Hutson School of Agriculture

11

Tony Brannon, Dean
103 South Oakley Applied Science Building
270-809-3328

DEPARTMENTS

PROGRAMS

UNDERGRADUATE

Associate
Agricultural Science and Technology

Baccalaureate
Agricultural Science
Animal Technology

Minor
Agriculture
Equine Science
Golf Course Management

GRADUATE

Master's
Agriculture

Certificate
Veterinary Hospital Management

Hutson School of Agriculture

Broad opportunities for students to prepare for agricultural and related careers are offered by the Hutson School of Agriculture. The Hutson School of Agriculture offers three undergraduate degree programs: a Bachelor of Science in Agriculture (*B*.S.A.), a Bachelor of Science with a major in Agriculture, and an Associate of Science with emphasis in agricultural science and technology. Minors are available in agriculture, equine science, and golf course management.

The Hutson School of Agriculture also offers a Master of Science degree with both traditional and on-line options. The purpose of this degree is to provide an opportunity for professional agricultural personnel to obtain an education at the graduate level or to prepare for terminal degree work at the doctoral level. Faculty advisors assist students in planning an appropriate course of study to meet individual goals and to assure a balanced program.

The Hutson School of Agriculture includes the Department of Agricultural Science, the Department of Animal and Equine Science, and the Department of Veterinary Technology and Pre-Veterinary Medicine. Agricultural facilities include the farm laboratory complexes, the Cherry Agricultural Exposition Center, and the Breathitt Veterinary Center. The horse, beef, agronomy, and horticulture facilities are a part of the farm-laboratory complexes. The Cherry Agricultural Exposition Center is utilized for equine and rodeo classes, contests, field days, judging contests, clinics, and numerous agricultural activities.

MSU's Breathitt Veterinary Center (BVC), located in Hopkinsville, Kentucky, has as its primary mission the provision of diagnostic data; however, its mission also includes instruction and research. The laboratory is accredited through the American Association of Veterinary Laboratory Diagnosticians. The center's facilities and personnel provide learning experiences for students in the animal health technology program. The BVC also conducts research dealing with infectious diseases of food animals.

Department of Agricultural Science

212 Oakley Applied Science South
270-809-3327

Head: Brian Parr. **Faculty:** Bellah, Ferguson, Handayani, Hoover, Morrow, Musunuru, Payne, Santiago, M. Shultz, Still.

The Department of Agriculture Science offers a Bachelor of Science in Agriculture Degree with the following tracks: (1) agronomy, (2) agriculture science/ agriscience technology track, (3) agricultural education, (4) agribusiness, (5) agriculture systems technology, and (6) horticulture. The agriculture science/ agriscience technology track includes emphases in emerging technology, communications/public relations, environmental/ health, agriculture public service/leadership, and agriculture technology.

Facilities for agriculture science include classrooms and labs in Oakley Applied Science South, Howton Agriculture Engineering Building, the West Farm, the Hutson Farm, the North Farm, the Pullen Farm Complex with three greenhouses and environmental center lab, and the agriculture systems technology farm lab.

ASSOCIATE: Agricultural Science and Technology

Associate of Science Degree
CIP 01.9999

University Studies Requirements ..... 21 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•Scientific Inquiry, Methodologies, and Quantitative Skills

BIO	101	Biological Concepts
	or	
CHE	105	Introductory Chemistry I
	or	
PHY	120	General Physics I
MAT	120	College Algebra with Business Applications
	or	
MAT	140	College Algebra

Agriculture Core Courses ..... 41 hrs

AGR	100T	Transitions
AGR	100	Animal Science
AGR	130	Agricultural Economics
AGR	133	Field Applications for Agriculture
AGR	160	Horticultural Science
	or	
AGR	240	Crop Science
AGR	170	Introduction to Agricultural Systems Technology
AGR	199	Contemporary Issues in Agriculture[1]
AGR	339	Computer Applications for Agriculture
AGR	345	Soil Science

AGR 399 Professional Development Seminar I
AGR electives (16 hrs)

Total Curriculum Requirements ..... 62 hrs

[1]AGR 199 will fulfill both the agriculture core and university studies elective.

