

AGRICULTURAL SCIENCES

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- AbuGhazaleh, Amer A.**, Assistant Professor, Ph.D., South Dakota State University, 2002; 2004
- Altman, Ira J.**, Assistant Professor, 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.
- Atkinson, Rebecca L.**, Assistant Professor, Ph.D., University of Wyoming, 2006; 2006.
- Aubertin, Gerald M.**, Associate Professor, *Emeritus*, Ph.D., Pennsylvania State University, 1964; 1976.
- Banz, William J.**, Professor, Ph.D., University of Tennessee, 1995; 1995
- Beaulieu, Jeffrey R.**, Associate Professor, Ph.D., Iowa State University, 1984; 1983.
- 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.
- Budelsky, Carl A.**, Assistant Professor, *Emeritus*, Ph.D., University of Arizona 1969; 1967.
- Burde, John H. II**, Professor, *Emeritus*, Ph.D., University of Arizona, 1974; 1974.
- Carver, Andrew**, Associate Professor, Ph.D., Purdue University, 1998; 1998.
- Chilman, Kenneth C.**, Associate Professor, *Emeritus*, Ph.D., University of Michigan, 1972; 1973.
- Chong, She-Kong**, Professor, Ph.D., University of Hawaii, 1979; 1979.
- Davenport, Mae A.**, Assistant Professor, Ph.D., University of Minnesota, 2003; 2004.
- Diesburg, Kenneth L.**, Assistant Professor, Ph.D., Iowa State University, 1987; 1989.
- Doerr, William A.**, Associate Professor, *Emeritus*, Ph.D., Southern Illinois University Carbondale, 1973; 1965.
- Eberle, Phillip R.**, Associate Professor, Ph.D., Iowa State University, 1983; 1983.
- Elkins, Donald M.**, Professor, *Emeritus*, Ph.D., Auburn University, 1967; 1967.
- Endres, Jeannette M.**, Professor, *Emerita*, Ph.D., St. Louis University, 1972; 1980.
- Fakhoury, Ahmad M.**, Assistant Professor, Ph.D., Purdue University, 2001; 2003.
- Fralish, James S.**, Associate Professor, *Emeritus*, Ph.D., University of Wisconsin, 1970; 1969.
- Goodman, Bill L.**, Professor, *Emeritus*, Ph.D., Ohio State University, 1959; 1958.
- 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.
- Hausler, Carl L.**, Associate Professor, *Emeritus*, Ph.D., Purdue University, 1970; 1970.
- Henry, Paul H.**, Associate Professor, Ph.D., North Carolina State University, 1991; 1992.
- Hernandez, Jorge D.**, Assistant Professor, Ph.D., Iowa State University, 2003; 2004.
- Herr, William McD.**, Professor, *Emeritus*, Ph.D., Cornell University, 1954; 1957.
- Higginbotham, D. Allan**, Assistant Professor, Ph.D., Auburn University, 2001; 2002.
- Hillyer, Irvin G.**, Professor, *Emeritus*, Ph.D., Michigan State University, 1956; 1956.
- Hinners, Scott W.**, Professor, Ph.D., *Emeritus*, University of Illinois, 1958; 1951.
- Holzmueller, Eric J.**, Assistant Professor, Ph.D., University of Florida, 2006; 2007.
- Jones, Karen L.**, Associate Professor, Ph.D., Texas A&M, 1999; 1999. Animal biotechnology.
- Kammlade, W. G., Jr.**, Associate Professor, *Emeritus*, Ph.D., University of Illinois, 1951; 1954.
- Kapusta, George**, Professor, *Emeritus*, Ph.D., Southern Illinois University Carbondale, 1975; 1964.
- Keeper, Wendell E.**, Professor, *Emeritus*, Ph.D., Cornell University, 1938; 1950.
- Kim, Kyungmi**, Assistant Professor, Ph.D., Virginia Polytechnic Institute and State University, 2003; 2003.
- 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 and *Chair*, Ph.D., Cornell University, 1976; 1980.
- Kroening, Gilbert H.**, Professor, *Emeritus*, Ph.D., Cornell University, 1965; 1969.
- Kung, Fan H.**, Professor, *Emeritus*, Ph.D., Michigan State University, 1968; 1970.
- 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
- Mangun, Jean C.**, Associate Professor, Ph.D., Purdue University, 1991; 1996.
- McCurdy, Dwight R.**, Professor, *Emeritus*, Ph.D., Ohio State University, 1964; 1965.
- McGuire, James M.**, Professor, *Emeritus*, Ph.D., North Carolina State University, 1961; 1993.
- Meksem, Khalid**, Associate Professor, Ph.D., University of Cologne, Germany, 1995; 2000.
- Midden, Karen L.**, Professor, M.L.A., University of Georgia, 1983; 1988. Landscape design.
- Minish, Gary L.**, Professor and Dean, Ph.D., Michigan State University, 1966; 2004.
- Moon, Wanki**, Associate Professor, Ph.D., University of Florida, 1995; 2000.
- Myers, Oval, Jr.**, Professor, *Emeritus*, Ph.D., Cornell University, 1963; 1968.

