

Bachelor of Science in Agriculture

MAJOR IN HORTICULTURE

The Institute of Crop Science (ICropS) offers undergraduate programs with Horticulture as a major field of study where a student may specialize in any of the following disciplines:

Plant Breeding: the science and practice of identification, assembly, conservation, characterization, evaluation and utilization of crop genetic diversity; and manipulation of genetic make-up for varietal development and improvement.

Crop Production and Management: the science and practice of producing horticultural crops aimed at increasing productivity and quality efficiently and maximizing monetary returns while minimizing and/or eliminating the negative environmental effects.

Crop Physiology: the study of functioning and processes occurring in crops as they interact within the environment.

Postharvest Science: offers valuable knowledge, skills, and practical experience on handling horticultural crops to maintain the quality, safety, and marketability of produce along the value chain. It provides students a multidisciplinary approach of solving food needs through effective postharvest management strategies to reduce food loss.

Landscaping: is the application of the art and science of crop production guided by the principles and practices of sustainability in designing, implementing, and maintaining aesthetic and functional landscapes. The courses in this specialization are aligned with the Sustainable Development Goals (SDGs) using scientific approaches in managing landscape spaces, products, and services focusing on plant growth and its interaction with the whole environment through time.

PROGRAM OF STUDY OF A HORTICULTURE MAJOR

Horticulture major students are required to take a total of 44 units in the program. This includes 18 units of major courses, 12 units of specialized courses, 3 units of electives, 1 unit undergraduate seminar, and 9 units of major program option.

COURSES REQUIRED FOR ALL HORTICULTURE MAJORS

Course No.	Course Title	Units
CRSC101	Tropical Annual Crop Production and Management. <i>PR. AGRI 32 or COI. (1, 2)</i>	3
CRSC102	Tropical Perennial Crop Production and Management. <i>PR. AGRI 32 or COI. (1, 2)</i>	3
CRSC105	Principles of Plant Breeding. <i>PR. BIO 30. (1, 2)</i>	3
HORT104	Plant Propagation and Nursery Management. <i>PR. AGRI 32 or COI. (1, 2)</i>	3
HORT 132/ BOT132	Plant Growth. <i>PR. BOT 20. (1, 2)</i>	3
HORT180	Postharvest Handling and Storage of Perishable Crops. <i>PR. BOT 20 or COI. (1, 2)</i>	3
CRSC199	Undergraduate Seminar in Crop Science. <i>PR COI. (1, 2)</i>	(1)
	Total	18

SPECIALIZED COURSES

The list of specialized courses will be decided upon by the student and their major adviser. The courses will depend on the student's chosen discipline and commodity: ornamental, vegetable, fruit, or plantation crops.

Specialized courses maybe selected from the following Suggested courses:

Course No.	Course Title	Units
AGR116	Multiple Cropping. <i>PR. AGRI 31 & AGRI 32. (2)</i>	3
CRSC 154	Crop Variety Registration and Protection. <i>PR. CRSC 105 or COI. (2)</i>	3
HORT105	Therapeutic Horticulture. <i>PR. AGRI 31 or COI. (2)</i>	3
HORT107	Organic Horticulture. <i>PR. CRSC 101 or CRSC 102 or COI. (2)</i>	3
HORT108	Urban Horticulture. <i>PR. AGRI 32 or COI. (2)</i>	3
HORT110	Major Tropical Fruits. <i>PR. CRSC 102 or COI.(2)</i>	3
HORT111	Plantation Crop Production and Management. <i>PR. CRSC 102 or COI. (1)</i>	3
HORT112	Production and Handling of Tropical Vegetable Seeds. <i>PR. CRSC 101. (2)</i>	3
HORT114	Commercial Vegetable Production. <i>PR. CRSC 101. (1,2)</i>	3
HORT117	Plant Arts. <i>AGRI 31 or COI. (2)</i>	3
HORT121	Major Ornamental Plants in the Tropics. <i>CRSC 101 or CRSC 102 or COI. (1)</i>	3
HORT122	Orchids and their Culture. <i>PR. HORT/BOT 132 or COI. (2)</i>	3
HORT124	Landscape Horticulture. <i>PR. AGRI 32 or COI. (2)</i>	3
HORT126	Fundamentals of Turfgrass Management. <i>PR. AGRI 32 or COI. (1)</i>	3
HORT127	Landscape Establishment and Maintenance. <i>PR. HORT 124 or COI. (1)</i>	3
HORT128	Interior Landscaping. <i>HORT 124 or COI. (1)</i>	3
HORT129	Plantscape-Hardscape Relations. <i>HORT 124 or COI. (2)</i>	3
HORT131	Inorganic Plant Nutrition. <i>PR. BOT 20. (1, 2)</i>	3
HORT133	Plant Tissue Culture. <i>PR. BOT 20. (2)</i>	3
HORT134	Regulatory Processes in Horticultural Crop Production Practices. <i>PR. BOT 20 or COI. (2)</i>	3

