AGRICULTURAL SCIENCES

COLLEGE OF AGRICULTURAL SCIENCES

Graduate Faculty:

AbuGhazaleh, Amer A., Associate Professor, Ph.D., South Dakota State University, 2002; 2004
Altman, Ira J., Assistant Professor, Ph.D., University of Missouri, 2005; 2006.
Appar, Gary A., Associate Professor, Ph.D., Virginia Polytechnic Institute and State University, 1994; 1998.
Arthur, Robert, Professor, Emeritus, Ph.D., University of Missouri, 1970; 1977.
Ashraf, Hea-Ran L., Professor, Emerita, Ph.D., Iowa State University, 1980; 1980.
Atkinson, Rebecca L., Assistant Professor, Ph.D., University of Wyoming, 2006; 2006.
Banz, William J., Professor, Ph.D., University of Tennessee, 1995; 1995
Beaulieu, C. Andrew, Associate Professor, Ph.D., Purdue University, 2003; 2003.
Beck, Roger J., Associate Professor, Emeritus, Ph.D., Pennsylvania State University, 1977; 1984.
Bond, Jason P., Associate Professor, Ph.D., Louisiana State University, 1999; 2000.
Carver, Andrew, Associate Professor, Ph.D., Purdue University, 1998; 1998.
Choudhary, Ruplal, Assistant Professor, Ph.D., Oklahoma State University, 2009; 2009.
Chong, She-Kong, Professor, Emeritus, Ph.D., University of Hawaii, 1979; 1979.
Davis, Jeremy, Assistant Professor, Ph.D., Iowa State, 2008; 2008.
Diesburg, Kenneth L., Assistant Professor, Ph.D., Iowa State University, 1987; 1989.
Eberle, Phillip R., Associate Professor, Ph.D., Iowa State University, 1983; 1983.
Endres, Jeannette M., Professor, Emerita, Ph.D., St. Louis University, 1972; 1980.
Fakhoury, Ahmad M., Associate Professor, Ph.D., Purdue University, 2001; 2003.
Gastal, Eduardo L., Assistant Professor, Ph.D., University of Wisconsin-Madison, 1999, 2009.
Groninger, John W., Associate Professor, Ph.D., Virginia Polytechnic Institute and State University, 1995; 1997.
Harris, Kim S., Associate Professor, Ph.D., University of Illinois, 1985; 1984.
Hauserl, Carl L., Associate Professor, Emeritus, Ph.D., Purdue University, 1970; 1970.
Henry, Paul H., Associate Professor, Ph.D., North Carolina State University, 1991; 1992.
Holzmueller, Eric J., Assistant Professor, Ph.D., University of Florida, 2006; 2007.
Kammlade, W. G., Jr., Associate Professor, Emeritus, Ph.D., University of Illinois, 1951; 1954.
Kantartz, Stella, Assistant Professor, Ph.D., Aristotle University of Thessaloniki, 2006; 2008. Soybean breeding and genetics.
Keepper, Wendell E., Professor, Emeritus, Ph.D., Cornell University, 1938; 1950.
King, Sheryl S., Professor, Ph.D., University of California, Davis, 1983; 1983.
Klubek, Brian P, Professor and Chair, Ph.D., Utah State University, 1977; 1978.
Kraft, Steven E., Professor, Emeritus, Ph.D., Cornell University, 1976; 1980.
Kroening, Gilbert H., Professor, Emeritus, Ph.D., Cornell University, 1965; 1969.
Legacy, James, Professor, Emeritus, Ph.D., Cornell University, 1976; 1977.
Lightfoot, David A., Professor, Ph.D., University of Leeds, 1984; 1991.
Long, Sara, Professor, Ph.D., Southern Illinois University Carbondale, 1991; 1991
McGuire, James M., Professor, Emeritus, Ph.D., North Carolina State University, 1961; 1993.
Meksem, Khalid, Professor, Ph.D., University of Cologne, Germany, 1995; 2000.
Minish, Gary L., Professor, Emeritus, Ph.D., Michigan State University, 1966; 2004.
Moon, Wanki, Associate Professor, Ph.D., University of Florida, 1995; 2000.
Nielsen, Clayton, Assistant Professor, Ph.D., Southern Illinois University Carbondale, 2001; 2009.
Olsen, Farrel J., Professor, Emeritus, Ph.D., Rutgers University, 1961; 1971.
Park, Logan, Assistant Professor, Ph.D., Virginia Polytechnic Institute and State University, 2009; 2009
Pense, Seburn L., Assistant Professor, Ph.D., Oklahoma State University, 2002; 2003.
Preece, John E., Professor, Emeritus Ph.D., University of Minnesota, 1980; 1980.
Rendleman, C. Matthew, Associate Professor, Ph.D., Purdue University, 1989; 1994.
Ruffner, Charles M., Associate Professor, Ph.D., Pennsylvania State University, 1999. 1999.
Sanders, Dwight R., Professor, Ph.D., University of Illinois, 1999; 2000.
Schmidt, Michael, Associate Professor, Emeritus, Ph.D., Southern Illinois University Carbondale, 1994; 1979.
Doctor of Philosophy in Agricultural Sciences

