

PLANT BREEDING & GENETICS (PBG)

PBG 199, SPECIAL TOPICS, 1-16 Credits

Equivalent to: PBG 199H

This course is repeatable for 16 credits.

PBG 199H, SPECIAL TOPICS, 1-16 Credits

Attributes: HNRS – Honors Course Designator

Equivalent to: PBG 199

This course is repeatable for 16 credits.

PBG 299, SPECIAL TOPICS, 1-16 Credits

Equivalent to: PBG 299H

This course is repeatable for 16 credits.

PBG 299H, SPECIAL TOPICS, 1-16 Credits

Attributes: HNRS – Honors Course Designator

Equivalent to: PBG 299

This course is repeatable for 16 credits.

PBG 399, SPECIAL TOPICS, 1-16 Credits

This course is repeatable for 16 credits.

PBG 401, RESEARCH, 1-16 Credits

This course is repeatable for 16 credits.

PBG 403, THESIS, 1-16 Credits

Graded P/N.

This course is repeatable for 99 credits.

PBG 405, READING AND CONFERENCE, 1-16 Credits

Equivalent to: PBG 405H

This course is repeatable for 16 credits.

PBG 405H, READING AND CONFERENCE, 1-16 Credits

Attributes: HNRS – Honors Course Designator

Equivalent to: PBG 405

This course is repeatable for 16 credits.

PBG 407, SEMINAR, 1-16 Credits

This course is repeatable for 16 credits.

PBG 409, TEACHING PRACTICUM, 1-16 Credits

Graded P/N.

This course is repeatable for 16 credits.

PBG 410, INTERNSHIP, 1-12 Credits

Offered via Ecampus only.

This course is repeatable for 12 credits.

PBG 430, PLANT GENETICS, 3 Credits

Introduction to the principles of plant genetics with an emphasis on the structure and function of economically important plant genomes.

Equivalent to: HORT 430

Recommended: One year of biology and chemistry.

Available via Ecampus

PBG 431, PLANT GENETICS RECITATION, 1 Credit

Review and demonstration of plant genetics principles.

Equivalent to: CSS 431, HORT 431

PBG 441, PLANT TISSUE CULTURE, 4 Credits

Principles, methods, and applications of plant tissue culture. Laboratory is important part of course. Topics include callus culture, regeneration, somaclonal variation, micropropagation, anther culture, somatic hybridization, and transformation. CROSSLISTED as PBG 441 and MCB 541/PBG 541.

Equivalent to: HORT 441

Recommended: (BI 311 and BOT 331) or PBG 430 or CSS 430

PBG 450, PLANT BREEDING, 4 Credits

An introduction to the genetic improvement of self-pollinated, cross-pollinated, and asexually propagated species and the genetic principles on which breeding methods are based. Examples are drawn from a wide range of crops, including cereal grains, grasses, fruits, nuts, and vegetables; guest lecturers discuss their breeding programs. Additional topics include crop evaluation, germplasm preservation, disease resistance, and biotechnology. Lec/lab.

Prerequisite: PBG 430 with D- or better

Equivalent to: CSS 450, HORT 450

Recommended: BI 311 or PBG 430

PBG 499, SPECIAL TOPICS, 1-16 Credits

Equivalent to: PBG 499H

This course is repeatable for 16 credits.

PBG 499H, SPECIAL TOPICS, 1-16 Credits

Attributes: HNRS – Honors Course Designator

Equivalent to: PBG 499

This course is repeatable for 16 credits.

PBG 501, RESEARCH, 1-16 Credits

Graded P/N.

This course is repeatable for 16 credits.

PBG 503, THESIS, 1-16 Credits

Graded P/N.

This course is repeatable for 999 credits.

PBG 505, READING AND CONFERENCE, 1-16 Credits

This course is repeatable for 16 credits.

PBG 506, PROJECTS, 1-16 Credits

This course is repeatable for 16 credits.

PBG 507, SEMINAR, 1-16 Credits

Graded P/N.

This course is repeatable for 16 credits.

PBG 508, WORKSHOP, 1-16 Credits

This course is repeatable for 16 credits.

PBG 509, PRACTICUM IN TEACHING, 1-3 Credits

Developing skills and competence in teaching under staff supervision; organization and presentation of instructional material by assisting in laboratory, recitation, and lectures. CROSSLISTED as CROP 509/ENT 509/PBG 509/SOIL 509.

Equivalent to: CROP 509, ENT 509, SOIL 509

This course is repeatable for 9 credits.

PBG 510, INTERNSHIP, 4 Credits

Offered via Ecampus only.

This course is repeatable for 12 credits.

PBG 513, PLANT GENETIC ENGINEERING, 3 Credits

Principles, methods, and recent developments in the genetic engineering of higher plants. Offered alternate years.

Equivalent to: HORT 513

Recommended: (BI 311 and BOT 331) or (CSS 430 or CSS 530) or (HORT 430 or HORT 530) or (PBG 430 or PBG 530)

PBG 519, CURRENT TOPICS IN PLANT BREEDING AND GENETICS, 2 Credits

Provides an advanced understanding of plant breeding and genetics and their relationship to other disciplines through critical analysis of the scientific literature. Practice synthesizing information and presenting findings to peers. Instructors, topics, and specific learning objectives vary from term to term. CROSSLISTED as HORT 519/PBG 519.

Equivalent to: HORT 519

This course is repeatable for 12 credits.

PBG 530, PLANT GENETICS, 3 Credits

Introduction to the principles of plant genetics with an emphasis on the structure and function of economically important plant genomes.

Equivalent to: HORT 530

Recommended: One year of biology and chemistry.

