Agricultural Sciences
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kezo@siu.edu

COLLEGE OF AGRICULTURAL SCIENCES

Graduate Faculty:

AbuGhazaleh, Amer A., Professor, Ph.D., South Dakota State University, 2002; 2004.
Akamani, Kofi, Assistant Professor, Ph.D., University of Idaho, 2011; 2015.
Altman, Ira J., Associate Professor and Chair, Ph.D., University of Missouri, 2005; 2006.
Apgar, 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, 1979; 1980.
Asirvatham, Jedaraj, Assistant Professor, Ph.D., University of Illinois, 2011; 2015.
Atkinson, Rebecca L., Associate Professor, Ph.D., University of Wyoming, 2006; 2006.
Banz, William J., Professor and Chair, Ph.D., University of Tennessee, 1995; 1995.
Beaulieu, Jeffrey R., Associate Professor, Emeritus, Ph.D., Iowa State University, 1984; 1983.
Beck, Roger J., Associate Professor, Emeritus, Ph.D., Pennsylvania State University, 1977; 1984.
Bond, Jason P., Professor, Ph.D., Louisiana State University, 1999; 2000.
Carver, Andrew, Professor, Ph.D., Purdue University, 1998; 1998.
Chong, She-Kong, Professor, Emeritus, Ph.D., University of Hawaii, 1979; 1979.
Choudhary, Rupal, Associate Professor, Ph.D., Oklahoma State University, 2009; 2009.
Cook, Rachel, Assistant Professor, University of North Carolina, 2012.
Davis, Jeremy, Associate Professor, Ph.D., Iowa State, 2008; 2008.
Diesburg, Kenneth L., Assistant Professor, Emeritus, Ph.D., Iowa State University, 1987; 1989.
Eberle, Phillip R., Associate Professor, Emeritus, 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., Associate Professor, Ph.D., University of Wisconsin-Madison, 1999, 2009.
Groninger, John W., Professor, Ph.D., Virginia Polytechnic Institute and State University, 1995; 1997.
Harris, Kim S., Associate Professor, Emeritus, Ph.D., University of Illinois, 1985; 1984.
Hauser, Carl L., Associate Professor, Emeritus, Ph.D., Purdue University, 1970; 1970.
Henry, Paul H., Associate Professor, Ph.D., North Carolina State University, 1991; 1992.
Holzmuller, Eric J., Associate Professor, Ph.D., University of Florida, 2006; 2007.
Kammlade, W. G., Jr., Associate Professor, Emeritus, Ph.D., University of Illinois, 1951; 1954.
Kantartzis, Stella, Associate Professor, Emeritus, Ph.D., Aristotle University of Thessaloniki, 2006; 2008. Soybean breeding and genetics.
King, Sheryl S., Professor, Emerita, Ph.D., University of California, Davis, 1983; 1983.
Klubek, Brian P., Professor, Emeritus, 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.
Latour, Mickey, Professor and Dean, Ph.D. Mississippi State University.
Legacy, James, Professor, Emeritus, Ph.D., Cornell University, 1976; 1977.
Lightfoot, David A., Professor, Ph.D., University of Leeds, 1984; 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, Professor, Ph.D., University of Florida, 1995; 2000.
Nielsen, Clayton, Professor, Ph.D., Southern Illinois University Carbondale, 2001; 2009.
Olsen, Farrel J., Professor, Emeritus, Ph.D., Rutgers University, 1961; 1971.
Park, Logan, Associate Professor, Ph.D., Virginia Polytechnic Institute and State University, 2009; 2009.
Pense, Sebun L., Associate 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.
Sanders, Dwight R., Professor, Ph.D., University of Illinois, 1999; 2000.
Schmidt, Michael, Associate Professor, Emeritus, Ph.D., Southern Illinois University Carbondale, 1994; 1979.
Schoonover, Jon E., Associate Professor, Ph.D., Auburn University, 2005; 2006.
Secchi, Silvia, Associate Professor, Ph.D., Iowa State, 2000; 2008.
Shoup, W. David, Professor, Emeritus, Ph.D., Purdue University, 1980; 1999.
Students admitted under direct or accelerated entry to the Ph.D. program are subject to all existing requirements for the doctoral degree; the admission/advisory committee for the student may add extra requirements based on the student’s background.

