156	Environment and Industry	3	Elective
AE 5157	Solid Waste Management	2	Elective
AS 5109	Dairy Chemistry	2	Elective
FT 5105	Food Microbiology	2	Elective
FT 5111	Food Safety	2	Elective
SS 5106	Environmental Pollution and Control	2	Elective
SS 5109	Microbial Ecology	3	Elective
SS 5113	Environmental Microbiology	2	Elective
Second Semester			
PP 5211	Microorganisms with Medical Importance	2	Compulsory
PP 5212	Aquatic Microbiology and Water Quality	2	Compulsory
PP 5213	Industrial Microbiology and Biotechnology	2	Compulsory
PP 5214	Molecular Plant Microbial Interactions	2	Compulsory
PP 5208	Molecular Diagnostics for Plant Protection	2	Elective
PP 5252	Molecular Virology	2	Elective
PP 5256	Techniques and Strategies in Plant Molecular Biology	3	Elective
AB 5252	Bioinformatics	2	Elective
AE 5213	Bioreactor and Bio-Environment Design and Control Systems	2	Elective
AS 5207	Dairy Engineering	2	Elective
AS 5217	Microbiology of Dairy, Meat, Fish and Egg Products	3	Elective