AREA: Agricultural Science/AgriScience Technology Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 40 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
MAT 120 College Algebra with Business Applications
or
MAT 140 College Algebra
•***Social and Self-Awareness and Responsible Citizenship***
AGR 199 Contemporary Issues in Agriculture[1]
BIO 103 Saving Planet Earth
or
POL 140 American National Government
•***University Studies Electives***
CHE 210 Brief Organic Chemistry
and
CHE 215 Organic Chemistry Laboratory
or
GSC 199 Earth Science

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[1]
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

AgriScience Technology Track ..... 24 hrs
AGR 377 Agriculture Safety
AGR 433 Farm Management
and one of the following:
AGR 300 Principles of Animal Nutrition
AGR 301 Livestock Judging and Evaluation
AGR 302 Horse Science
AGR 311 Beef Science
AGR 312 Dairy Science
AGR 321 Poultry Science
AGR 326 Swine Science
and one of the following:
AGR 330 Principles of Agribusiness
AGR 333 Agribusiness Records and Analysis
AGR 337 Agricultural Sales and Merchandising

and one of the following:
AGR 360 Greenhouse Production and Management
AGR 461 Plant Propagation
AGR 542 Plant Breeding I
AGR 549 Weeds and Their Control
one of the following:
AGR 372 Agricultural Metal Processes
AGR 379 Field Equipment Technology Management
AGR 470 Soil and Water Engineering
AGR 477 Agricultural Power Units
AGR 576 Agricultural Electrification Systems
AGR 577 Tractor Power Principles
and
AGR electives (6 hrs)[2]

Required Support Courses ..... 21-22 hrs
Choose one of the following support course emphases.

Emerging Technology Emphasis (22 hrs)
AGR 471 Applications in Precision Agriculture[2]
AGR 571 Advanced Precision Agriculture[2]
GSC 202 Introduction to Geographic Information Science
GSC 312 Introduction to Remote Sensing
Select three of the following:
AGR 439 Software Applications for Agriculture[2]
AGR 539 Advanced Computer Applications for Agriculture[2]
CSC 125 Internet and World Wide Web Technologies
GSC 305 Map Analysis
GSC 521 Geographic Information Systems
TSM 120 Introduction to Telecommunications

Communications Emphasis (21 hrs)
JMC 168 Contemporary Mass Media
JMC 194 Newswriting
JMC 330 Mass Media Effects
JMC 391 Public Relations Principles
JMC 590 Mass Communications Law
AGR 585 Specialized Journalism/RTV[2]
or
JMC 491 Advanced Public Relations
Advisor-approved AGR, COM, or JMC elective

Environmental/Health Emphasis (21 hrs)
AGR 378 Agricultural Environmental Management Systems
CET 330 Water Quality Technology I
CET 331 Water Quality Technology II
CET 342 Air Quality Technology
CET 353 Solid and Hazardous Waste Management
CET 555 Environmental Regulatory Affairs
ENT 286 Introduction to Environmental Engineering Technology

Agriculture Public Service/Leadership Emphasis (21 hrs)
AGR 488 Cooperative Education/Internship[2]
AGR 489 Cooperative Education/Internship[2]
NLS 290 Introduction to the Role of Service and the Nonprofit Sector
NLS 350 Program Development in Nonprofit Organizations
NLS 351 Leadership and Support Systems in Nonprofit Organizations
AGR, AED, COM, CTE, MGT, NLS advisor approved electives (6 hrs)[2]

Agricultural Technology Emphasis (21-22 hrs)
AGR 313 Livestock Production Management Systems
AGR 439 Software Applications for Agriculture[2]
AGR 471 Applications in Precision Agriculture[2]
AGR 499 Leadership/Professional Development Seminar II
AGR 537 Seminar in Agricultural Business Systems

AGR 538 Seminar in Production Agricultural Systems
or
AGR 571 Advanced Precision Agriculture
AGR 539 Advanced Computer Applications for Agriculture
AGR 547 Crop Management

Unrestricted Electives ..... 8-9 hrs

Total Curriculum Requirements ..... 120 hrs

[1]AGR 199 fulfills both Agriculture Core and a University Studies elective requirement.
[2]These agriculture electives may be fulfilled by agriculture courses used in the chosen emphasis.

AREA:
Agricultural Science/Agricultural Education Certification (5-12) Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 40 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
MAT 140 College Algebra[1]
or
STA 135 Introduction to Probability and Statistics[1]
•***Social and Self-Awareness and Responsible Citizenship***
BIO 103 Saving Planet Earth
or
POL 140 American National Government
EDP 260 Psychology of Human Development
•***University Studies Electives***
AGR 199 Contemporary Issues in Agriculture[2,3]
Choose one of the following:
BIO 221 Zoology
BIO 222 Botany
CHE 101 Consumer Chemistry
GSC 199 Earth Science
Note: Certification requires a grade of *B* or better in one English composition course and a *B* or better in a University Studies math course, public speaking, and AED 380 or equivalent course. Additional requirements for admission to teacher education and student teaching must be met. See advisor and/or Office of Teacher Education Services for details.

