Registration is currently open for Summer 2015, and coming up soon, for Fall 2015:

- **Summer Registration –** Currently open for both continuing and new graduate students
- **Fall Registration –** Continuing graduate students – April 13, 2015
- **Fall Registration –** New Graduate Students – May 1, 2015

How to Register - https://online.wsu.edu/currentStudent/courses/howToRegister.aspx

For your convenience and interest, we have provided detailed descriptions below for MSAG approved ONLINE courses.

Summer 2015 ONLINE Courses	Fall 2015 ONLINE Courses
AGRI 587, 700 and 702	AGRI 587, 700, and 702
FS 515	CROP_SCI 443, 512
FS 516	ECONS 505
SOIL_SCI 101 (will not count toward MS degree)	E_M 522 and 564
	ENTOM 555
	FS 504, 509, 536, and 564, (U of I cooperative registration)
	HORT/AFS 350
	HD 586
	IPM 552
	NATRS 550
	PHIL 530
	SOIL_SCI 101, 201 (will not count toward MS degree)
	SOIL_SCI 368
	STAT 412

For those students who are Pullman-based, additional face-to-face course options are available here: Pullman Summer 2015 Pullman Fall 2015.

Agriculture

- **AGRI 587 – Research in Agriculture** REQUIRED CORE COURSE Credits: 3 | Exploration and assessment of current issues associated with domestic and international agriculture programs.
  - This course will focus on ways to effectively communicate research and extension information to diverse audiences and to plan and assess effective extension programs. During the first part of the semester we will practice communicating to research audiences in the form of scientific papers and presentations. We will then compare the writing style used in scientific writing to that used in communicating extension information. The final part of the semester will concentrate on program planning, evaluation, and the use of the Logic Model in extension.
- **AGRI 700 – Master's Research, Thesis, and/or Examination** REQUIRED CORE COURSE (Thesis Option) Credits: Variable S, F grading.
- **AGRI 702 – Master's Special Problems, Directed Study, and/or Examination** REQUIRED CORE COURSE (Non-Thesis Option) Credits: Variable S, F grading.

Crop Science

- **CROP_SCI 443 Plant Breeding for Organic Agriculture** Credits 3 | Course Prerequisite: HORT 202; BIOLOGY 106 or 120. Concepts and practice of breeding in and for organic agriculture with an emphasis on field-based, on-farm techniques.
    - This class will allow students to gain skills for performing classical plant breeding methods, under organic cropping systems in the field, for a wide range of crop plants in temperate climates. Through discovering the traits and challenges important in organic systems it is possible to envision breeding crops that will excel under organic systems. Our discussions will consider sources of diverse crop genetic materials, screening methodology, breeding techniques, population dynamics, maintaining genetic diversity, disease resistance, crop genetic purity and releasing varieties. Examples of Participatory Plant Breeding projects performed by regional farmers under field conditions will be reviewed. Students will be expected to develop a breeding program model for a regionally adapted crop that will include all of the elements of plant breeding theory for organic systems that are covered in the class.

- **CROP_SCI 512 – Weed Management** Credits: 2 | Course in development

Economic Sciences

- **ECONS 505 – Economics for Agricultural Decision Making** Credits: 3 | This is a course in managerial economics skills with specific applications to agricultural issues. It is designed to provide a working knowledge of the economy and to develop basic skills in economic analysis for managerial decision making. The course introduces the tools and analytical approaches used by economists to evaluate problems and to develop strategic responses, and includes extensive applications to agricultural issues.
    - Agriculture is possibly the society's most foundational industry. What could be more fundamental than the need for food and clothing? These basic goods are produced using limited resources and thus food and clothing come in limited supply. When a good is limited, we must decide how to distribute it to meet the boundless desires of consumers, the people who want to eat food and wear clothes. In this course we will look at the how consumers act upon their preference to meet their self-interest given their limited means by examining such topics as utility, income and substitution effects, and demand response to price changes, among other topics. We will discuss the producer's (e.g. the farmer's) decision regarding which inputs are best used to produce the best output, and how producer know which output is best. This will include a variety of topics like the production possibilities frontier, profit-maximization, production costs, and marginal costs and benefits. We will want to know how these two force supply (from the producer) and demand (from the consumer) come together to create the rationing mechanism commonly referred to as "the market" and its most important signal–price. Finally, we will see how these forces are influenced by and play a role in the broader world, the national and international economy. Such topics as the national income, international trade, financial markets, and the role of government will be discussed.