Course No.	Course Title	Units
HORT180.1	Postharvest Handling and Storage of Perishable Crops Laboratory. <i>PR. HORT 180 or COI. (1)</i>	2
HORT181	Handling, Processing, and Grading Of Plantation Crop Products. <i>PR. CRSC 102. (2)</i>	3
SOIL111	Land Use Planning and Management. <i>PR. AGRI 51 or COI. (1)</i>	3
SOIL 150	Soil Fertility. <i>PR. AGRI 51 or COI. (1, 2)</i>	3
SOIL170	Soil Conservation and Management. <i>PR. AGRI 51 or COI. (1)</i>	3

Legend:

PR – prerequisite course or form

COI – consent of instructor

(#) – semester when course is offered (1 is 1stsem, 2 is 2ndsem)

MAJOR PROGRAM OPTION FOR HORTICULTURE

The Major Program Option provides the students the opportunity to conduct independent research and have supervised hands-on experience on the work of an agricultural practitioner and related careers.

The student may choose from the following options:

Option	Program	Units
A	Thesis (HORT 200) and Practicum (HORT 198)	6 3
B	Major Practice (HORT 200a) and Special Problem (HORT 190)	6 3

Major Practice (240 hours) and Practicum (150hours) allows the student to apply their knowledge and skills acquired from their coursework. The student may select from the following tracks: (a) Farm Practice, (b) Research Internship, (c) Extension and Community, (d) Teaching Option, and (e) Entrepreneurship. They may opt to do this course in government, non-government, and private institutions.

Pre-requisite for Program Option: COI signed by Adviser

Before a student can enroll in HORT 200/200a, they will be evaluated by their adviser if they have sufficient theoretical and practical background in class and laboratory setting on his/her major field.

Before a student can enroll in HORT 198/190, the student must have completed/passed at least 9 units of major courses and 3 units of specialization course.

Institute of Crop Science

FACULTY AND STAFF

Horticulture

ALMONTERO, CECILIA C. Assistant Professor 3
PhD 2020, University of the Philippines Los Baños
Genetics, Plant Breeding, Molecular Biology & Biotechnology

✉ ccalmontero@up.edu.ph

APACIONADO, BRYAN V. Assistant Professor 7
MSc 2018, Tokyo University of Agriculture
Horticulture, Environmental Science

✉ bvapacionado@up.edu.ph

AQUINO-ONG, SUSAN C. Associate Professor 7
PhD 2012, University of the Philippines Los Baños
Environmental Science, Landscape Heritage Conservation

✉ scaquinoong@up.edu.ph

BERNARDO, EMMANUEL L. Assistant Professor 6
PhD 2024, University of Cambridge, UK
Crop Physiology, Tissue Culture

✉ elbernardo@up.edu.ph

CASTRO, ANGELO C. Assistant Professor 6
MSc 2016, University of the Philippines Los Baños
Postharvest Horticulture, Postharvest Biochemistry

✉ accastro4@up.edu.ph

ELLEVA, LANCE IRVIN F. Assistant Professor 1
MSc 2024, University of the Philippines Los Baños
Horticulture, CPM, Environmental Science

✉ lfelleva@up.edu.ph

ENDONELA, LEAH E. Assistant Professor 4
PhD 2018, University of the Philippines Los Baños
Plant Genetic Resources, Botany, Plant Breeding

✉ leendonela@up.edu.ph

GENTALLAN JR., RENERIO P. Assistant Professor 7
PhD 2024, University of the Philippines Los Baños
Plant Genetic Resources Conservation and Management, Plant Breeding, Image-Based Phenotyping