The College of Agricultural Sciences offers a graduate program leading to the Doctor of Philosophy degree. This degree is designed to provide students with an interdisciplinary doctoral education in the physical, biological and social sciences that enhances, regulates and sustains agriculture, food and forestry producers, industries and agencies. This degree will prepare Ph.D. graduates to teach and conduct research and outreach at universities and community colleges, and for careers in the corporate, private and government sectors.

Admission

All applications to the program must include a Graduate School On-Line Application available at www.siu.edu/gradschl, a statement of interest, college transcripts, three letters of recommendation, GRE scores including verbal and quantitative, and may include a financial assistance form. In addition, this Program requires a non-refundable $50 application fee. Criteria for admission include an official transcript or graduate dean's letter showing that a Master's degree was or is to be awarded, letters of recommendation, grade point average (must meet the SIUC Graduate School minimum 3.25 GPA in graduate work), and GRE scores. The Graduate Committee of the College must approve admission to the Ph.D. in Agricultural Sciences program. Ph.D. students will be selected on a national and international competitive basis.

Students must have a Master of Science or Master of Arts degree in Agriculture, a discipline within the SIUC College of Agricultural Sciences, or a closely related field (such as Biology, Botany, Natural Science, Rural Sociology, Economics, or Environmental Science). Students with a Bachelor of Science or Bachelor of Arts degree may be admitted during their last semester of Master's studies conditional upon completion of their Master's degree.

Doctor of Philosophy Degree Program

Each doctoral student in the College of Agricultural Sciences must successfully complete a common core of research methodology courses, including a two semester sequence of graduate level statistics courses for 4-5 credit hours each, followed by a 3-4 credit hour graduate level experimental design course. Students also will be required to take a three-credit course in Research and Teaching Communications, two semesters of graduate seminar, and 24 hours of dissertation credits. There will be an additional minimum of 20 hours of structured courses appropriate for each student's area of emphasis. The student's graduate advisory committee must approve these courses.

All Ph.D. students in the program will be required to teach or assist in teaching at least two courses within the College of Agricultural Sciences while in the program. This requirement is regardless of the form of stipend of the student, i.e. if a student is on a research assistantship throughout their tenure in the program, they will still be required to teach or assist in teaching courses.

There is no minimal credit-hour requirement beyond the core, the area of emphasis, and the Graduate School's residency and dissertation requirements. A student in consultation with their major professor will prepare a program of study, including courses in the student's area of emphasis, by the end of the second semester of residency. This plan of study, when approved by the student's advisory committee, will be filed with the Director of Graduate Studies for the College.
Ph.D. Candidacy

By the end of the second semester in residence, students must have chosen an area of emphasis and formed a graduate advisory committee to approve their coursework and oversee their dissertation research. The graduate advisory committee will consist of at least five graduate faculty members, with the majority from within the College of Agricultural Sciences and no more than three members from one department. The committee chair will be the student’s major professor and must be a member of the College of Agricultural Sciences faculty.