Engineering Management

- **E_M 522 – Supervision and Leadership for Engineering and Technology Managers** Credits: 3 | Strategies of supervision with practical application techniques presented to create individual and organizational motivation.

- **E_M 564 – Project Management** Credits: 3 | Technical tools, Critical Path Method (CPM), Program Evaluation Review Technique (PERT), cost/schedule control systems, behavioral issues and organizational structure. Credit not granted for both E_M 464 and E_M 564.

Entomology

- **ENTOM 555 – Agricultural Chemical Technology for Crop Protection & Production** Credits: 3 | Mechanistic examination of agricultural chemical technology; synthetic and biological pesticides and fertilizers; mechanism of biological activity; deployment; management.

    - The course will focus first on the context of the ecology of agricultural systems that necessitate intervention with crop protection technologies. The deployment of crop protection technologies will be examined within the context of an integrated pest management strategy for decision making. Because crop health is one form of enhancing pest control, the course will necessarily cover fertilizer technology and its efficient application to avoid unnecessary nitrogen and phosphorus losses. Following several lectures that provide the context for deployment of agricultural chemical technologies, specific types of pest control products will be introduced and discussed from the perspective of how they work. Pesticides approved for agriculture in general and for certified organic agriculture specifically will be broadly covered. In addition, attention will be given to the use of genetic engineering to enhance crop protection. The main focus of all discussions will be mechanistic: what is the physicochemical or biological nature of the technology, how does it work from a biological perspective, how is it deployed, and how should it be best managed for environmental protection and perhaps as importantly, sustainable use of the technology.

- **IPM 552 – Pesticides and the Environment** Credits: 3 | Prerequisites: 12 credits of biology-based coursework. Immediate and prolonged effects of pesticides on human and other animals; legal and moral repercussions of pesticide use. Offered at 400 and 500 level.
    - This course provides an overview of pesticide use, with particular emphasis on unintended resultant environmental effects. The course also reviews all types of pesticides from an overall perspective relative to their utilization and/or occurrence in agricultural and non-agricultural ecosystems. Course content emphasizes factors that must be considered in making decisions to utilize pesticides, including state and federal legal requirements.

Food Science

- **FS 504 Food Quality Management** Credits: 3 | Recommended Preparation: FS 302; FS 303; STAT 212. Apply modern statistical methods for quality control and improvement of biomanufactured goods. This course is designed to expose the student to principles of statistical process control while providing a basis of application in a variety of situations and systems.
    - Food Quality Management (FS 504) is a fully online course that covers quality management principles and practices in the food industry. Quality and quality management are critical to the food industry to ensure food products that are both safe to eat and desirable to consumers. This course covers different quality management programs used in the food industry, the tools used by these programs to monitor quality, and the statistical principles behind the tools. Students will put their quality management knowledge to use in the course project, in which they will identify a quality problem, take steps to correct it, and prevent it from reoccurring.

- **FS 509 – Principles of Environmental Toxicology** Credits: 3 | Recommended Preparation: Biol 102 or Biol 115, Chem 111, Chem 112, Chem 275, and Stat 251. Fundamental toxicological concepts including dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity and teratogenesis, mutagenesis, and carcinogenesis; chemodynamics of environmental contaminants including transport, fate, and receptors; chemicals of environmental interest and how they are tested and regulated; risk assessment fundamentals. Offered at 400 and 500 level. Students registering for FS 509 are required to prepare an additional in-depth report. [UI Coop Course]

    - Environmental toxicology is the study of the nature, properties, effects and detection of toxic substances in the environment and in any environmentally exposed species, including humans. This course will provide a general understanding of toxicology related to the environment. Fundamental toxicological concepts will be covered including dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity and teratogenesis, mutagenesis, carcinogenesis and risk assessment. The course will include an overview of chemodynamics of contaminants in the environment including fate and transport. The course will examine chemicals of environmental interest and how they are tested and regulated. Case studies and special topics will be critically reviewed.

