

## DEPARTMENT OF AGRICULTURE

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Degree	Requirement for Admission
Master of Science in Agriculture: Agricultural Economics	GRE General Test
Master of Science in Agriculture: Agronomy	GRE General Test
Master of Science in Agriculture: Animal Science	GRE General Test
Master of Science in Secondary Education: Agricultural Education	Standard Educator License

### GRADUATE FACULTY

Dovi Alipoe, Ph.D., Director of Global Programs and Professor of Agricultural Economics  
Lashunda Anderson, Ph.D., Assistant Professor of Agronomy  
Wanda Arrington, Ph.D., Assistant Professor of Agriculture  
Barry L. Bequette, Ph.D., Professor of Horticulture  
Gwendolyn Boyd, Ph.D., Associate Professor of Forestry  
Edmund R. Buckner, Ph.D., Dean and Director of Land Grant Programs  
Daniel Collins, Ph.D., Associate Professor of Plant Pathology  
Magid A. Dagher, Ph.D., Professor of Agricultural Economics  
Michael O. Ezekwe, Ph.D., Director of Swine Development Center and Animal Nutrition and Professor of Animal Nutrition  
Avis Joseph, Ph.D., Professor of Agricultural Education  
Leonard C. Kibet, Ph.D., Assistant Professor of Soil and Environmental Science  
Keerthi Mandyam, Ph.D., Assistant Professor of Soil Microbiology  
Melissa Mason, PhD, Assistant Professor of Animal Science  
Jacqueline McComb, Ph.D., Director of Mississippi River Research Center and Professor of Agriculture  
Ananda Nanjundaswamy, Ph.D., Assistant Professor of Grain Science and Bioprocessing  
Victor Njiti, Ph.D., Chairperson and Professor of Plant and Soil Science and Education  
Girish K. Panicker, Ph.D., Director for Conservation Research and Professor of Horticulture  
Tahir Rashid, Ph.D., Professor of Entomology  
Kenneth K. Stallings, Ph.D., Professor of Animal Nutrition and Poultry  
Cassandra Vaughn, D.V.M., Assistant Professor of Veterinarian Medicine

## MASTER OF SCIENCE IN GENERAL AGRICULTURE

### Program Description

The Master of Science in General Agriculture with its three options is designed to accommodate the demands and needs of students and potential employers of program graduates. Students are able to pursue the Master's in Agronomy, Animal Science, and Agricultural Economics.

### AGRONOMY (PLANT AND SOIL SCIENCE)

The following learning outcomes are expected for the Agronomy Option:

- (1) Students completing the M.S. degree in Agronomy will have advanced knowledge and skills to address major problems confronting growers of agronomic and horticultural crops;
- (2) students will learn more on how proper crop selection is important in successful vegetable crop production;

(3) Students will be familiar with how both insects, weeds, and disease organisms influence quality and visual ratings; and (4) student will have acquired in-depth knowledge of research techniques.

### Course Requirements (Thesis Plan)

<b>Core Courses (9 hours)</b>		<b>Credits</b>
PS 535	Advanced Soil Classification	3 hrs.
PS 559	Advanced Soil Fertility	3 hrs.
PS 590	Advanced Research Techniques	3 hrs.

<b>Required Courses (12 hours)</b>		<b>Credits</b>
AG 610	Thesis I	3 hrs.
AG 611	Thesis II	2 hrs.
AG 612	Thesis III	1 hr.
BT 544	Advanced Plant Breeding	3 hrs.
PS 595	Experimental Designs	3 hrs.

<b>Elective Courses (12 hours)</b>		<b>Credits</b>
AG 558	Special Problems in Agricultural Mechanics	3 hrs.
AG 577	Advanced Power and Machinery	3 hrs.
AN 500	Administration of Agriculture Education	3 hrs.
AN 510	Agricultural Education Media	3 hrs.
BI 501	Advanced Plant Physiology	3 hrs.
BI 502	Advanced Plant Pathology	3 hrs.
BI 505	Economic Plants	3 hrs.
BI 547	Advanced Field Biology and Ecology	3 hrs.
PH 504	Psychological Statistics	3 hrs.
PS 537	Soil Conservation and Land Use	3 hrs.
PS 539	Soil Microbiology	3 hrs.
PS 541	Agricultural Plant Pathology	3 hrs.
PS 548	Advanced Soil Management	3 hrs.
PS 550	Bioenergy and Bioproduct Develop	3 hrs.
PS 551	Plant Metabolism and Biochemistry	3 hrs.
PS 580	Soil Chemistry	3 hrs.
PS 600	Research and Plant Science	3 hrs.
PS 601	Special Prob. In Vegetables and Small Fruit	3 hrs.
PS 602	Special Problems in Forage Production	3 hrs.
PS 603	Integrated Pest Management (IPM)	3 hrs.