To be admitted to candidacy, the student must have completed the Graduate School’s 24 credit hours residency requirement within four calendar years, plus the core and emphasis area coursework that was approved by their graduate advisory committee. This should take the student three to four semesters, depending on whether they had any graduate-level research methodology courses during their Master’s degree. At this time, they will take both written and oral preliminary examinations designed and administered by the student’s graduate advisory committee. These exams will each have two parts. One will focus on the student’s knowledge of the research methodology core and the second part will focus on the student’s chosen area of emphasis. If the preliminary examinations are not passed, a student must wait a minimum of three months for the second and final attempt to pass the exam.

After passing the written and oral preliminary exams and with an approved dissertation proposal, the student will be admitted to candidacy. The Graduate School requires that Ph.D. students fulfill all degree requirements within five years of admission to candidacy or they may have to retake their preliminary exams.

Dissertation and Dissertation Examination

By the beginning of the fifth semester of residence, the students will present to their graduate committee a dissertation research proposal. The student’s committee must approve the proposal by the end of their fifth semester of residence. At this time, students must present their dissertation proposal verbally in the form of a graduate seminar. All faculty members in the College of Agricultural Sciences, the student’s graduate advisory committee, all other graduate students in the College, and appropriate individuals from industry groups in southern Illinois will be invited to these seminars. Following the seminar, the student will meet with their graduate advisory committee and will be asked to defend the substance and methods of the proposed research.

The student’s graduate advisory committee will monitor the student’s progress on the dissertation. When the dissertation is completed to the satisfaction of the graduate advisory committee, the committee will administer a final oral exam that will focus on defense of the dissertation. When the dissertation and final oral exam are successfully completed, the student will be recommended to the Graduate School for the doctoral degree.

Courses (AGSC)

550-3 Research and Teaching Communications. This course is designed to teach graduate students how to communicate successfully their proposed and completed research and to teach college-level courses in the Agricultural Sciences.

581-1 to 4 (1,1,1) Seminar. Oral presentations by individual graduate students. Each Ph.D. student in Agricultural Sciences is required to present their proposed dissertation research project as a seminar and the findings of their dissertation as a seminar. All Agricultural Sciences Ph.D. students must register for at least two credits of seminar.

582-A-C (1-3, 1-3, 1-3) Colloquium in Agricultural Science. Recent developments in Agricultural Sciences will be discussed in a classroom setting: (a) Biological Science, (b) Social Sciences, and (c) Physical Sciences.

590-1 to 4 Graduate Readings in Agricultural Science. Journal articles, chapters and books relevant to a Ph.D. student’s research will be read and discussed with their major professor.

591-1 to 4 Individual Research in Agricultural Science. Directed research in approved specialized topic areas in Agricultural Sciences.

592-1 to 4 Special Problems in Agricultural Science. Directed study of specialized areas of Agricultural Science, depending on the program of the student.

600-1 to 36 (1 to 12 per semester) Dissertation. This course is to be taken during the research and writing of the dissertation. A minimum of 24 hours must be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those Doctoral students who have not finished their degree programs and who are in the process of working on their dissertation. The student must have completed a minimum of 24 hours of dissertation research before being eligible to register for this course. Concurrent enrollment in any course is not permitted.
The following is a list of structured courses from which Ph.D. students in Agricultural Sciences may select in each of the emphasis areas. Students will not be limited to these courses, however, the majority of the courses that they may take are included.

**Common Among Disciplines**
EPSY 506-4  Inferential Statistics
EPSY 507-4  Multiple Regression
EPSY 508-4  Experimental Design in Educational Research
PSAS 560-5  Field Plot Technique
ZOOL 557-4  Biostatistics
ZOOL 558-4  Advanced Biostatistics

**Agribusiness Economics**
ABE 401-3  Agricultural Law
ABE 402-1 to 6  Problems in Agribusiness Economics
ABE 440-3  Natural and Environmental Resource Economics and Policy
ABE 444-3  Agricultural Development
ABE 450-3  Advanced Farm Management
ABE 451-3  Appraisal of Rural Property
ABE 453-3  Agribusiness Planning Techniques
ABE 460-3  Agricultural Price Analysis and Forecasting
ABE 461-3  Agriculture Business Management
ABE 462-3  Advanced Agricultural Marketing
ABE 463-3  Managerial Strategies for Agribusiness
ABE 500a,b-6(3,3)  Agribusiness Economics Research Methodology
ABE 551-3  Resource Allocation in the Agribusiness Firm
ABE 552-3  Problems and Policies of the Agricultural Sector
ABE 581-1 to 4  Seminar in Agribusiness Economics
ABE 585-1 to 6  Practicum/Internship
BA 505  Brand Management
BA 510  Managerial Accounting & Control Concepts
BA 514  Ethics of Business
BA 530  Financial Management
BA 531  Advanced Financial Management
BA 532  Financial Institutions and Markets
BA 533  Investment Concepts
BA 540  Managerial and Organization Behavior
BA 541  Operations Research II
BA 544  Advanced Production Planning and Inventory Management
BA 545d  Advances in Strategic Management
BA 550  Marketing Management