Olsen, Farrel J., Professor, *Emeritus*, Ph.D., Rutgers University, 1961; 1971.

Olson, Howard H., Professor, *Emeritus*, Ph.D., University of Minnesota, 1952; 1954

Pense, Seburn L., Assistant Professor, Ph.D., Oklahoma State University, 2002; 2003.

Peterson, Sharon L., Assistant Professor, Ph.D., Pennsylvania State University, 1996; 2006

Phelps, John E., Professor and *Chair*, Ph.D., University of Missouri, 1980; 1990.

Preece, John E., Professor, Ph.D., University of Minnesota, 1980; 1980. Horticultural physiologist.

Rendleman, C. Matthew, Associate Professor, Ph.D., Purdue University, 1989; 1994.

Roth, Paul L., Professor, *Emeritus*, Ph.D., Kansas State University, 1968; 1967.

Ruffner, Charles M., Associate Professor, Ph.D., Pennsylvania State University, 1999. 1999.

Russin, John, Professor and Associate Dean for Research, College of Agricultural Sciences, Ph.D., University of Kentucky, 1983, 1998.

Sanders, Dwight R., Associate Professor, Ph.D., University of Illinois, 1999; 2000.

Schmidt, Michael, Associate Professor, *Emeritus*, Ph.D., Southern Illinois University Carbondale, 1994; 1979.

Schoonover, Jon E., Assistant Professor, Ph.D., Auburn University, 2005; 2006

Secchi, Silvia, Assistant Professor, Ph.D., Iowa State, 2000; 2008

Seekamp, Erin L., Assistant Professor, Ph.D., University of Idaho, 2006; 2007.

Shoup, W. David, Professor, Ph.D., Purdue University, 1980; 1999.

Smith, Sylvia F., Assistant Professor, Ph.D., University of Tennessee, 2007; 2007

Stitt, Thomas R., Professor, *Emeritus*, Ph.D., Ohio State University, 1967; 1967.

Strack, Louis E., Associate Professor, *Emeritus*, D.V.M., University of Illinois, 1961; 1968.

Stucky, Donald J., Professor, *Emeritus*, Ph.D., Purdue University, 1963; 1970.

Taylor, Bradley H., Associate Professor, Ph.D., Ohio State University, 1982; 1982.

Tweedy, James A., Professor, *Emeritus*, Ph.D., Michigan State University, 1966; 1966.

Varsa, Edward C., Professor, *Emeritus*, Ph.D., Michigan State University, 1970; 1970.

Wakefield, Dexter B., Associate Professor, Ph.D., Purdue University, 2001; 2001.

Walters, S. Alan, Associate Professor, Ph.D., North Carolina State University, 1997, 1998.

Watson, Dennis, Associate Professor, Ph.D., Michigan State University, 1987; 2002.

Welch, Patricia, Professor, *Emerita*, Ph.D., Southern Illinois University, 1982; 1982.

Williard, Karl W. J., Associate Professor, Ph.D., Pennsylvania State University, 1999; 1999.

Winters, Todd A., Professor and Chair, Ph.D., University of Wisconsin-Madison, 1992; 1994.

Wolff, Robert L., Professor, *Emeritus*, Ph.D., Louisiana State University, 1971; 1972.

Wood, Eugene S. Professor, *Emeritus*, Ed.D., University of Missouri, 1958; 1949.

Woody, Harold Dee, Associate Professor, *Emeritus*, Ph.D., Michigan State University, 1978; 1978.

Young, Anthony W., Professor, *Emeritus*, Ph.D., University of Kentucky, 1969; 1980.