**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 four to five credit hours each, followed by a three to four 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. Emphasis areas include: Agricultural Economics, Agricultural Systems Technology, Agricultural Education, Animal Science, Crop Science and Environmental Management, Food and Nutrition, Forestry, and Horticulture.

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 courses during their Master’s degree. The student’s dissertation research. The graduate advisory committee to approve their coursework and oversee their dissertation research. The student’s major professor and must be a member of the College of Agricultural Sciences faculty.

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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)

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.

AGSC 581-1-4(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 Science Ph.D. students must register for at least two credits of seminar.

AGSC 582A-1-3 Colloquium in Agricultural Science-Biological Sciences. Recent developments in Agricultural Sciences will be discussed in a classroom setting.

AGSC 582B-1-3 Colloquium in Agricultural Science-Social Sciences. Recent developments in Agricultural Sciences will be discussed in a classroom setting.

AGSC 582C-1-3 Colloquium in Agricultural Science-Physical Sciences. Recent developments in Agricultural Sciences will be discussed in a classroom setting.

AGSC 590-1-4 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.


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

AGSC 595-1 to 6 Instruction in Agricultural Sciences. Acquaints the student with different teaching environments and styles. Students will be expected to participate in instruction of agricultural sciences courses. Special approved by the instructor.

AGSC 600-1-36 (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.