**TOTAL 33 hrs.**

\*Students who do not score 3.0 on the GRE Analytical Writing must enroll in AN 501-Technical Writing

## **Plant and Soil Science Course Descriptions (PS)**

### **PS 535 – ADVANCED SOIL CLASSIFICATION**

(3 Credits)

Classification system including the seventh approximation will be covered. Aerial photos and current reviews of literature will be used and discussed. The course deals with advanced study of soil development, soil morphology, and principles of soil classification. Pre-requisite: PS 446.

### **PS 539 - SOIL MICROBIOLOGY**

(3 Credits)

In this class students will learn about the vast microbial diversity of the soil, their innumerable and wondrous activities, interrelationships and their indispensability in the greater scheme of things. Specifically, this course aims to provide an overview of soil microbiota, their physiology, interactions with plants, roles in soil biogeochemistry with emphasis on nitrogen cycle, management of soil microbiota for improved productivity, and anthropogenic activities and their impact on soil. We will also study the various methods to analyze soil microbiota, their diversity and community structure. The course will consist of lectures and reading assignments. By the end of the course, students should gain an appreciation of the soil microbes and microfauna in enhancing soil health, their critical roles in decomposition and nutrient cycling, their emission and consumption of greenhouse gases and bioremediation.

### **PS 541 – ADVANCED PLANT PATHOLOGY**

(3 Credits)

This advanced course will cover the principles of Plant Pathology and classical plant diseases. Students will study microorganisms that induce plant diseases, molecular interactions between hosts and pathogens, plant disease epidemics, integrated management for prevention and control of diseases. There will be assigned readings from the required text book. Students will understand plant disease development and management, be able to design and develop processes for new emerging diseases.

### **PS 548 – ADVANCED SOIL MANAGEMENT**

(3 Credits)

Basically this course is designed to critically examine soil conservation practices and soil analysis, as well as showing the importance of soil moisture in the uptake of cation and anion and the functional roles of cations and anions in the nutrition of plants.

### **PS 550 – BIOENERGY AND BIOPRODUCT DEVELOPMENT**

(3 Credits)

This course will highlight the environmental and national security problems caused by use of fossil fuels and the seriousness of declining rural economies, and emphasize the role that bioenergy could play in alleviating these problems. It will also focus on public policy and research that is needed to expand the use of bioenergy.

### **PS 559 – ADVANCED FERTILITY**

(3 Credits)

Advanced concepts of soil fertility with emphasis on physical, chemical, biological, and mineralogical properties of soils. Soil-plant relationships from nutritional standpoint and uses of different fertilizers under various soil conditions for better crop growth will be studied.

### **PS 560 – GROUNDWATER HYDROLOGY**

(3 Credits)

This course explores the advanced fundamentals of subsurface flow and transport, emphasizing the role of groundwater in the hydrologic cycle, the relation of groundwater flow to geologic structure, and the management of contaminated groundwater.

### **PS 580 – SOIL CHEMISTRY**

(3 Credits)

This course is designed to provide basic concepts of soil from its chemical standpoint. Soil chemistry as it is related to colloidal chemistry will be discussed.

### **PS 590 – ADVANCED RESEARCH TECHNIQUES**

(3 Credits)

This course is designed to prepare students to determine and evaluate the current problems in plant science. This will include literature reviews, research planning, and an organized attempt to collect information for answering the problems.

### **PS 592 – MICROCLIMATOLOGY**

(3 Credits)

Microclimatology, leaf energy balance, plant responses to temperature and radiation, physiological adaptations, water relations and plant gas exchange. Advanced topics include energy and deliberate and inadvertent climate modification.