BA 551  Product Strategy and Management
BA 558  Promotional Strategy and Management
BA 560  Management of Information Systems
BA 561  Database Design and Applications
BA 562  Information Systems and Design Information
BA 564  Management of Marketing Information
BA 580  International Dimensions of Business and Management
BA 581  Global Marketing
BA 582  International Finance
BA 583  Global Operations Management
BA 584  Global Business Strategies
ECON 429-3  International Trade and Finance
ECON 431-3  Public Finance II
ECON 436-3  Government and Labor
ECON 440-3  Price, Output and Allocation Theories
ECON 441-3  Contemporary Macroeconomic Theory
ECON 463-3  Introduction to Applied Econometrics
ECON 474-3  Antitrust and Regulation
ECON 520-6 (3,3)  Economic Development Theory and Policy
ECON 522-3  Microeconomic Foundations of Labor Markets
ECON 530-3  Foreign Trade
ECON 531-3  International Finance
ECON 532-3  Economics of Human Resources
ECON 534-3  Economics of Taxation
ECON 540A-3  Microeconomic Theory I
ECON 540B-3  Microeconomic Theory II
ECON 540C-3  Microeconomic Theory III
ECON 541A-3  Macroeconomic Theory I
ECON 541B-3  Macroeconomic Theory II
ECON 541C-3  Macroeconomic Theory III
ECON 545-3  Resource Economics
ECON 567A-3  Econometrics I
ECON 567B-3  Econometrics II
ECON 567C-3  Econometrics III
ECON 580A-3  Performance Measurement
GEOG 401-3  Introduction to Geographic Information Systems
GEOG 406-3  Introduction to Remote Sensing
GEOG 408-3  Advanced Remote Sensing
GEOG 420-3  Advanced Geographic Information Systems (GIS) Studies
GEOG 422-4  Economics in Environmental Management
GEOG 424-4  Natural Resources Planning
GEOG 425-4  Integrated Water Management Administration
GEOG 426-4  Administration of Environmental Quality and Natural Resources
GEOG 428-3  Spatial Decision Support Systems
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<td>Geography and Organic Farming</td>
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<td>GEOG 430-3</td>
<td>Environmental Systems Analysis</td>
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<td>GEOG 431-3</td>
<td>Climate</td>
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<td>GEOG 433-4</td>
<td>Field Methods in Weather and Water Resources</td>
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<td>GEOG 434-4</td>
<td>Water Resources Hydrology</td>
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<td>GEOG 435-3</td>
<td>Energy Planning</td>
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<td>GEOG 436-3</td>
<td>Environmental Disaster Planning</td>
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<td>GEOG 438-3</td>
<td>Applied Meteorology</td>
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<td>GEOG 439-3</td>
<td>Climatic Change</td>
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<td>GEOG 458-3</td>
<td>Analysis of Risk and Bioterrorism Using GIS</td>
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<td>GEOG 471-3</td>
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<td>Programming for Agricultural Systems</td>
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<td>PSAS 560-5</td>
<td>Field Plot Technique</td>
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<td>PSAS 572-3</td>
<td>Current Research in Agricultural Systems</td>
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<td>PSAS 575-3</td>
<td>Agricultural Systems</td>
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<td>FOR 401-3</td>
<td>Fundamentals of Environmental Education</td>
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<td>Wildland Hydrology</td>
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<td>FOR 403-3</td>
<td>Agroforestry</td>
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<td>Forest Management for Wildlife</td>
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<td>FOR 408-4</td>
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<td>FOR 412-2</td>
<td>Tree Improvement</td>
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<td>Park and Wildlands Management</td>
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<td>FOR 431-3</td>
<td>Regional Silviculture</td>
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<td>Forest Ecology Field Studies</td>
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<td>FOR 470-2</td>
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<td>Social Influences on Forestry</td>
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<td>Energy and Protein Utilization</td>
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ANS 531A-2 Advanced Reproductive Physiology
ANS 531B-2 Developmental Physiology
ANS 531C-2 Endocrine Physiology
HND410-3 Nutrition Education
HND 420-3 Recent Developments in Nutrition
HND 425-3 Biochemical Aspects in Nutrition
HND 470-4 Medical Nutrition
HND 475-3 Nutrition Through the Life Cycle
HND 480-3 Community Nutrition
HND 485-3 Advanced Nutrition
HTA 445-3 Sustainable Tourism and Development
HTA 451-3 Destination Management
HTA 460-4 Food Service Management
HTA 461-3 Service Organization and Management
HTA 465-3 Convention Management and Services
HTA 473-3 Hotel Administration