PBG 541, PLANT TISSUE CULTURE, 4 Credits

Principles, methods, and applications of plant tissue culture. Laboratory is important part of course. Topics include callus culture, regeneration, somaclonal variation, micropropagation, anther culture, somatic hybridization, and transformation. CROSSLISTED as PBG 441 and MCB 541/PBG 541.

Equivalent to: HORT 541, MCB 541

Recommended: (BI 311 and BOT 331) or PBG 430

PBG 550, PLANT BREEDING, 4 Credits

An introduction to the genetic improvement of self-pollinated, cross-pollinated, and asexually propagated species and the genetic principles on which breeding methods are based. Example are drawn from a wide range of crops, including cereal grains, grasses, fruits, nuts, and vegetables; guest lecturers discuss their breeding programs. Additional topics include crop evaluation, germplasm preservation, disease resistance, and biotechnology. Lec/lab.

Equivalent to: CSS 550, HORT 550

Recommended: BI 311 or PBG 430 or PBG 530

PBG 551, BREEDING CLONAL CROPS, 1 Credit

The overall goal of the course is to gain fundamental knowledge of breeding methods for clonal crops; these methods are different from those used for seed-propagated crops. Specific examples from a wide array of plant species (tree fruits, berries, tree nuts, potato, sweet potato, cassava, cacao) will be provided to illustrate application of the fundamental knowledge.

Prerequisite: PBG 450 with C or better or PBG 550 with C or better

PBG 552, PLANT BREEDING AND SEED PRODUCTION IN ORGANIC SYSTEMS, 3 Credits

Genetic improvement and seed propagation of self-pollinated and cross-pollinated crops bred for and used in organic production. The philosophical basis for organic agriculture will be reviewed in the context of what breeding technologies are allowed and why. Important traits for adaptation to organic production will be described. Models for organic plant breeding and examples of such programs are provided.

Prerequisite: PBG 530 with D or better

Recommended: BI 311 or PBG 430

PBG 556, CROP PLANT DOMESTICATION, 2 Credits

Learning is based on discussion of the contemporary literature on crop plant origins and domestication. The major agronomic and horticultural crops will be covered. Topics include primary centers of domestication, traits altered by domestication, effect of genetic architecture and local ecology on domestication, and importance of genetic diversity to current plant improvement efforts.

PBG 557, PLANTS AND PATENTS, 2 Credits

Learn about different methods of intellectual property protection in agriculture with a focus on plant patents, plant variety protection and utility patents. The rights, current issues and restrictions that different types of patents allow will be presented through reading the current literature.

PBG 591, SELECTED TOPICS, 1-16 Credits

This course is repeatable for 16 credits.

PBG 599, SPECIAL TOPICS, 1-16 Credits

This course is repeatable for 16 credits.

PBG 601, RESEARCH, 1-16 Credits

Graded P/N.

This course is repeatable for 16 credits.

PBG 603, DISSERTATION, 1-16 Credits

Graded P/N.

This course is repeatable for 999 credits.

PBG 605, READING AND CONFERENCE, 1-16 Credits

This course is repeatable for 16 credits.

PBG 607, SEMINAR, 1-16 Credits

This course is repeatable for 16 credits.

PBG 609, PRACTICUM IN TEACHING, 1-3 Credits

Developing skills and competence in teaching under staff supervision; organization and presentation of instructional material by assisting in laboratory, recitation, and lectures. Graded P/N.

Equivalent to: CROP 609, ENT 609, SOIL 609

This course is repeatable for 9 credits.

PBG 620, INTRODUCTION TO MOLECULAR MARKERS, 2 Credits

Principles and methods for molecular marker discovery and analysis.

Offered even years. CROSSLISTED as MCB 620/PBG 620.

Equivalent to: MCB 620

Recommended: BI 311 or PBG 430 or PBG 530 or HORT 430 or HORT 530

PBG 621, GENETIC MAPPING AND ASSOCIATION, 2 Credits

Principles and methods for genetic map construction and genome-wide association studies. Offered even years. CROSSLISTED as MCB 621/PBG 621.

Equivalent to: MCB 621

Recommended: BI 311 or PBG 430 or PBG 530 or HORT 430 or HORT 530

PBG 622, MAPPING QUANTITATIVE TRAIT LOCI, 1 Credit

Principles and methods for mapping genes underlying phenotypically complex traits. Offered alternate years. CROSSLISTED as MCB 622/PBG 622.

Equivalent to: CSS 622, MCB 622

Recommended: CROP 590 or CSS 590 or ST 513

PBG 650, ADVANCED PLANT BREEDING AND QUANTITATIVE GENETICS, 3 Credits

Pedigree, bulk, single-seed-descent, doubled haploid, backcross, testcross, mass, and half-sib, S~1~, and S~2~ family breeding methods; breeding hybrids and selecting sources of alleles for developing superior hybrids; the nature and consequences of genotype by environment interactions; marker-assisted backcross and inbred line breeding; quantitative trait locus mapping; random linear models; designing and analyzing cultivar, line, and family selection experiments. Offered odd years.

Equivalent to: CSS 650

Recommended: (CSS 430 or CSS 530 or PBG 430 or PBG 530 or HORT 430 or HORT 530) and (CSS 450 or CSS 550 or PBG 450 or PBG 550 or HORT 450 or HORT 550) and (ST 411 or ST 511) and (ST 412 or ST 512) and (ST 413 or ST 513)

PBG 691, SELECTED TOPICS, 1-16 Credits

This course is repeatable for 16 credits.

PBG 699, SPECIAL TOPICS, 1-16 Credits

This course is repeatable for 16 credits.