### **PS 593 – SOIL PHYSICS**

(3 Credits)

This course explores advanced theoretical development of key topics in soil physics. Topics may include: evaporation from porous media, multiphase fluid movement, soil deformation, and soil salinization, with respect to either, historical development, present day understanding or future needs of the field. The course structure incorporates lectures and discussion requiring rigorous student participation.

### **PS 595 – EXPERIMENTAL DESIGN**

(3 Credits)

Fundamental principles of experimental designs especially in relation to computation and analyses of biological research data.

### **PS 597 - AGRICULTURAL ENVIRONMENT LAW**

(3 Credits)

The course will focus attention to advanced federal agricultural law and regulation, real conditions, problems, and dealing with issues via illustrations with real examples and approaches. The student will be able to develop basic skills in legal research, case analysis, statutory interpretation and regulatory design.

### **PS 600 – RESEARCH IN PLANT SCIENCE**

(3 Credits)

This course will be comprised of proper identification and execution of laboratory, greenhouse, and/or field experiments to meet a particular research goal in the area of plant science.

### **PS 601 – SPECIAL PROBLEMS IN VEGETABLE AND SMALL FRUIT**

(3 Credits)

A general discussion of the modern principles and practices in efficient vegetable and small fruits; seeds and seed growing; managing soils and fertilizing; growing plants, handling, and transplanting; cultivating and rotating; irrigating and mulching, controlling insects and diseases, storing vegetables and small fruits; harvesting, handling, and marketing vegetables and small fruits.

### **PS 602 – SPECIAL PROBLEMS IN FORAGE PRODUCTION**

(3 Credits)

Problem identification, library, laboratory, greenhouse and/or field research will be included in one of the areas of forage establishment, production or management according to the individual's interest.

### **PS 605 – INTEGRATED PEST MANAGEMENT**

(3 Credits)

It is designed to introduce students to the theory and practice of integrated pest management systems in major agronomic and horticultural crops; pasture systems; aquatic, non-cropland, and urban settings. It is the utilization and integration of pest control tactics (cultural methods, biological control, pesticides, host resistance) for management of insects, pathogens, and weeds. The major methodologies for controlling pests are discussed individually and within the context of profitable production of selected commodities followed by discussion of multiple pest management using integrated control techniques.

**PS 610 – THESIS I**

(3 Credits)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in agronomy. Students completing thesis I will be expected to produce a research prospectus that will include introduction and literature review.

**PS 611 – THESIS II**

(2 Credits)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in agronomy. Students completing thesis II will be expected to outline the methodology, including data collection and analysis.

**PS 612 – THESIS III**

(1 Credit)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in agronomy. Students completing thesis III will be expected to complete the rest of the thesis which will include presentation of results, discussion and recommendations.

**ANIMAL SCIENCE****Program Description**

The following learning outcomes are expected for the animal science option:

- (1) Students completing the graduate program in Animal Science will be knowledgeable in their academic area
- (2) students will be prepared for entry into a doctoral or professional program at various institutions; and
- (3) students completing the master's program in Animal Science will indicate their academic preparation contributed to their professional performance. The Animal Science option does not have a non-thesis plan).

**Course Requirements (Thesis Plan)**

<b>Core Courses (12 hours)</b>		<b>Credits</b>
AS 503	Advanced Soil Classification	3 hrs.
AS 523	Advanced Animal Nutrition	3 hrs.
AS 533	Physiology and Anatomy of Farm Animals	3 hrs.
<b>Required Courses (9 hours)</b>		<b>Credits</b>
AS 610	Thesis I	3 hrs.
AS 611	Thesis II	2 hrs.
AS 612	Thesis III	1 hr.
PS 595	Experimental Design	3 hrs.
<b>Approved Electives (12 hours)</b>		<b>Credits</b>
AE 510	Resource Development	3 hrs.
AE 525	Advanced Marketing	3 hrs.