- **FS 515 – Food Fermentations: Microbiology and Technology (pending Senate approval)** Credits 3 | Fundamental understanding of food fermentation science and technology knowledge and principles; application of scientific knowledge to assess and solve food fermentation science and technology problems. [UI Coop Course]

- **FS 516 – Food Laws** Credits 2 - Become familiar with government statutes and regulations that contribute to a safe, nutritious, and wholesome food supply. Understand more about the law and the US legal system relevant to the regulation of the manufacture and sale of food and supplements, including jurisdictional issues, administrative law, and tort, contract, corporate, environmental, labor, and criminal law issues.

- **FS 536 - Principles of Sustainability** Credits 3 | Presented as online doculectures, covering topics such as: Origins of Sustainability, Standards of Sustainability, Culture of Waste, Built Environment, Industrial Sustainability, Energy Sustainability, Water Resources, Measuring Sustainability, Sustainable Impact Assessment, and Our Sustainable Future. Readings and homework are assigned with each topic. Learning assessment will be from homework, exams and written papers. Offered at 400 and 500 level. Additional work is required for graduate credit. [UI Coop Course]

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- **FS 564 – Food Toxicology** Credits 3 | Prerequisites**:** MMBB 300 (Survey of Biochemistry) or MMBB 380 (Introductory Biochemistry). General principles of toxicologic evaluation of chemicals, which intentionally or unintentionally enter the food chain. Toxicology of food additives, colors, preservatives, drugs, pesticides and natural toxins in foods and risk characterization. Offered at 400 and 500 level. Additional projects/assignments required for graduate credit. [UI Coop Course]

    - Food toxicology is the study of the nature, properties, effects, and detection of toxic substances in food or food animal feed and their disease manifestation in humans. This course will provide a general review of toxicology related to food and the human food chain. Fundamental concepts will be covered including dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity, teratogenesis, mutagenesis, carcinogenesis, food allergy, and risk assessment. The course will examine chemicals of food interest, such as food additives, natural products, mycotoxins, and pesticides, and how they are tested and regulated. We will critically review case studies and special topics.

Horticulture

- **HORT - 350 Food Systems in Western Washington Credits:** | Course Prerequisite: CROP SCI/HORT 102; ECONS 101; SOIL SCI 201. Introduction to local and regional food systems unique to western Washington with an emphasis on the farm-to-table processes of foods and beverages. (Course offered as HORT 350, AFS 350).

Human Development

- **H_D - 586 Special Topics in Human Development** Credits: 2 | Customized leadership course for acquiring essential beyond the discipline skills for professional and personal success. Build your personal leadership platform.

Natural Resource Sciences

- **NATRS – 550 Conservation Biology** Credits: 3 | Patterns of biological diversity, factors producing changes in diversity, values of diversity, management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues and funding sources. Offered at 400 and 500 level. Graduate-level counterpart of NATRS 450; additional requirements. Credit not granted for both NATRS 450 and 550.
    - Conservation Biology is a writing-in-the-major (M) course that is appropriate for advanced students in both the biological and social sciences. While no formal pre-requisites (other than junior or senior standing) have been listed for this course because of its inherent interdisciplinary nature, I assume that students will have at least a general university science background (e.g., general biology, and preferably, some additional supporting science coursework in other areas such as agriculture, biology, ecology, botany, environmental science, horticulture, landscape architecture, natural resources, social science, or zoology).

