DEPARTMENT OF AGRICULTURE

Fred DeGraves, Interim Department Chair
Environmental Science and Technology 269
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Degree(s)
- Agriculture (MS) (http://catalog.wku.edu/archives/2017-18/graduate/science-engineering/agriculture/agriculture-ms)

Faculty
Professor
Becky A. Gilfillen, PhD (Plant and Soil Science), University of Tennessee, Knoxville, 1999
William T. Willian, PhD (Plant Soil Science), University of Tennessee, Knoxville, 1995
Paul B. Woosley, PhD (Crop Science), University of Kentucky, 2002

Associate Professor
Fred J. DeGraves, PhD (Veterinary Medical Sciences, Animal Science), North Carolina State University, 1991
Stephen A. King, PhD (Agricultural Economics), Oklahoma State University Main Campus, 2004
Martin J. Stone, PhD (Agronomy), Texas A&M University, 1994

Assistant Professor
Hunter O. Galloway, PhD (Animal Sciences), University of Illinois Urbana-Champaign, 2016
Jennifer C. Gill, PhD (Animal Science and Poultry Science), North Carolina State University, 2016
Jean D. Gumirakiza, PhD (Economics), Utah State University, 2013
Thomas W. Kingery, PhD (Agricultural Leadership, Education, Communications), Texas A&M University, 2010

Clinical Assistant Professor
Roger L. Dennis, MAE (Agriculture Education, Secondary Education), Western Kentucky University, 1992

Agricultural Economics Courses
AGEC 460G Agricultural Policy 3 Hours
The role of agriculture in the national economy; objectives of agricultural policy; appraisal and proposed agricultural programs; legislation for economics action.
Prerequisite(s): AGEC 360.
Recent Term(s) Offered: None

AGEC 461G Advanced Farm Management 3 Hours
Identification, analysis, and solution of problems of farm organization and operation. Case studies and field trips to situation farms in South Central Kentucky.
Prerequisite(s): AGEC 361 or permission of instructor.
Recent Term(s) Offered: None

AGEC 463G Agricultural Finance 3 Hours
Farm finance problems including capital requirements, investment decisions, budgeting techniques, etc. Lending agencies and alternative means of acquiring capital.
Prerequisite(s): AGEC 361 or permission of instructor.
Recent Term(s) Offered: spring 2016

AGEC 468G World Food Development 3 Hours
Problems and opportunities in feeding an ever-increasing population. Assessment of world food production, poverty, businesses and cultures; ways of increasing production.
Recent Term(s) Offered: spring 2016; spring 2017

AGEC 561 Agricultural Production and Economics 3 Hours
Production and cost functions, programming and decision-making principles and their application to agriculture.
Recent Term(s) Offered: fall 2016

AGEC 675 Advanced Topics Agricultural Economics 3 Hours
No course description is available
Recent Term(s) Offered: spring 2016; fall 2017

Agricultural Education Courses
AGED 470G Methods of Teaching in Agriculture Education 3 Hours
Basic principles, design options, and economic considerations for hay and grain handling systems and for silage and manure systems. Field trips as needed.
Prerequisite(s): AGMC 170, or permission of instructor.
Recent Term(s) Offered: fall 2015; fall 2017

AGED 471G Organization and Planning in Agricultural Education 3 Hours
A teacher preparation course designed to prepare pre-service teachers for the student teaching experience and for a full-time teaching position. Unit planning, lesson preparation, and delivery comprise the major portion of this course.
Prerequisite(s): AGED 250 (EDU 250), SPED 330, AGRI 398, PSY 310, Admission to student teaching.
Grade Mode: Non-graded
Recent Term(s) Offered: fall 2017

AGED 475G Topics in Agriculture Education 1-3 Hours (repeatable max of 6 hrs)
Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit.
Prerequisite(s): Consent of instructor.
Recent Term(s) Offered: spring 2015; spring 2016

AGED 583 Curriculum Development/Agriculture Education 3 Hours
Principles of curriculum development, curriculum alignment, and assessment of content standards.
Recent Term(s) Offered: spring 2015; fall 2015; spring 2017; fall 2017

AGED 584 Program Development/Agriculture Education 3 Hours
For new and returning ag-ed teachers. Covers planning, conducting, and following through instructional programs for secondary, post-secondary, and/or adult students.
Recent Term(s) Offered: fall 2015; spring 2016; spring 2017

AGED 589 Ind Spec Prob Agriculture Education 1-3 Hours (repeatable max of 6 hrs)
Supervised individual study in agricultural education.
Recent Term(s) Offered: winter 2017
Agriculture Courses