AG 558	Special Problems in Agricultural Mechanics	3 hrs.
AG 577	Advanced Farm Power and Machinery	3 hrs.
AN 500	Administration of Agricultural Education	3 hrs.
AN 510	Agricultural Education Media	3 hrs.
AS 544	Special Problems in Livestock Breeding	3 hrs.
AS 564	Special Problems in Selected Topics	3 hrs.
AS 566	Special Problems in Feeder Pig Production	3 hrs.
AS 586	Endocrine Secretion	3 hrs.
BI 547	Advanced Field Biology and Ecology	3 hrs.
BT 523	Biostatistics	3 hrs.
BT 540	Molecular Genetics	3 hrs.
BT 565	Molecular and Cell Biology	3 hrs.
BT 570A	Biotechnology Techniques	3 hrs.
BT 570B	Biotechnology Techniques	3 hrs.
PH 504	Psychological Statistics	3 hrs.
<b>TOTAL</b>		<b>33 hrs.</b>

\*Students who do not score 3.0 on the GRE Analytical Writing must enroll in AN 501-Technical Writing (3 Credits)

## **Animal Science Course Descriptions (AS)**

### **AS 503 – MEAT SCIENCE**

(3 Credits)

This course focuses on the growth and development of livestock animals with emphasis on the prenatal and postnatal differentiation and development of skeletal muscle, bone, and adipose tissue. Other topics include the molecular events occurring during the conversion of muscle to meat, molecular and cellular properties of meat responsible for the functional and palatability properties of meat products. A review of recent literature as well as classical concepts of genetic, hormonal, and nutritional factors that affect growth will be discussed.

### **AS 523 – ADVANCED ANIMAL NUTRITION**

(3 Credits)

This course is a complete and comprehensive study of the chemistry and functions of carbohydrates, proteins, lipids, vitamins, minerals, and water; physiology of digestion and absorption of these nutrients in animals; biochemistry of nutrient metabolism. A review of analytical methods and pertinent literature will also take place.

### **AS 533 – PHYSIOLOGY AND ANATOMY OF FARM ANIMALS**

(3 Credits)

This course will provide further study into the prenatal development of body systems. An emphasis will be made on structure and function of the systems, developmental changes from age, and common problems and diseases associated with each body system.

### **AS 544 – SPECIAL PROBLEMS IN LIVESTOCK BREEDING**

(3 Credits)

Advanced study of application of systems and methods of breeding to livestock production and experimental breeding.

### **AS 553 – PHYSIOLOGY OF REPRODUCTION**

(3 Credits)

The goal of this course is for students to learn the critical role of the endocrinology system. Emphasis will be made on the mammalian endocrine glands from the standpoint of their structure, their physiological function in relation to the organism, the chemical nature and mechanisms of action of their secretory products, and the nature of anomalies manifested with their dysfunction. Current theories will be evaluated and discussed using information from recent scientific publications.

### **AS 564 – SPECIAL PROBLEMS IN SELECTED TOPICS**

(3 Credits)

Formal courses given infrequently to explore in depth a comparatively narrow subject which may be topical or of special interest. A specific title may be used in each instance and will be entered on the student's transcript.

### **AS 566 – SPECIAL PROBLEMS IN FEEDER PIG PRODUCTION**

(3 Credits)

Deals with principles of efficient pork production, including comparative breed evaluation, breeding, feeding, management, marketing, and business aspects. Problems and practices associated with tropical environment emphasized. *Course Objectives in:* 1 Students will integrate and apply scientific principles of genetics, environmental physiology, nutrition, health and reproduction to swine production and management; 2. Students will combine science and practical considerations in describing and comparing swine production systems, including breeding, reproduction, growth, feeding, housing, health, and their relationship to quality pork and profitability; and 3. Students will develop a written technical description of a swine production farm. The course is writing intensive.

### **AS 586 – ENDOCRINE SECRETIONS**

(3 Credits)

Deals with principles of endocrinology and the role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals. Course Objective: Students will gain knowledge of hormone synthesis, secretion, and action of all the endocrine glands while gaining an appreciation for the complex endocrine systems. Students will think critically about how genes and environment interact to regulate chemical communications within the body. Students will also come to understand how the endocrine system coordinates the brain and body activities to control functions that are necessary for survival and reproduction such as: growth, development, gamete production, pregnancy, parental care, stress responses, energy supply, fluid balance, and metabolism.

### **AS 610 – THESIS I**

(3 Credits)

Thesis I is correlated with a research project conducted under the supervision of the animal science students' advisor. Typical length of the research is two years. The thesis I class is to help students begin writing their thesis and having to complete their introduction and literature review by the end of the semester.

