Graduate Degree Programs
PLANT BREEDING

The Institute of Crop Science (ICropS) offers various graduate programs leading to the degree of Master of Agriculture (MAgr), Master of Science (MS) in Agronomy, MS in Plant Breeding, MS in Plant Genetic Resources Conservation and Management, Doctor of Philosophy (PhD) in Agronomy and PhD in Plant Breeding.

The MS and PhD in Plant Breeding programs were instituted at the University of the Philippines Los Baños in 1982 that puts under a common degree program master's/doctoral students of UPLB specializing in plant breeding.

ADMISSION POLICIES

An applicant for admission to an MS program must be a holder of a Bachelor of Science (BS) in Agriculture degree or its equivalent. Where the degree is not in Agriculture but in other biological fields, the applicant must have had at least 6 units of crop science courses.

An applicant for admission to a PhD program must be a holder of an MS degree in a biological field. A holder of an MS degree in a non-biological field must apply for admission to a master's program.

A duly accomplished admission form must be submitted to the Graduate School together with a copy of the official transcript of academic records of previous degree(s) earned, letters of references from two former professors, and in the case of an applicant to the PhD program, an additional letter of recommendation from his/her adviser in the MS degree. For an applicant coming from a country where English is not the medium of instruction, a certification of English proficiency from one of his/her former English professors or the Chairman of an English department must be included.

The application form and supporting papers must be received by the University of the Philippines Los Baños (UPLB) Graduate School not later than March 31 for First Semester (August) admission, and August 31 for Second Semester (January) admission.

EXAMINATIONS

Qualifying Examination
A student for the PhD degree must take a qualifying examination to be conducted by the advisory committee before the second semester of residence. The result of the examination will be the basis for evaluating the student's ability to pursue doctoral studies and for determining a suitable program of course work.

The student should submit an application for the qualifying examination to the dean of the Graduate School not later than one month before the date of the examination.

If the student fails the qualifying examination, no re-examination shall follow except upon the unanimous approval of his/her advisory committee. If the student fails there-examination, he shall be permanently disqualified from the PhD program.

Written And Oral Departmental Exam
A written departmental examination is given to all PhD students after satisfactorily completing all courses prescribed by his/her committee. The examination nis given one month after the first day of classes and is generally composed of questions related to all fields of specialization/disciplines in Horticulture. An integrative oral examination will be given after passing the departmental written examination.

General Comprehensive Examination
MS and MAgr students have to take an oral comprehensive general examination after completing all his/her course work. An application addressed to the Dean of the Graduate School should be filed not later than one month before the date of the examination.

Final Oral Examination
A student in the MS/PhD program is given an oral examination to defend his/her thesis/dissertation once it is completed. The application for the final examination should be submitted to the Graduate School together with the first draft of the thesis/dissertation not later than two weeks before the date of the examination. The advisory committee should also have a copy of the draft at this time.

COURSE REQUIREMENTS

The course work requirement for the MS Plant Breeding program is at least 24 units with at least 18 units earned in courses above the 200 level. Research work (thesis) or AGR 300 (6 units) is required of all MS student in Agronomy. At least 15units of course work shall be in the major field and 9 units in the cognate field

For the PhD Plant Breeding program, a minimum of 24 units of course work is required with at least 18 units earned in courses above the 200 level. Research work (dissertation) or AGR 400 (12units) is required of all PhD students. At least 15 units of course work shall be in the major field and at least 9 units in the cognate fields. In the case where the student elects to have only one cognate, the minimum number of units for the major and cognate field shall be 15 and 9 units, respectively.

The required foundation courses an MS or PhD in Plant Breeding student should have had in a previous degree are given below:

Course No.	Course Title
AGR 150	Methods in Plant Breeding I
AGR 153 (For PhD)	Methods in Plant Breeding II
BIO 130a (For PhD)	Advanced Genetics I
BIO 130b (For PhD)	Advanced Genetics II
CHEM 160 (For PhD)	Introductory Biochemistry
STAT 162	Experimental Design

A student who has not taken any of the foundation courses or its equivalent in a previous degree program should include this in the present program but units earned in this course cannot be used to satisfy the required number of units for the degree. ICropS shall determine whether the course taken previously may by considered as the equivalent of the required foundation course. A validating examination may be required in some cases if the student took the course or its equivalent outside UPLB.