AGRI 450G  Rural Health and Safety  3 Hours
Students will explore a variety of health and safety issues unique to rural populations. The interdisciplinary team concept will be used throughout the course to foster collaboration that facilitates sharing of the expertise of students and faculty.
Recent Term(s) Offered: None

AGRI 491G  Data Analysis and Interpretation  3 Hours
Statistical models and use of samples, variation, statistical measures, distributions, tests of significance, analysis of variance, regression, correlation and chi-square as related to interpretation and use of scientific data.
Recent Term(s) Offered: fall 2015; summer 2017; fall 2017

AGRI 597  Independent Special Problems/Agriculture  1-3 Hours (repeatable max of 9 hrs)
Supervised individual study in agriculture.
Prerequisite(s): AGRI 491 or permission of instructor.
Recent Term(s) Offered: spring 2015; spring 2017

AGRI 599  Thesis Research/Writing  1-6 Hours (repeatable max of 6 hrs)
Thesis research and writing directed by faculty committee.
Grade Mode: Pass/Fail
Recent Term(s) Offered: spring 2015; fall 2015; spring 2016; fall 2016; spring 2017

AGRI 600  Maintaining Matriculation  1-6 Hours (repeatable max of 6 hrs)
Continued enrollment for thesis completion.
Grade Mode: Non-graded
Recent Term(s) Offered: spring 2015; summer 2015; fall 2015; fall 2016; spring 2017

AGRI 675  Advanced Topics/Agriculture  1-3 Hours (repeatable max of 10 hrs)
Issues and scientific developments of current interest.
Prerequisite(s): Permission of instructor.
Recent Term(s) Offered: spring 2015; summer 2015; fall 2015; spring 2016; spring 2017

Agronomy Courses

AGRO 409G  Weed Science  2 Hours
Identification of prominent weed species; relationship of weeds to crop production problems; physical and chemical control measures.
Corequisite(s): AGRO 410G.
Prerequisite(s): BIOL 120 and AGRO 110; CHEM 105 and CHEM 107 or equivalent.
Recent Term(s) Offered: fall 2016; fall 2017

AGRO 410G  Weed Science  1 Hour
A laboratory course correlated with AGRO 409G.
Corequisite(s): AGRO 409G.
Recent Term(s) Offered: fall 2016; fall 2017

AGRO 414G  Crop Improvement  3 Hours
Identification, development, and utilization of genetic differences in the improvement of cultivated plants.
Prerequisite(s): Six hours of plant science and upper division or graduate standing.
Recent Term(s) Offered: None

AGRO 420G  Forage Crops  2 Hours
Distribution, improvement, morphology, culture, harvesting and utilization of forage crops are presented.
Corequisite(s): AGRO 421G.
Prerequisite(s): AGRO 110, AGRO 350 and BIOL 120.
Recent Term(s) Offered: fall 2015; summer 2016

AGRO 421G  Forage Crops Laboratory  1 Hour
A laboratory course correlated with AGRO 420G. Laboratory, two hours.
Corequisite(s): AGRO 420G.
Recent Term(s) Offered: fall 2015; summer 2016

AGRO 422G  Field Crops  3 Hours
Distribution, improvement, morphology, culture, harvesting, and utilization of field crops are presented.
Prerequisite(s): AGRO 110, AGRO 350, and BIOL 120 or permission of instructor.
Recent Term(s) Offered: spring 2015; summer 2017

AGRO 452G  Soil Microbiology  3 Hours
Soil microbial populations and systems and their influence on plant nutrition. Soil organic matter, its decomposition and associated microorganisms; oxidation-reduction process; nitrogen fixation.
Prerequisite(s): AGRO 350 and BIOL 207, BIOL 208.
Recent Term(s) Offered: spring 2016; spring 2017

AGRO 454G  Soil Management and Conservation  3 Hours
Economic utilization of land for agricultural recreation and public purposes; interpretation and application of soil conservation; public and industrial uses; practice in designing land-use maps.
Prerequisite(s): AGRO 350.
Recent Term(s) Offered: spring 2017
AGRO 455G  Soil Chemistry  2 Hours
Analytical techniques used in soil chemistry and soil fertility; studies of nutrient determination, colloidal systems, chemical properties related to plant nutrition.
Corequisite(s): AGRO 456G.
Prerequisite(s): AGRO 350.
Recent Term(s) Offered: None

AGRO 456G  Soil Chemistry Lab  1 Hour
A laboratory course correlated with AGRO 455G.
Corequisite(s): AGRO 455G.
Recent Term(s) Offered: None