### **AS 611 – THESIS II**

(2 Credits)

Thesis II is the continued research project conducted under the supervision of the animal science students' advisor as in Thesis I. The thesis II class is to help students writing their thesis and having to complete their methodology, results, conclusion, and discussion sections.

### **AS 612 – THESIS III**

(1 Credit)

Thesis III is the completion of the student's research project with a bound thesis from the graduate studies office after the student has defended their thesis with an oral presentation in front of their committee members.

## **AGRICULTURAL ECONOMICS (Non-Thesis Plan)**

### **Program Description**

The following desired outcomes are expected for the Agricultural Economics Option: (

1) Students completing the M.S. degree program in Agricultural Economics will be knowledgeable about contemporary aspects of U.S. agricultural production and distribution;

(2) Students completing the M.S. program in Agricultural Economics will be prepared to pursue advanced degrees at the doctoral level in a graduate school of their choice;

(3) Students completing the M.S. program in Agricultural Economics will be prepared to contribute to the teaching of future generations; and

(4) Students completing the M.S. program in Agricultural Economics will be well prepared to accept positions in agriculture-related industries.

## Course Requirements

<b>Core Courses (9 hours Non-Thesis Plan)</b>		<b>Credits</b>
AE 510	Resource Development	3 hrs.
AE 520	Advanced Farm Organization and Management	3 hrs.
AE 525	Advanced Marketing	3 hrs.
<b>Required Courses (9 hours)</b>		<b>Credits</b>
AE 515	Economics of Consumer Behavior	3 hrs.
AE 580	Org Oper Coop Limit Res People	3 hrs.
PS 595	Experimental Design	3 hrs.
<b>Approved Electives (15)</b>		<b>Credits</b>
AB 601	Special Problems and Agriculture Management	3 hrs.
AB 604	Agribusiness International Trade	3 hrs.
AE 508	Rural Economic and Community Develop	3 hrs.
AE 511	Theory of Aggregative Demand and Supply for Agricultural Products	3 hrs.
AE 601	Special Problems in Agricultural Economics	3 hrs.
AG 558	Special Problems in Agricultural Mechanics	3 hrs.
AG 577	Advanced Farm Power and Machinery	3 hrs.
AN 500	Administration of Agricultural Education	3 hrs.
AN 510	Agricultural Education Media	3 hrs.
AN 515	Advanced Principles and Philosophy of Voc. Ed.	3 hrs.
EC 501	Advanced Microeconomics	3 hrs.
EC 502	Advanced Macroeconomics	3 hrs.
EC 520	Comparative Economic Systems	3 hrs.
EC 530	Economic Security and Social Welfare	3 hrs.
FI 530	Survey of Finance	3 hrs.
MG 541	Survey of Management	3 hrs.
MG 560	Survey of Quantitative Methods	3 hrs.
PH 504	Psychological Statistics	3 hrs.
PS 590	Advanced Research Techniques	3 hrs.
<b>TOTAL</b>		<b>33 hrs.</b>

\*Students who do not score 3.0 on the GRE Analytical Writing must enroll in AN 501-Technical Writing (3 Credits)

A research project is required for Agricultural Economics.

## **Agricultural Economics Course Descriptions (AE)**

### **AE 508 – RURAL ECONOMIC AND COMMUNITY DEVELOPMENT**

(3 Credits)

This course deals with economic and social conditions in rural areas. It discusses patterns, trends, and problems in rural communities. It deals with economic concepts that help in understanding and analyzing rural communities, and theories of growth and economic development. Completion of this course will result in understanding theories, concepts, and frameworks of community and economic development and community decision-making models.

### **AE 510 – RESOURCE DEVELOPMENT**

(3 Credits)

A study of the principles of land utilization; meaning, present status, importance and techniques of resource conservation and development; development for public and private land use. Particular emphasis will be directed to the role of agriculture and agricultural resources in economic development.

### **AE 511 – THEORY OF AGGREGATIVE DEMAND AND SUPPLY FOR AGRICULTURE PRODUCTS**

(3 Credits)

Advanced theories of demand and supply, including topics in consumer behavior, theory of production and cost, theories of the firm and market organization; the course also covers advanced analytical techniques used to estimate demand and supply relations in agriculture. Students are expected to demonstrate practical knowledge through the development of empirical models.