The required core courses or courses common to all graduate students of Plant Breeding are listed below:

Course No.	Course Title
AGR 250	Advanced Plant Breeding I
AGR 251 (For PhD)	Advanced Plant Breeding II
AGR 254 (For PhD)	Crop Evolution
AGR 255	Population Genetics
AGR 256 (For PhD)	Quantitative Genetics
AGR 258	Molecular Plan t Breeding
AGR 299	Graduate Seminar
BIO 130a	Advanced Genetics I
BIO 130b	Advanced Genetics II
CHEM 160	Introductory Biochemistry

To satisfy the minimum number of units required for the major field, the student may choose from the several plant breeding courses offered by the three participating departments as well as from courses in allied disciplines like genetics, plant pathology, entomology, statistics, plant/crop physiology, and biochemistry. The student may also minor in one of such related fields except genetics.

A student in the PhD program regardless of financial support may be asked to assist in the teaching of a plant breeding course during at least one semester of his/her residence.

An MS student majoring in another field who would like to minor in plant breeding must take at least 6 units of plant breeding courses with graduate credit including at least 3 units from a course or courses above 200.

A PhD student with plant breeding as one of 2 cognates must take Agronomy 250 (Advanced Plant Breeding) and at least 3 units more of plant breeding courses with graduate credit while a PhD student with only plant breeding as his/her cognate field must take Agronomy 250 and at least 6 units more of plant breeding courses with graduate credit.

COURSE OFFERINGS

AGR 250 - Advanced Plant Breeding I (3). Types, uses and induction of genetic variation; systems of pollen control; selection concepts and general breeding procedures for crops in each mode of pollination; approaches in breeding for specific characters. 3 hours (class) PR.AGR 150. (2).

AGR 251 - Advanced Plant Breeding II (3). Advanced concepts and methods in population breeding and cultivar development. 3 hours (class)PR. BIO 130 and AGR 250. (1).

AGR 254 - Crop Evolution (3). Origin and evolution of crop plants and dynamics of plant domestication. 3 hours (class) PR. AGR 50 or COI. (1).

AGR 255 – Population Genetics (3). Genetics of populations undergoing random mating and inbreeding; effects of selection, mutation, migration, and other forces on the genetic composition of natural and artificial biological populations. 3hours (class) PR. MATH 26 and BIO 130b. (1).

AGR 256 - Quantitative Genetics (3). Genetics of quantitative characters in random and non-random mating populations; application of quantitative genetic theories in breeding work. 3 hours (class) PR. AGR 255. (2).

AGR 258 – Molecular Plant Breeding (3).Molecular markers, recombinant DNA technology, and cell and tissue Culture technology in crop improvement. 3 hours (class) PR. AGR 150 and BIO 101 or COI. (1).

AGR290 - Special Problems (1-3). May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units. PR. COI. (1, 2, M).

AGR 291 - Special Topics (1-3). May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units. PR. COI. (1, 2, M).

AGR299 - Graduate Seminar in Agronomy (1). May be taken twice for a maximum of 2 units. 1 hour (class) PR. Graduate standing (1, 2).

AGR300 - Master's Thesis(6).(1,2,M).

AGR400 - Doctoral Dissertation(12).(1,2,M).

REGULAR FACULTY

CALAYUGAN, MARK IAN C., Assistant Professor 3
MS 2018, University of the Philippines Los Baños
Plant Breeding, Plant Genetic Resources Conservation and Mgt.

GENTALLAN, RENERIO P., JR. Assistant Professor 7
PhD 2023, University of the Philippines Los Baños
Plant Breeding, Plant Genetic Resources Conservation and Mgt.

LALUSIN, ANTONIOG. Professor 8
PhD PhD 2006, University of Tsukuba
Plant Breeding/Bioresource Engineering (Molecular Biology), Abaca, Sugarcane, Root crops, Coconut

LAUDE, TONETTE P. Associate Professor 7
PhD 2014, University of South Dakota
Plant Breeding, Plant Science, Corn

MAGDALITA, PABLITOM. Professor 11
PhD1997, University of Queensland
Plant Biotechnology and Breeding, Fruits, Ornamentals

REYES, MELQUIADES EMMANUEL C. Assistant Professor 7
PhD 2002, University of Queensland, Australia
Plant Breeding

PROFESSOR EMERITI

CARPENA, AZUCENAL. Professor Emeritus
PhD 1970, North Carolina State University
Plant Breeding, Genetics, Statistics

HERNANDEZ, JOSE E. Professor Emeritus
PhD 1985, Minnesota State University
Plant Breeding and Genetics, Crop Production and Management, Rice

LANTICAN, RICARDOC. Professor Emeritus
PhD 1961, Iowa State University
Plant Breeding, Genetics

MENDOZA, EVELYN MAE T. Professor Emeritus PhD
1975, University of Massachusetts-Amherst
Plant Breeding, Genetics

ROSARIO, TERESITA L. Professor Emeritus
PhD 1971, Pennsylvania State University
Horticulture, Crop Breeding and Genetics

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PLANT BREEDING

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