AGRO 457G  Soil Form/Class/Map  2 Hours
Soil origin; classification schemes; profile description, mapping and interpretation of soil survey information are discussed, emphasizing Kentucky soils.
Corequisite(s): AGRO 458G.
Prerequisite(s): AGRO 350.
Recent Term(s) Offered: None

AGRO 458G  Soil Form/Class/Map Lab  1 Hour
A laboratory course correlated with AGRO 457G.
Corequisite(s): AGRO 457G.
Recent Term(s) Offered: None

AGRO 475G  Topics Agronomy  1-3 Hours (repeatable max of 6 hrs)
Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit.
Prerequisite(s): Consent of instructor.
Recent Term(s) Offered: fall 2016

AGRO 509  Weed Science  2 Hours
Prerequisite(s): BIOL 120, AGRO 110; CHEM 105 and CHEM 107 or equivalent. Identification of prominent weed species; relationship of weeds to crop production problems; physical and chemical control measures.
Corequisite(s): AGRO 510.
Recent Term(s) Offered: None

AGRO 510  Weed Science Laboratory  1 Hour
A laboratory course correlated with AGRO 509.
Corequisite(s): AGRO 509.
Recent Term(s) Offered: None

AGRO 521  Pasture Management  3 Hours
Development of pastures, physiological principles related to forage production, pasture management, and preservation and use of conserved forages.
Prerequisite(s): AGRO 420/AGRO 421 and ANSC 448 or permission of instructor.
Recent Term(s) Offered: spring 2015

AGRO 522  Field Crops  3 Hours
Distribution, morphology, culture, phenology, harvest and utilization of field crops are presented.
Prerequisite(s): AGRO 110, AGRO 350, and BIOL 120.
Recent Term(s) Offered: None

AGRO 552  Soil Microbiology  3 Hours
Soil microbial populations and systems and their influence on plant nutrition. Soil organic matter, its decomposition and associated microorganisms; oxidation-reduction process; nitrogen fixation.
Prerequisite(s): AGRO 350 and BIOL 207, BIOL 208.
Recent Term(s) Offered: None

AGRO 554  Soil Management & Conservation  3 Hours
Economic utilization of land for agricultural recreation and public purposes; interpretation and application of soil conservation; public and industrial uses; practice in designing land-use maps.
Prerequisite(s): AGRO 350.
Recent Term(s) Offered: None

Animal Science Courses

ANSC 437G  Physiology/Reproduction  2 Hours
Endocrinology and physiology of reproductive systems; anatomical physiology and biochemical bases of reproduction, artificial insemination, synchronized estrus and related topics are presented.
Corequisite(s): ANSC 438G.
Prerequisite(s): BIOL 120.
Recent Term(s) Offered: None

ANSC 438G  Physiology/Reproduction Lab  1 Hour
A laboratory course correlated with ANSC 437G. Laboratory, two hours.
Corequisite(s): ANSC 437G.
Recent Term(s) Offered: None

ANSC 446G  Animal Breeding  2 Hours
Application of genetic and statistical principles of breeding and improvements of farm animals; the role of selection in changing populations; the effects of different mating systems upon improvement of farm animals are investigated.
Corequisite(s): ANSC 447G.
Prerequisite(s): ANSC 140 and BIOL 120.
Recent Term(s) Offered: None

ANSC 447G  Animal Breeding Lab  1 Hour
A laboratory course correlated with ANSC 446.
Corequisite(s): ANSC 446G.
Recent Term(s) Offered: None

ANSC 448G  Animal Feeds and Feeding Practices  4 Hours
Livestock feeds and their nutrients; functions of and requirements for nutrients; evaluation of feeds; feeding practices and formulation of rations for all classes of livestock are included.
Prerequisite(s): ANSC 345 or permission of instructor.
Grade Mode: Non-graded
Recent Term(s) Offered: spring 2016; spring 2017

ANSC 449G  Lab Methods Animal Nutrition  3 Hours
Laboratory methods for determining major minerals and vitamins in feeds, proximate analysis of feeds, products of fermentation, feed residues and contamination.
Prerequisite(s): ANSC 448.
Recent Term(s) Offered: None

ANSC 475G  Selected Topics  1-3 Hours (repeatable max of 6 hrs)
Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit.
Prerequisite(s): Consent of instructor.
Recent Term(s) Offered: None

ANSC 533  Physiology of Lactation  3 Hours
Anatomy of the mammary gland, hormonal control of mammmogenesis, initiation and maintenance of milk secretion, factors affecting level and composition of milk, synthesis of milk.
Prerequisite(s): ANSC 344.
Recent Term(s) Offered: None
ANSC 545  Ruminant Nutrition  3 Hours
Rumen development and function, products of fermentation, nutrient requirements, absorption and metabolism, symptoms of deficiency and toxicity.
**Prerequisite(s):** ANSC 345, BIOL 446, or equivalent, or permission of instructor.
**Recent Term(s) Offered:** None