AGSC 601-1 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
QUAN 506-4 Inferential Statistics
QUAN 507-4 Multiple Regression
QUAN 508-4 Experimental Design in Educational Research
PSAS 560A,B-5 Field Plot Technique
ZOO 557-4 Biostatistics
ZOO 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
ABE 581-1 to 4 Seminar in Agribusiness Economics
ABE 585-1 to 6 Practicum/Internship
BA 505-3 Brand Management
BA 510-3 Managerial Accounting & Control Concepts
BA 514-3 Ethics of Business
BA 530-3 Financial Management
BA 531-3 Advanced Financial Management
BA 532-3 Financial Institutions and Markets
BA 533-3 Investment Concepts
BA 540-3 Managerial and Organizational Behavior
BA 541-3 Analytic Methods for Supply Chain Management
BA 544-3 Advanced Production Planning and Inventory Management
BA 545D-3 Advances in Strategic Management
BA 550-3 Marketing Management
BA 551-3 Product Strategy and Management
BA 558-3 Promotional Strategy and Management
BA 560-3 Management of Information Systems
BA 561-3 Database Design and Applications
BA 562-3 Information Systems and Design
BA 564-3 Advanced Topics in E-Commerce and Marketing
BA 580-2-3 International Dimensions of Business and Management
BA 581-3 Global Marketing
BA 582-3 International Finance
BA 583-3 Global Operations Management
BA 584-3 Global Business Strategies
ECON 429-3 International Trade and Finance
ECON 431-3 Public Finance II
ECON 440-3 Price, Output and Allocation Theories
ECON 441-3 Contemporary Macroeconomic Theory
ECON 463-3 Introduction to Applied Econometrics
ECON 474-3 Economic Strategies for Business
ECON 520A,B-6 Economic Development Theory and Policy
ECON 530-3 Foreign Trade
ECON 531-3 International Finance
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 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 422-3 Environmental and Energy Economics
GEOG 424-4 Sustainable Development
GEOG 426-3 US Environmental Policy
GEOG 428-3 Spatial Decision Support Systems
GEOG 429-3 Geography of Local Organic Food
GEOG 430-3 Environmental Systems Analysis
GEOG 431-3 Climatology
GEOG 433-3 Field Methods in Geography
GEOG 434-3 Water Resources Hydrology
GEOG 435-3 Energy Planning
GEOG 436-3 Natural Hazards
GEOG 439-3 Global Climate Change
GEOG 458-3 Applied GIS
GEOG 471-3 Environmental Impact Analysis
PSAS 461-3 Programming for Agricultural Systems
PSAS 472-3 Precision Agriculture
PSAS 473-3 Agricultural Automation
PSAS 476-3 Agricultural Safety and Health
PSAS 483-3 Agricultural Processing Systems
PSAS 497-3 Agricultural Operations Management
PSAS 560A,B-5 Field Plot Technique
PSAS 572-3 Current Research in Agricultural Systems
PSAS 575-3 Introduction to Agricultural Systems
Forestry
FOR 401-3 Fundamentals of Environmental Education
FOR 402-3 Wildland Hydrology
FOR 403-3 Agroforestry
FOR 405-3 Forest Management for Wildlife
FOR 409-3 International Forest Resources Decision-Making
FOR 411-3 Forest Resources Economics
FOR 412-2 Tree Improvement
FOR 414-3 Information Management
FOR 416-4 Forest Resource Management
FOR 417-2 Forest Land-Use Planning
FOR 418-2 Marketing of Forest Products
FOR 420-3 Park and Wildlands Management
FOR 421-3 Recreation Land-Use Planning
FOR 422C-6 Park and Wildlands Management Camp
FOR 423-3 Environmental Interpretation
FOR 428-2 Urban Forestry
FOR 429-2 Watershed Management Field Laboratory
FOR 430-3 Wildland Watershed Management
FOR 431-3 Regional Silviculture
FOR 451-3 Natural Resources Inventory
FOR 452-3 Forest Soils
FOR 452L-2 Forest Soils Laboratory
FOR 453-2 Environmental Impact Assessment in Forestry
FOR 454A-D-2-8 Forest Ecology Field Studies
FOR 460-2 Forest Industries
FOR 470-2 Wilderness Management, Policy, and Ethics
FOR 480-3 Natural Resource Conflict Management
FOR 500-2 Principles of Research
FOR 502-3 Advanced Watershed Hydrology and Management
FOR 504-2 Tree Physiology Concepts and Applications
FOR 508-2 Historical Ecology
FOR 510-2 Advanced Silviculture: Landscape Rehabilitation
FOR 511-2 Advanced Forest Resources Economics
FOR 512-2 Tree Selection and Breeding
FOR 516-2 Advanced Forest Management
FOR 520-2 Recreation Behavior in Wildlands Environments
FOR 521-2 Advanced Resource Interpretation
FOR 523-2 Forest Site Evaluation
FOR 531-2 Disturbance Ecology
FOR 585-3 Human Dimensions of Natural Resource Management
SOC 514-4 Qualitative Methodology
SOC 544-3 Sociology of Gender
SOC 555-3 Social Movements and Collective Action
POLS 446-3 Museum Administration
POLS 549-3 Administration of Nonprofit Organizations
<table>
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<th>Course Code</th>
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<tr>
<td>PSYC 529-3</td>
<td>Advanced Applied Multivariate Statistics</td>
<td>PSAS 436-4</td>
<td>Fruit Production</td>
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<td>PSYC 563-3</td>
<td>Research in Attitude and Persuasion</td>
<td>PSAS 437-4</td>
<td>Vegetable Production</td>
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<td>REC 500-3</td>
<td>Modern Concepts of Leisure</td>
<td>PSAS 441-3</td>
<td>Soil Morphology and Classification</td>
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<td>PSAS 442-3</td>
<td>Soil Physics</td>
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<td><strong>Human and Animal Systems</strong></td>
<td>PSAS 443-3</td>
<td>Soil Management</td>
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<td>ANS 409-4</td>
<td>Equine Science</td>
<td>PSAS 444-3</td>
<td>Irrigation Principles and Practices</td>
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<td>ANS 415-4</td>
<td>Advanced Animal Nutrition</td>
<td>PSAS 446-3</td>
<td>Soil and Water Conservation</td>
