

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.

PBG 431. PLANT GENETICS RECITATION. (1 Credit)

Review and demonstration of plant genetics principles.

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. Lec/lab.

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.

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 materials by assisting in laboratory, recitation, and lectures. CROSSLISTED as ENT 509, CROP 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.

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. Students practice synthesizing information and presenting findings to peers. Instructors, topics, and specific learning objectives vary from term to term. CROSSLISTED as HORT 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.

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. Lec/lab. CROSSLISTED as MCB 541.

Equivalent to: MCB 541

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.

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.

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

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 598. PLANT CHROMOSOME BIOLOGY. (3 Credits)

Exploration of the relationship between chromosome number, structure, and behavior to gene inheritance, organization, and expression. Discussion of chromosome manipulation strategies for genomics research, genetic analysis, and plant breeding.

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. DNA FINGERPRINTING. (1 Credit)

Principles and methods for producing and analyzing DNA fingerprints. Offered even years. CROSSLISTED as MCB 620.

PBG 621. GENETIC MAPPING. (1 Credit)

Principles and methods for constructing genetic maps comprised of molecular and other genetic markers. Offered even years. CROSSLISTED as MCB 621.

PBG 622. MAPPING QUANTITATIVE TRAIT LOCI. (1 Credit)

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

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.

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.