Philosophy

- **PHIL 530 – Bioethics** Credits: 2 | Professional ethics for scientists; ethical implications of new technologies; obligations to human and non-human research subjects. Cooperative: Open to UI degree-seeking students.
    - This course will have students explore a variety of issues related to the ethics of research in and the use of biotechnology, the ethics of science more generally, and research ethics. We will begin by considering why scientists should have an interest in the ethical dynamics of their research and its application. We will also discuss a variety of approaches to ethics, as well as political and philosophical implications of scientific research. The bulk of the course will be devoted to looking at particular issues in bioethics, including the use of human research subjects, ethical issues in biomedicine and the pharmaceutical industry, stem cells and human cloning, reproductive and genetic issues, neuroethics, the use of animals in research, and plant biotechnologies. We will also cover the responsible conduct of research, as required by various government funding agencies.

Soil Science

- **SOIL_SCI 101 – Organic Gardening and Farming** Credits: 3 | Prerequisites: none Principles and production practices of organic gardening and farming. Field trip required. Cooperative course taught by WSU, open to UI students (AG 101). *Supporting coursework; will not count toward MS degree requirements.*
    - The goal of Soil Science 101 Organic Gardening and Farming is to provide you with an introduction to the field of organic agriculture and the basic principles and production practices involved. Topics covered will include an introduction to the growing literature on organic farming, the issue of sustainability, soil quality in terms of its physical, chemical, and biological characteristics, organic soil fertility, basic plant botany and plant propagation techniques, weed and pest management, food health and safety, general organic garden and farm planning and organic certification requirements. We will also aim to foster critical thinking, media use and writing skills as we explore some of the rhetoric used in the ongoing organic agriculture debate.

- **SOIL_SCI 201 -Soil: A Living System [BSCI]** Credits 3 | Biological, chemical, and physical properties of soils; fundamentals of soil ecology, soil-water-plant relations, soil fertility , and soil genesis. *Supporting coursework; will not count toward MS degree requirements.*
    - The goal of Soil Science 201, Soils: A Living System, is to develop a general understanding of the science of soils and to give students an appreciation of what is underneath almost every footstep that a person takes. By the end of the semester you will have been introduced to the concept of soil formation, morphology and classification as well as soil biological, chemical, and physical processes. We will also cover the soil as a supplier of water and nutrients to plants, the role of soil as a host to an array of living organisms, how we manage these aspects of soil, as well as how natural and imposed events can degrade soils. This will be done through a combination of on-line lectures, individual and group activities, threaded discussions, and chats. In this class you will not only get to learn, you will be able to get your hands dirty!

- **SOIL_SCI 368 – Introduction to Geographic Information Systems** Credits 3 | Prerequisites: 3 credits in the UCORE category Sciences Introduction to geographic information systems applied to landscape data; geographic coordinate systems and projections, make maps and use geodatabases.
    - Geographic Information Systems (GIS) are tools that allow you to visually explore and analyze the mountains of data that surround us. A GIS can process the geospatial information found in most data sets, and allow you to answer questions and make decisions that would be difficult to answer with a traditional spreadsheet or database: Where is this? What is it next to? How is it related to what is over there? How do I get there? In this class you will learn to create maps that communicate information to different audiences, and learn how to analyze data from a spatial perspective. You will get to use the leading commercial GIS software package, ArcGIS to accomplish these tasks.

Statistics

- **STAT 412 – Statistical Methods in Research I** REQUIRED CORE COURSE (Non-Thesis Option) Credits: 3 | Prerequisites: Stat 212, Math 140, 171, 202, or graduate standing. Intermediate statistical methods, design and analysis of research studies: completely randomized and randomized block designs, multiple regression, categorical data analysis. Cooperative course taught by WSU, open to UI students (STAT 412).
    - This course will introduce you to the concepts and methods involved in the process of drawing meaningful conclusions based on observation and experimentation. After a brief review of descriptive techniques, basic concepts of probability, and computer methods we will focus on collecting, analyzing, and drawing conclusions from data. By the end of the semester, you will be able to gather, analyze, and interpret data, draw meaningful conclusions, discuss the reliability of your conclusions and the assumptions upon which your conclusions are based.