802. Program Administration in Agricultural and Extension Education  
Fall, 3(3-0)  
Organizational and management concepts and practices in agricultural and extension education.  
QA: AEE 881

803. Instructional Strategies in Agricultural and Extension Education  
Spring, 3(3-0)  
Assessment of learning needs, development, selection, use and evaluation of teaching strategies. Emphasis on agriscience education and adult learners.  
QA: AEE 884

804. Communication Strategies in Agricultural and Extension Education  
Fall, 3(3-0)  
R: Open only to seniors and graduate students in College of Agriculture and Natural Resources. Information delivery systems and presentation techniques for varied agricultural and extension audiences.  
QA: AEE 880

805. Leadership Development in Agricultural and Extension Education  
Spring, 3(3-0)  
Assessment of values, style, behavior, principles. Philosophical and sociological bases for leadership development. Applications.  
QA: AEE 858

806. Program Planning and Evaluation in Agricultural and Extension Education  
Spring of even-numbered years, Summer of even-numbered years, 3(3-0)  
Principles, theories, and practices in developing and evaluating state and local agricultural and extension education programs.  
QA: AEE 810, AEE 860

807. Research in Agricultural and Extension Education  
Fall, 3(3-0)  
R: Open only to graduate students in College of Agriculture and Natural Resources. Planning, designing, conducting, and reporting research in agricultural and extension education.  
QA: AEE 881

811. Education Through Extension  
Fall, 3(3-0)  
Function, organization, and operation of extension education programs.  
QA: AEE 806

821. Principles and Philosophies of Agriscience Education  
Summer, 3(3-0)  
Principles and philosophies for analyzing and developing agriscience education courses, curricula, and programs.  
QA: AEE 820

822. Teaching Supervised Agriscience Experiences  
Summer of odd-numbered years, 3(3-0)  
R: Open only to graduate students in Agricultural and Extension Education. Principles and practices of agriscience laboratory teaching in high schools.  
QA: AEE 829, AEE 822

890. Independent Study in Agricultural and Extension Education  
Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.  
R: Approval of department.  
QA: AEE 883

891. Selected Topics in Agricultural and Extension Education  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
R: Open only to graduate students in Agricultural and Extension Education. Contemporary issues and problems in agricultural and extension education.  
QA: AEE 881

892. Seminar in Agricultural and Extension Education  
Fall, Spring, Winter, 1 to 4 credits. A student may earn a maximum of 2 credits in all enrollments for this course.  
Selected issues in agricultural and extension education.  
QA: AEE 885

893. Professional Field Experience in Agricultural and Extension Education  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.  
R: Open only to graduate students in Agricultural and Extension Education. Practice, observation, and analysis through field experiences.  
QA: AEE 812A, AEE 812B

898. Master's Research  
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course.  
R: Open only to master's degree students in Agricultural and Extension Education.  
Master's Plan B Research.  
QA: AEE 889

899. Master's Thesis Research  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 99 credits in all enrollments for this course.  
R: Open only to master's degree students in Agricultural and Extension Education.  
QA: AEE 889

901. International Agricultural and Extension Education Systems  
Spring, 3(3-0)  
P: AEE 801 or AEE 811 or AEE 821. R: Open only to graduate students in Agricultural and Extension Education. Systems of agricultural and extension education in different countries. Philosophical and structural differences and similarities.  
QA: AEE 899

911. Nonformal Learning  
Fall of even-numbered years, Summer of odd-numbered years, 3(3-0)  
P: AEE 811.  
QA: AEE 806

912. Advanced Extension Administration  
Spring, 3(3-0)  
P: AEE 802. R: Open only to graduate students in College of Agriculture and Natural Resources. Advanced practices and applications necessary for effective management and administration within extension education.  
QA: AEE 885

999. Doctoral Dissertation Research  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course.  
R: Open only to Ph.D. students in Agricultural and Extension Education.  
QA: AEE 999

AGRICULTURAL ECONOMICS  AEC

Department of Agricultural Economics  
College of Agriculture and Natural Resources

810. Institutional and Behavioral Economics  
Fall, 3(3-0)  
QA: AEC 810, AEC 826

815. Applied Welfare Economics in Agriculture  
Fall of odd-numbered years, 3(3-0)  
P: EC 801 or EC 812A; EC 869 or EC 813A. Concepts and issues in welfare economics with application to agricultural development, policy and trade, marketing and finance, and environmental policy.  
QP: EC 840, EC 869A, EC 816A, EC 869B, EC 815A

817. Political Economy of Agricultural and Trade Policy  
Spring, 3(3-0)  

829. The Economics of Environmental Resources  
Fall, 3(3-0)  
QP: STT 430, QA: AEC 835

835. Introductory Econometrics  
Summer, 3(3-0)  
P: STT 430.  
Estimation and interpretation of multiple regression models and their modifications when usual assumptions are not valid. Applications focus on problems faced by agricultural economists.  
QP: STT 422 QA: ECO 835

841. Organization and Performance of Agricultural Markets  
Spring, 3(3-0)  
R: Open only to graduate students in College of Agriculture and Natural Resources. Analytical approaches. Institutions and processes for coordinating food and agricultural systems. Issues of organization, control and public policy.  
QA: AEC 841

854. Commodity Market Analysis  
Fall, 3(3-0)  
P: AEC 835.  
QP: AEC 835 QA: AEC 843

851. Agricultural Firm Management  
Summer, 3(3-0)  
Managerial processes for planning and controlling agricultural firms. Applications of financial concepts, budgets, simulations, and cognitive and information systems to developing and developing countries. Predictive and prescriptive analysis.  
QA: AEC 851
AGRICULTURAL ENGINEERING

Department of Agricultural Engineering

College of Agriculture and Natural Resources

College of Engineering

152. Food and Agricultural Engineering

Spring, (2-2-0)

P: Open only to freshmen and sophomores. International and national food issues including conservation of natural resources, energy requirements, and effects of political changes on food supplies and American agriculture. Production, processing, and distribution of food.

QA: AE 152

356. Electric Power and Control Systems

Spring, (3-2-2)

P: AE 200 or EE 345. R: Open only to majors in College of Engineering.

Alternating current circuits, power distribution, electrical machines, protection, and programmable motor controllers. Design project related to food and agricultural industries.

QA: PHY 289, EE 345, EE 360 QA: AE 356

430. Power and Control Hydraulics

Spring, (3-2-2)

P: CE 321 or CHE 311 or ME 332. R: Open only to majors in College of Engineering.


QA: CE 321, CHE 340, ME 332 QA: AE 493

482. Agricultural Engineering Design fundamentals

Fall, (3-0-3)

P: AE 336 or AE 363 or AE 356. R: Open only to seniors in College of Engineering.

Concepts, methods, and procedures of the total design process from problem identification to final specifications.

QA: AE 495

488. Agricultural Engineering Design Project

Spring, (3-0-3)

R: Open only to seniors in College of Engineering.

Individual or team design project selected in AE 486. Information on specification, development of alternatives, and evaluation, selection, and completion of a design project.

QA: AE 496

490. Independent Study

Fall, Spring, Summer, 1 to 5 credits. A student may earn a maximum of 6 credits in all enrollments for this course.

R: Open only to students in College of Engineering. Approval of department; application required.

QA: AE 490

491. Special Topics in Agricultural Engineering

Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

R: Open only to College of Engineering majors. Approval of department; application required.

Supervised independent student research and study in agricultural engineering.

QA: AE 152, ME 391, MTH 310 QA: AE 490

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