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<td>ANS 419-3</td>
<td>Stable Management</td>
<td>PSAS 447-3</td>
<td>Fertilizers and Soil Fertility</td>
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<td>ANS 421-2</td>
<td>International Animal Production</td>
<td>PSAS 448-2</td>
<td>Soil Fertility Evaluation</td>
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<td>ANS 430-4</td>
<td>Dairy Cattle Management</td>
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<td>Soil Microbiology</td>
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<td>ANS 431-4</td>
<td>Reproductive Physiology</td>
<td>PSAS 455-3</td>
<td>Biology of Plant-Microbe Interactions</td>
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<td>ANS 433-3-7</td>
<td>Introduction to Agricultural Biotechnology</td>
<td>PSAS 468-3</td>
<td>Weeds – Their Control</td>
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<td>ANS 434-2</td>
<td>Physiology of Lactation</td>
<td>PSAS 470-2</td>
<td>Post Harvest Handling of Horticultural Commodities</td>
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<td>ANS 455-2</td>
<td>Animal Nutrient Management</td>
<td>PSAS 475-4</td>
<td>Golf Course Green Installation and Maintenance</td>
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<td>ANS 465-4</td>
<td>Swine Management</td>
<td>PSAS 478-3</td>
<td>Principles of Herbicide Action</td>
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<td>ANS 485-4</td>
<td>Beef Cattle Management</td>
<td>PSAS 520-3</td>
<td>Growth and Development of Plants</td>
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<td>ANS 500-3</td>
<td>Research Methods in Agricultural Sciences</td>
<td>PSAS 524-3</td>
<td>Gene Regulatory Networks</td>
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<td>ANS 506-3</td>
<td>Instrumentation Methods in Agricultural Science</td>
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<td>ANS 515-3</td>
<td>Energy and Protein Utilization</td>
<td>PSAS 560A,B-5</td>
<td>Field Plot Technique</td>
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<td>ANS 516-3</td>
<td>Minerals and Vitamins</td>
<td>PSAS 582A,B,C-6</td>
<td>Colloquium in Plant and Soil Science</td>
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<td>ANS 531A-2</td>
<td>Advanced Animal Physiology</td>
<td>PLB 400-4</td>
<td>Plant Anatomy</td>
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<td>ANS 531B-2</td>
<td>Developmental Physiology</td>
<td>PLB 415-5</td>
<td>Morphology of Vascular Plants</td>
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<td>ANS 531C-2</td>
<td>Endocrine Physiology</td>
<td>PLB 475-3</td>
<td>Advanced Cell Biology</td>
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<td>Nutrition Education</td>
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<td>Biotechnology</td>
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<td>Recent Developments in Nutrition</td>
<td>MBMB 425-3</td>
<td>Biochemistry and Physiology of Microorganisms</td>
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<td>HND 425-3</td>
<td>Biochemical Aspects in Nutrition</td>
<td>MBMB 451A/B-3/3</td>
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<td>Medical Nutrition Therapy</td>
<td>MBMB 453-3</td>
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<td>MBMB 455-3</td>
<td>Bacterial and Viral Genetics</td>
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<td>Community Nutrition</td>
<td>MBMB 460-3</td>
<td>Molecular Biology of Microorganisms Laboratory</td>
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<td>HND 485-3</td>
<td>Advanced Nutrition</td>
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<td>Sustainable Tourism Planning and Development</td>
<td>MBMB 490C-4</td>
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<td>HTA 460-4</td>
<td>Food Service Management</td>
<td>GEOL 470-3</td>
<td>Hydrogeology</td>
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<td>HTA 461-3</td>
<td>Service Organization and Management</td>
<td>GEOL 474-3</td>
<td>Geomorphology</td>
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<td>Convention Management and Services</td>
<td>GEOG 434-3</td>
<td>Water Resources Hydrology</td>
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<td><strong>Plant Systems</strong></td>
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<td>PSAS 401-2</td>
<td>Agricultural Plant Pathology</td>
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<tr>
<td>PSAS 403A-2</td>
<td>Field Crop Diseases</td>
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<td>PSAS 403B-2</td>
<td>Horticultural Crop Diseases</td>
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<td>PSAS 403C-1</td>
<td>Turfgrass Diseases</td>
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<td>PSAS 405-3</td>
<td>Plant Breeding</td>
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<td>PSAS 408-3</td>
<td>World Crop Production Problems</td>
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<td>PSAS 409-3</td>
<td>Crop Physiology</td>
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<td>PSAS 419-3</td>
<td>Plant Molecular Biology</td>
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<td>Crop Pest Control</td>
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<td>PSAS 422-3</td>
<td>Turfgrass Science and Professional Management</td>
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<td>PSAS 432-4</td>
<td>Garden Center and Nursery Management</td>
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<td>Floriculture</td>
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<td>Introduction to Agricultural Biotechnology (same as PLB 433)</td>
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