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)
Equivalent to: PBG 399H
This course is repeatable for 16 credits.

PBG 401. RESEARCH. (1-16 Credits)
Graded P/N.
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)
Graded P/N.
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.
Recommended: One year of biology and chemistry.

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.
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.
Prerequisites: PBG 430 with D- or better
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 999 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.
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. 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.
This course is repeatable for 16 credits.

**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 999 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.

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

**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.

Recommended: BI 311 or CSS 430 or CSS 530 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 even years. CROSSLISTED as 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.

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.