Young, Bryan G., Professor, Ph.D., University of Illinois, 1998; 1998.

Zaczek, James J., Associate Professor, Ph.D., Pennsylvania State University, 1994; 1997.

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

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

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 500 a,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
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

GEOG 426-4	Administration of Environmental Quality and Natural Resources
GEOG 428-3	Spatial Decision Support Systems
GEOG 429-3	Geography and Organic Farming
GEOG 430-3	Environmental Systems Analysis
GEOG 431-3	Climate
GEOG 433-4	Field Methods in Weather and Water Resources
GEOG 434-4	Water Resources Hydrology
GEOG 435-3	Energy Planning
GEOG 436-3	Environmental Disaster Planning
GEOG 438-3	Applied Meteorology
GEOG 439-3	Climatic Change
GEOG 458-3	Analysis of Risk and Bioterrorism Using GIS
GEOG 471-3	Environmental Impact Analysis

Agricultural Operations and Systems

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 497-2	Agricultural Operations Management
PSAS 560-5	Field Plot Technique
PSAS 572-3	Current Research in Agricultural Systems
PSAS 575-3	Agricultural Systems

Forestry

FOR 401-3	Fundamentals of Environmental Education
FOR 402-3	Wildland Hydrology
FOR 403-3	Agroforestry
FOR 405-2	Forest Management for Wildlife
FOR 408-4	Introduction to Remote Sensing and GIS
FOR 409-3	Forest Resources Decision-Making
FOR 410-3	Forest Resources Administration and Policy
FOR 411-3	Forest Resources Economics
FOR 412-2	Tree Improvement
FOR 414-3	Information Management
FOR 416-3	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-4	Park and Wildlands Management Camp
FOR 423-3	Environmental Interpretation
FOR 428-2	Community Forestry
FOR 429-3	Watershed Management Field Laboratory
FOR 430-3	Wildland Watershed Management
FOR 431-3	Regional Silviculture
FOR 451-2	Natural Resources Inventory
FOR 452-2	Forest Soils
FOR 452L-2	Forest Soils Laboratory
FOR 453-2	Environmental Impact Assessment in Forestry
FOR 454-2-8	Forest Ecology Field Studies
FOR 460-2	Forest Industries
FOR 470-2	Wilderness Management, Policy, and Ethics
FOR 480-3	Natural Resource Advocacy
FOR 485-3	Social Influences on Forestry
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
FOR 511-2	Advanced Forest Resources Economics
FOR 512-2	Tree Selection and Breeding
FOR 516-2	Advanced Forest Management

FOR 520-2	Advanced Park Planning
FOR 521-2	Recreation Behavior in Wildlands Environments
FOR 523-2	Advanced Resource Interpretation
FOR 530-2	Forest Site Evaluation
FOR 531-2	Disturbance Ecology
FOR 585-3	Human Dimensions of Natural Resource Management
SOC 544 (3)	Sociology of Gender
SOC 555 (3)	Social Movements and Collective Action
SOC 514 (4)	Qualitative Research Methods
POLS 446 (3)	Museum Administration
POLS 549 (3)	Administration of Nonprofit Organizations
PSYC 529 (3)	Structural Equation Modeling with LISREL
PSYC 563 (3)	Research in Attitude and Persuasion
REC 500 (3)	Modern Concepts of Leisure

Human and Animal Systems

ANS 409-4	Equine Science
ANS 415-4	Advanced Animal Nutrition
ANS 419-4	Stable Management
ANS 421-2	International Animal Production
ANS 430-4	Dairy Cattle Management
ANS 431-4	Reproductive Physiology
ANS 433-4	Introduction to Agricultural Biotechnology
ANS 434-4	Physiology of Lactation
ANS 455-2	Animal Waste Management
ANS 465-4	Swine Management
ANS 485-4	Beef Cattle Management
ANS 500-3	Research Methods in Agricultural Sciences
ANS 506-3	Instrumentation M in Agricultural Science
ANS 515-3	Energy and Protein Utilization
ANS 516-3	Minerals and Vitamins in Animal Nutrition
ANS 531A-2	Advanced Reproductive Physiology
ANS 531B-2	Developmental Physiology
ANS 531C-2	Endocrine Physiology
FN 410-3	Nutrition Education
FN 420-3	Recent Developments in Nutrition

Plant Systems

PSAS 401-3	Agricultural Plant Pathology
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 409-3	Field Mycology
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