### **AE 515 – ECONOMICS OF CONSUMER BEHAVIOR**

(3 Credits)

The course is designed to teach theoretical and applied economics to those with a direct or indirect interest in the consumer as a crucial economic unit in a market economy. It focuses on the economic organization of the household as a consuming unit. Primary emphasis will be placed on human capital development theories; economic welfare; the economics of poverty; consumption and saving relation models; time allocation models; consumer behavior; consumer equilibrium, household resources and activities. Attention will also be paid to consumption patterns and trends in the United States as well as other countries around the world.

### **AE 520 – ADVANCED FARM ORGANIZATIONS AND MANAGEMENT**

(3 Credits)

This course involves the study of the farm business from the standpoint of maximizing net returns over time. Major emphasis is on the fundamental principles underlying sound farm organization and operation. It deals with the development of problem solving and risk management skills needed on the modern farm operation. It will apply spreadsheets to perform production planning and analysis of farm and ranch problems with linear programming, simulations, and other tools. Students will apply the analysis of the acquisition of resources and the use of information systems in managing the individual farm.

### **AE 525 – ADVANCED MARKETING**

(3 Credits)

A study of the principles and problems associated with marketing of agricultural product-functional and commodity approaches. Students will be expected to conceptualize and analyze market data relative to conditions of competition.

### **AE 580 – ORGANIZATION AND OPERATION OF COOPERATIVES FOR LIMITED RESOURCE PEOPLE**

(3 Credits)

A study of the organization and operation of cooperatives for limited resource people using the case method. Field trips will be made to limited resource cooperatives.

### **AE 601 – SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS**

(3 Credits)

Credits from 1-4 hours may be attained. May be taught on individual or group basis with one or more written reports treating special problems in several areas of agricultural economics.

## **Agribusiness (AB)**

### **AB 604 – AGRIBUSINESS INTERNATIONAL TRADE**

(3 Credits)

The primary objective of the course is to study theories, historical and contemporary policies related to international trade of agricultural products. The course will cover essential topics, e.g., the economic gains from trade, trade policies, exchange rates, multinational trade negotiations, etc. Also, concepts and issues that have become recently relevant (e.g., technical barriers to agricultural trade, preferential trade agreements, flexible exchange rates, trade and the environment) will be covered as well. Lastly, students will be introduced to topics pertaining to direct foreign investment and international marketing in the agricultural and food industries.

## **Agricultural Engineering (AG)**

### **AG 558 – SPECIAL PROBLEMS IN AGRICULTURAL MECHANICS**

(3 Credits)

This course is primarily for graduate students with special interest in solving problems in agricultural mechanics.

### **AG 577 – ADVANCED FARM POWER AND MACHINERY**

(3 Credits)

The care, operation and maintenance of farm machinery with an emphasis in mechanization and cybernation.

### **AG 610 – THESIS I**

(3 Credits)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in their respective fields of study (agronomy, animal science and agricultural economics). Thesis research may involve field-based study, library-based study, or most likely, some combination. The kind of research most appropriate to the thesis will vary by topic and discipline. Students should consult closely with their thesis advisors throughout the process. Students completing thesis I will be expected to produce a research prospectus that will include introduction and literature review.

### **AG 611 – THESIS II**

(3 Credits)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in their respective fields of study (agronomy, animal science and agricultural economics). Thesis research may involve field-based study, library-based study, or most likely, some combination. The kind of research most appropriate to the thesis will vary by topic and discipline. Students should consult closely with their thesis advisors throughout the process. Students completing thesis II will be expected to outline the methodology, including data collection and analysis.

### **AG 612 – THESIS III**

(3 Credits)

The thesis courses are designed to allow graduate students to make original contribution to knowledge in their respective fields of study (agronomy, animal science and agricultural economics). Thesis research may involve field-based study, library-based study, or most likely, some combination. The kind of research most appropriate to the thesis will vary by topic and discipline. Students should consult closely with their thesis advisors throughout the process. Students completing thesis III will be expected to complete the rest of the thesis which will include presentation of results, discussion and recommendations.