**Plant Systems**

PSAS 401-2 Agricultural Plant Pathology
PSAS 403A-2 Field Crop Diseases
PSAS 403B-2 Horticultural Crop Diseases
PSAS 403C-2 Turfgrass Diseases
PSAS 405-3 Plant Breeding
PSAS 408-3 World Crop Production Problems
PSAS 409-3 Crop Physiology and Ecology
PSAS 419-3 Forage Crop Management
PSAS 420-4 Crop Pest Control
PSAS 422-3 Turfgrass Science
PSAS 432-3 Greenhouse Management
PSAS 424-4 Floriculture
PSAS 425A-5 Advanced Plant Pathology (same as PLB 425a)
PSAS 425B-5 Advanced Plant Pathology (same as PLB 425b)
PSAS 426-4 Genomic and Bioinformatics
PSAS 428-3 Advanced Landscape Design I
PSAS 429-3 Advanced Landscape Design II
PSAS 430-4 Plant Propagation
PSAS 432-4 Garden Center and Nursery Management
PSAS 433-4 Introduction to Agricultural Biotechnology (same as PLB 433)
PSAS 434-3 Woody Plant Maintenance
PSAS 436-4 Fruit Production
PSAS 437-4 Vegetable Production
PSAS 441-3 Soil Morphology and Classification
PSAS 442-3 Soil Physics
PSAS 443-3 Soil Management
PSAS 445-3 Irrigation Principles and Practices
PSAS 446-3 Soil and Water Conservation
PSAS 447-3 Fertilizers and Soil Fertility
PSAS 448-2 Soil Fertility Evaluation
PSAS 454-4 Soil Microbiology
PSAS 455-3 Biology of Plant-Microbe Interactions
PSAS 468-3 Weeds – Their Control
PSAS 470-2 Post Harvest Handling of Horticultural Commodities
PSAS 475-4 Golf Course Green Installation and Maintenance
PSAS 518-3 Principles of Herbicide Action
PSAS 520-3 Plant Growth and Development
PSAS 524-2 Advanced Plant Genetics (same as PLB 524)
PSAS 560-5 Field Plot Technique
PSAS 570-4 Genomics
PSAS 582-6 Colloquium in Plant and Soil Science
PLB 400-4 Plant Anatomy
PLB 405-4 The Fungi
PLB 415-5 Morphology of Vascular Plants
PLB 418-3 Plant Molecular Biology
PLB 420-3 Techniques in Plant Molecular Biology
PLB 421-4 Botanical Microtechnique
PLB 430-3 Economic Botany
PLB 439-2 Natural Areas and Rare and Endangered Species
PLB 475-3 Advanced Cell Biology
PLB 500-3 Advanced Plant Anatomy
MBMB 421-3 Biotechnology
MBMB 425-3 Biochemistry and Physiology of Microorganisms
MBMB 451A/B-3/3 Biochemistry
MBMB 453-3 Immunology
MBMB 460-3 Genetics of Bacteria and Viruses
MBMB 480A/B-2/2 Molecular Biology of Microorganisms Laboratory
GEOL 470-3 Hydrogeology
GEOL 474-3 Geomorphology
GEOG 434-4 Water Resources Hydrology