✉ rpgentallan@up.edu.ph

LALUSIN, ANTONIO G. Professor 8

PhD 2006, University of Tsukuba, Japan

Horticulture, Plant Breeding, BioResource Engineering

MAKAHIYA, HAZEL ANNE F. Assistant Professor 7

MSc 2016, University of the Philippines Los Baños

Crop Physiology

✉ hfmakahiya@up.edu.ph

MAGDALITA, PABLITO M. Professor 11

PhD 1997, University of Queensland

Plant Biotechnology and Breeding, Fruits, Ornamentals

✉ pmmagdalita@up.edu.ph

MARQUEZ, PAUL JOSHUA C. Assistant Professor 1

MSc 2023, University of the Philippines Los Baños

Agronomy, Horticulture, Plant Breeding, Crop

Physiology

✉ pcmarquez1@up.edu.ph

MEDINA, NORMA G. Assistant Professor 7

PhD 2023, University in Tokyo, Japan

Environmental Science, Landscape Planning and Management

✉ ngmedina1@up.edu.ph

MERCADO, MA. FATIMA O. Assistant Professor 7

MSc 2001, University of the Philippines Los Baños

Seed Science and Technology, Sustainable/Ecological Agriculture

✉ momercado@up.edu.ph

MORALES, WELLA A. Assistant Professor 5

MSc 2010, University of the Philippines Los Baños

Postharvest, Food Science, Horticulture

✉ wlabulio@up.edu.ph

NIEVES, MYLENE C. Assistant Professor 5

PhD 2022, University of the Philippines Los Baños

Horticulture, Plant Tissue Culture & Embryology, Crop Physiology

✉ mcnieves@up.edu.ph

OCAMPO, EUREKATERESA M. Professor 1

PhD 2007, University of the Philippines Los Baños

Plant Stress Physiology, Biochemistry, Molecular Biology

✉ emocampo1@up.edu.ph

REALIN, DARA MARIA F. Assistant Professor 2

MSc 2019, University of the Philippines Los Baños

Agronomy, Horticulture

✉ dfrealin@up.edu.ph

REYES, MELQUIADES EMMANUEL C. Assistant Professor 7

PhD 2002, University of Queensland

Plant Breeding, Molecular Genetics, Vegetable Crop and Seed Production

✉ mcreyes2@up.edu.ph

ROCES, LESLIE ANGELA L. Assistant Professor 2

MSc 2017, University of the Philippines Los Baños

Plant Breeding, Horticulture

✉ llroces@up.edu.ph

RODEO, ARLAN JAMES D. Assistant Professor 6

PhD 2023, University of California Davis

Postharvest Horticulture

✉ adrodeo@up.edu.ph

SALAZAR, BONG M. Assistant Professor 7

PhD 2024, Univ of Sheffield, UK

Crop Physiology, Postharvest and Stress Physiology

✉ bmsalazar@up.edu.ph

SANCHEZ JR., FERNANDO C. Professor 11

PhD 1998, Tokyo University of Agriculture

Landscape Planning and Design, Landscape Establishment and

Maintenance, Turf Management

✉ fcsanchez@up.edu.ph

TAYOBONG, RYAN RODRIGO P. Assistant Professor 7

PhD 2025, Tokyo University of Agriculture

Landscape Horticulture

✉ rptayobong1@up.edu.ph

ZUNIEGA, JOHNRELL S. Assistant Professor 5

PhD 2024, L'Institut Agro Montpellier & Université de Montpellier, UMR

QualiSud, CIRAD, Montpellier

Postharvest Horticulture

Email: jszuniega@up.edu.ph

RESEARCH FACULTY

AGRAVANTE, JOSEPHINE U. Research Asst. Prof. 7

PhD 1991, Kagawa University

Postharvest Physiology, Horticulture

✉ juagravante@up.edu.ph

PROFESSOR EMERITUS

ROSARIO, TERESITA L. Professor Emeritus

PhD 1971, Pennsylvania State University

Horticulture, Crop Breeding and Genetics

Email: tessierit1212@yahoo.com



HORTICULTURE

Undergraduate Programs



INSTITUTE OF CROP SCIENCE

College of Agriculture and Food Science

University of the Philippines Los Baños