## **ENDORSEMENT AREA: AGRICULTURAL EDUCATION**

### **Program Description**

The Agricultural Education is a Concentration in the Master of Science in Secondary Education. Admission requirements for this program require an application, two letters of recommendation, transcript from an accredited school validating a Bachelor's degree has been earned, and an Educator License.

The following learning outcomes are expected for the Agricultural Education Endorsement:

- (1) students completing the program will be well trained and proficient in the technical fields of agriculture;
- (2) the students will master the skills and techniques for teaching youth and adults leadership and life skills;
- (3) graduates of the program will be competent extension educators, and program development specialists;
- (4) graduates of the program will acknowledge that they had adequate preparation to become competent teachers of Agriculture (6-12); and that they are prepared for agriculture-related careers in the government agencies and in industry

### **Course Requirements**

<b>Core Education Courses (12 Hours)</b>		<b>Credits</b>
ED 512	Foundations of American Education.	3 hrs.
ED 514	Methods of Educational Research	3 hrs.
ED 533	Curriculum Development	3 hrs.
PH 513	Advanced Educational Psychology	3 hrs.
<b>Required Courses (9 Hours)</b>		<b>Credits</b>
AN 500	Administration of Agricultural Education	3 hrs.
AN 506	Advanced Methods of Teaching	3 hrs.
AN 515	Advanced Principles of Agricultural Education	3 hrs.
<b>Electives 12 Hours)</b>		<b>Credits</b>
AE 520	Advanced Farm Organization and Management	3 hrs.
AE 525	Advanced Agricultural Marketing	3 hrs.
AE 601	Special Problems in Agricultural Economics	3 hrs.
AN 510	Agricultural Education Media	3 hrs.
AN 511	Youth Organization and Program Management	3 hrs.
AN 601	Special Problems in Agricultural Education	3 hrs.
AS 523	Advanced Animal Nutrition	3 hrs.
AS 533	Physiology and Anatomy of Farm Animals	3 hrs.
AS 553	Physiology of Reproduction	3 hrs.
PH 504	Psychological Statistics	3 hrs.
PS 535	Advanced Soil Classification	3 hrs.
PS 548	Advanced Soil Management	3 hrs.
PS 601	Special Problems in Vegetable and Small Fruits	3 hrs.
<b>TOTAL</b>		<b>33 hrs.</b>

## **Agriculture Education Course Descriptions (AN)**

### **AN 500 – ADMINISTRATION OF AGRICULTURAL EDUCATION**

(3 Credits)

A careful study of the federal and state acts, laws and policies in vocational education governing agriculture.

### **AN 501 – TECHNICAL WRITING IN AGRICULTURE**

(3 Credits)

This course is designed to fulfill the English Proficiency requirements for all students who are admitted to graduate school conditionally. Focus will be on academic and technical writing with emphasis on critical reading, thinking, writing, and key aspects of writing within student's discipline.

### **AN 504 – CURRICULA AND PROGRAMS FOR TEACHING RURAL DISADVANTAGED**

(3 Credits)

This course is designed to analyze programs and curricula within the school system with emphasis on the disadvantaged. Pre-requisite: AN 487 or consent of advisor.

### **AN 506 – ADVANCED METHODS, TECHNIQUES, AND DEVICES IN TEACHING AGRICULTURE**

(3 Credits)

This course is concerned with analysis, administration and evaluation of methods, techniques and devices used in teaching agriculture. Emphasized concepts, methods and learning theories relevant for both formal and informal education.

### **AN 510 – AGRICULTURAL EDUCATION MEDIA**

(3 Credits)

This course deals with the sources, selection, evaluation, and use of material related to agriculture. 118 Graduate Catalog 2014-2016 Alcorn State University.

### **AN 515 – ADVANCED PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION**

(3 Credits)

This course is designed primarily for those people who are engaged in the profession of vocational education. AN 315 is a similar course and is needed before enrolling in this course.

### **AN 584 – ADVANCED OCCUPATIONAL INFORMATION**

(3 Credits)

An extension of AN 484. An examination and analysis in the world of work with emphasis toward teaching.

### **AN 601 – SPECIAL PROBLEMS IN AGRICULTURAL EDUCATION**

(3 Credits)

An observation, identification, and analysis of problems related to teaching agriculture. Primarily designed for in-service teachers.