ANSC 546  Advanced Animal Breeding  3 Hours
Application of population genetics to the economic improvement of farm animals, phenotypic and genetic relationships, role of selection in changing populations, formulation and application of breeding plans.
**Prerequisite(s):** ANSC 446 and AGRI 528, or permission of instructor.
**Recent Term(s) Offered:** None

ANSC 547  Advanced Animal Nutrition  3 Hours
The nutrient requirements of the monogastric animals, structure, metabolism and function of each nutrient class, interrelationship of the nutrient classes, deficiency and toxicity symptoms.
**Prerequisite(s):** ANSC 345, BIOL 446 or equivalent, or permission of instructor.
**Recent Term(s) Offered:** None

ANSC 675  Advanced Topics in Animal Science  1-3 Hours
No course description is available
**Recent Term(s) Offered:** spring 2015; spring 2017

**Horticulture Courses**

HORT 401G  Landscape Plants II  2 Hours
Identification, recognition and use of landscape plants; with emphasis on evergreens, annuals, perennials and bulbs, winter effect and flowering sequence of deciduous trees and shrubs will be included.
**Corequisite(s):** HORT 402G.
**Prerequisite(s):** HORT 301 or permission of instructor.
**Recent Term(s) Offered:** None

HORT 402G  Landscape Plants II Lab  1 Hour
A laboratory course correlated with HORT 401G.
**Corequisite(s):** HORT 401G.
**Recent Term(s) Offered:** None

HORT 403G  Landscape Design and Construction  2 Hours
Design of residential and commercial landscapes; techniques and materials for construction of landscape features such as decks, patio covers, walls, patios, pools and irrigation are presented.
**Corequisite(s):** HORT 404G.
**Prerequisite(s):** HORT 402G or permission of instructor.
**Recent Term(s) Offered:** None

HORT 404G  Landscape Design and Construction Lab  1 Hour
A laboratory course correlated with HORT 403G.
**Corequisite(s):** HORT 403G.
**Recent Term(s) Offered:** None

HORT 405G  Nursery Management  2 Hours
Developing, planning, planting, and maintaining a modern plant nursery of container and field grown stocks of trees, shrubs, and ground covers. An introduction to the organization and management of a landscape plant nursery for container and field grown stock. Students will design and plan a working nursery for south central Kentucky.
**Corequisite(s):** HORT 406G.
**Recent Term(s) Offered:** spring 2015

HORT 406G  Nursery Management Lab  1 Hour
A laboratory course correlated with HORT 405G.
**Corequisite(s):** HORT 405G.
**Recent Term(s) Offered:** fall 2015

HORT 407G  Plant Propagation  3 Hours
Production, harvesting, post-harvest handling, and marketing of the major tree and small fruits of the temperate region. Emphasis is given to those crops adaptable to Kentucky.
**Prerequisite(s):** AGRO 110.
**Recent Term(s) Offered:** None

HORT 408G  Plant Propagation Lab  1 Hour
A laboratory course correlated with HORT 407G.
**Corequisite(s):** HORT 407G.
**Recent Term(s) Offered:** None

HORT 412G  Modern Fruit Production  3 Hours
Production, harvesting, post-harvest handling, and marketing of the major tree and small fruits of the temperate region. Emphasis is given to those crops adaptable to Kentucky.
**Prerequisite(s):** AGRO 110.
**Recent Term(s) Offered:** spring 2017

HORT 419G  Vegetable Production  3 Hours
Production of vegetables that are particularly suited for Kentucky, considering variety selection, culture, harvesting, processing, and marketing.
**Prerequisite(s):** AGRO 110 or permission of instructor.
**Recent Term(s) Offered:** spring 2015; spring 2016

HORT 426G  Viticulture  3 Hours
An introductory study of grape culture including morphology and growth habit, geographical distribution, dormant pruning techniques, canopy management, management of grapevine pests, and vineyard establishment/maintenance.
**Prerequisite(s):** AGRO 110 and AGRO 350 or permission of instructor.
**Recent Term(s) Offered:** None

HORT 475G  Selected Topics Horticulture  1-3 Hours (repeatable max of 6 hrs)
Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit.
**Prerequisite(s):** Consent of instructor.
**Recent Term(s) Offered:** spring 2016

HORT 675  Advanced Topics in Horticulture  1-3 Hours
No course description is available
**Recent Term(s) Offered:** None