PSPP - Plant Sciences/Plant Pathology

PSPP 516. Research Design and Analysis. 3 Credits. (3 Lec) F PREREQUISITE: STAT 401. Data analysis and interpretation of problems unique to agricultural and biological research. Topics include: sample size determination, assumptions and transformation of data scale, completely random, randomized block and Latin square designs, comparisons among means, factorial experiments with restricted randomization and analysis of covariance, analysis of counts, and non-parametric methods.

PSPP 521. Plant Science for Teachers: It Grows on You. 1 Credit. (1 Lec) Su PREREQUISITES: Two years of successful teaching experience; graduate standing. In this course you will learn about the characteristics of plants, how abiotic factors influence plant growth and development, and experimental design and data collection methods. You will be challenged to create innovative lessons to deliver this content in your particular classroom setting.

PSPP 522. Insect-ology for Teachers. 3 Credits. (3 Lec) Su PREREQUISITE: Graduate standing; 2 years successful teaching experience. This exciting course is designed for elementary, middle school and high school teachers. The course provides an effective way to integrate instructional scientific strategies for teachers. Students will share cross-level instruction and constructive ideas. The goal of this course is to promote the study of insects and applications of insects. This eight-week course is intended for teachers enrolled in the Masters of Science in Science Education degree program, the NTEN Certificate Program, and other teachers with a minimum of two years teaching experience seeking professional development.

PSPP 524. Adv Plant Pathology. 3 Credits. (3 Lec) F alternate years, to be offered odd years.

This course is designed to give graduate students in the This course will serve as a companion to Genetic Plant Improvement (PSPP 542) taught in Spring odd alternate years by the plant breeding faculty.

PSPP 530. Crop Physiology. 3 Credits. (3 Lec) F PREREQUISITE: BIOO 433, CHMY 211. This online offering examines interactions between plants and the environment. Light, environment, plant canopy development, photosynthesis, source-leaf relations, growth analysis, growth regulation, water relations, and environmental stresses are addressed.

PSPP 541. Advanced Plant Genetics. 3 Credits. (3 Lec) F alternate years, to be offered even years.

Genome and genetic analysis of flowering plants, including structure of the genome, methods of genetic analysis and the genetic basis of plant morphology and development. A familiarity with current and classical literature is stressed.

PSPP 542. Genetics of Plant Improvement. 3 Credits. (3 Lec) S odd years PREREQUISITE: AGSC 441, STAT 401. The past, present and future of plant improvement. Emphasis on genetic principles underlying classical plant breeding, and on molecular biological principles underlying plant genetic engineering.

PSPP 546. Herbicide Physiology. 3 Credits. (3 Lec) F Offered Even Years PREREQUISITE: BCH 380 and BIOO 433 or equivalents. A team-taught, distance delivery course on the biochemistry and physiology of herbicide action in plants. Herbicide discovery, classification, and mechanisms of action and resistance are explored.

PSPP 547. Biomimicry for Teachers. 2 Credits.

PSPP 548. Flowering Plants of the Northern Rocky Mountains. 2 Credits. (2 Lec) Su

A field oriented study of the flowering plants of Montana with an emphasis on plant keying objectives. Objectives are: 1) to identify the pars of flowering plants and become familiar with botanical terms; 2) to learn morphological characteristics of common plant families; 3) to learn how to use a plant key to successfully identify flowering plants; application of these skills and botanical texts to the classroom. Mon - Tues are class/lecture days; Wed - Fri are day field trips to local trail heads.

PSPP 549. Plants, People, Health for Teachers. 2 Credits. (1 Lec. 1 Lab) Su

PREREQUISITES: Teacher of science with two year minimum teaching experience. This interdisciplinary course investigates how plants and people intersect, with a focus on the current popular and scientific interest in using plants and their compounds for health and medicine. The subject will be applied to ethnobotany, botany, and phytochemistry. The last day will be spent with hands-on experience making some herbal products to enhance the learning opportunity.

PSPP 565. Plant-Pathogen Interaction. 3 Credits. (3 Lec) S Alternate Even years PREREQUISITE: BIOB 160. Co-convened with AGSC 455. This course teaches the molecular mechanisms by which plants and pathogens/insects interact during the progress of pathogenesis or resistance, and the methods to study and visualize intercellular interactions during pathogenesis and defense. Co-convened with BIOM 465.

PSPP 575. Professional Paper. 1-10 Credits. ES,Su PREREQUISITE: Graduate standing. A research or professional paper or project dealing with a topic in the field. The topic must have been mutually agreed upon by the student and his or her major adviser and graduate committee.

PSPP 589. Graduate Consultation. 1-3 Credits. (1-3 Ind) ES,Su PREREQUISITE: Master’s standing and approval of the Dean of Graduate Studies. This course may be used only by students who have completed all of their coursework (and thesis, if on a thesis plan), but who needs additional faculty or staff time help.

PSPP 590. Master’s Thesis. 1-10 Credits. (1-10 Ind; max cr unlimited) ES,Su PREREQUISITE: Master’s standing.

PSPP 591. Special Topics. 1-4 Credits. (1-4 Lec; 12 cr max) On Demand PREREQUISITE: Upper division courses and others as determined for each offering. Courses not required in any curriculum for which there is a particular one time need, or given on a trial basis to determine acceptability and demand.

PSPP 592. Independent Study. 1-3 Credits. (1-3 Lec; 6 cr max) On Demand PREREQUISITE: Graduate standing, consent of instructor, approval of Department Head and Dean of Graduate Studies. Directed research and study on an individual basis.

PSPP 594. Seminar. 1 Credit. (1 Sem) ES PREREQUISITE: Graduate standing or seniors by petition. Course prerequisites as determined for each offering. Students prepare, present, and critique scientific presentations.

PSPP 598. Internship. 2-4 Credits. (2-4 Ind; 12 cr max) ES,Su PREREQUISITE: Graduate standing, consent of instructor and approval of Department Head, and Dean of Graduate Studies. An individualized assignment arranged with an agency, business or other organization to provide guided experience in the field.

PSPP 642. Structural and Functional Genomics. 3 Credits. (2 Lec; 1 Lab) F Alternate Odd years PREREQUISITE: BCH 380 and BIOO 433 or equivalents. A team-taught, distance delivery course on the molecular mechanisms by which plants and pathogens/insects interact during the progress of pathogenesis or resistance, and the methods to study and visualize intercellular interactions during pathogenesis and defense. Co-convened with BIOM 465.

PSPP 662. Structural and Functional Genomics. 3 Credits. (1 Lec) S Alternate Odd years The objective of this course is to understand the genome analysis and basic approaches in functional genomics underlying forward and reverse genetics, transposon insertion, RNA interference (RNAi) and micro RNA (miRNA) gain of function (activation tagging) mutagenesis, TILLING (Targeted Induced Local Lesion In Genomes) and fine structure genetics (Modifier screens, Enhancer trap, GAL4 mediated over expression) and methods for transcriptome analysis (cDNA microarrays, Oligonucleotide arrays, Rapid Analysis of Gene Expression (RAGE) and Serial analysis of gene expression (SAGE) will also be covered in detail.

PSPP 690. Doctoral Thesis. 1-10 Credits. (1-10 Ind; max cr unlimited) ES,Su PREREQUISITE: Doctoral standing.