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[2,3]
AGR 339 Computer Applications for Agriculture[4,5]
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

Agricultural Education Track ..... 24 hrs
AED 104 Agricultural Education, Leadership and Life Knowledge
AGR 360 Greenhouse Production and Management
AGR 337 Agricultural Sales and Merchandising
or
AGR 433 Farm Management

AGR 372 Agricultural Metal Processes
AGR 570 Agricultural Systems Technology Laboratory Management
Choose one of the following:
AGR 303 Advanced Horse Science
AGR 321 Poultry Science
AGR 325 Small Animal Science
AGR 461 Plant Propagation
AGR 471 Applications in Precision Agriculture
AGR 555 Advanced Soil Fertility
AGR 573 Agricultural Processing Systems
Choose one of the following:
AGR 361 Greenhouse Practicum
AGR 362 Floral Design
AGR 368 Landscape Construction
AGR 461 Plant Propagation
Choose one of the following:
AGR 300 Principles of Animal Nutrition
AGR 301 Livestock Judging
AGR 302 Horse Science
AGR 311 Beef Science
AGR 326 Swine Science

Required Support Courses ..... 32 hrs
AED 380 Agricultural Education, Extension, and Leadership[1]
AED 501 Methods of Teaching Agricultural Education[1,6,7]
CTE 502 Assessment and Curricula in CTE
SEC 421 Student Teaching in Secondary School[6]
SED 300 Educating Students with Disabilities
and an advisor approved content literacy course (3 hrs)[8]

Total Curriculum Requirements ..... 122 hrs

[1]With a grade of *B* or better.
[2]AGR 199 will fulfill both the agriculture core and university studies elective.
[3]Identified as discipline specific writing intensive course.
[4]Identified as discipline specific writing intensive course.
[5]With a grade of *C* or better.
[6]Admission to Teacher Education required.
[7]Must be repeated for a total of six hours.
[8]ENG 445 or REA 407.

AREA: Agricultural Science/Agribusiness Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 40 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
or
CHE 210 Brief Organic Chemistry
MAT 120 College Algebra with Business Applications
or
MAT 140 College Algebra
or
MAT 220 Business Calculus
or
MAT 250 Calculus and Analytical Geometry I

•Social and Self-Awareness and Responsible Citizenship
COM 260 Communication Ethics
or
POL 140 American National Government
ECO 230 Principles of Macroeconomics
•University Studies Electives
ECO 231 Principles of Microeconomics
FIN 230 Personal Finance

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

Agribusiness Track ..... 24-25 hrs
ACC 200 Principles of Accounting I
AGR 328 Statistics for Food and Agriculture
or
STA 135 Introduction to Probability and Statistics
AGR 330 Principles of Agribusiness
AGR 336 Agricultural Marketing and Price Analysis
AGR 337 Agricultural Sales and Merchandising
AGR 433 Farm Management
AGR 531 Agricultural Finance
AGR 552 Agricultural Policy

Required Support Courses ..... 15 hrs
Choose one of the following support course emphases.

Crop Production Emphasis
AGR 547 Crop Management
AGR 549 Weeds and their Control
and three of the following: AGR 455, 470, 471, 542, 546, or 555.

Entrepreneurship Emphasis
AGR 334 Entrepreneurship in Agribusiness
MGT 350 Fundamentals of Management
MGT 358 Entrepreneurial Business Plan Development
Upper-level, advisor approved electives (6 hrs)

Global Emphasis
MKT 360 Principles of Marketing
MKT 568 Global Marketing Management
Choose three of the following:
AGR 353 World Food, Agriculture and Society
AGR 529 International Trade and Agriculture
AGR 533 Seminar in International Agriculture Systems
Three hours of foreign language

Marketing/Management Emphasis
MGT 350 Fundamentals of Management
MKT 360 Principles of Marketing
FIN 330 Principles of Finance
Upper-level, advisor approved electives (6 hrs)

Unrestricted Electives ..... 14-15 hrs[1]

Total Curriculum Requirements ..... 120 hrs

[1]Students wishing to qualify for admission to Murray State's Master of Business Administration (MBA) program should chose the following courses as part of the Unrestricted Electives requirement: ACC 201, BUS 355, CIS 443, MAT 220.

AREA: Agricultural Science/Agricultural Systems Technology Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 40-41 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
MAT 130 Technical Math I
or
MAT 140 College Algebra
•***Social and Self-Awareness and Responsible Citizenship***
AGR 199 Contemporary Issues in Agriculture[1]
•***University Studies Electives***
CHE 210/215 Brief Organic Chemistry and Organic Chemistry Laboratory
or
GSC 199 Earth Science
or
PHY 130 General Physics I

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[1]
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

Agriculture Systems Technology Track..... 24 hrs
AGR 371 Agricultural Buildings and Construction
AGR 372 Agricultural Metal Processes
AGR 377 Agriculture Safety
AGR 477 Agricultural Power Units
or
AGR 577 Tractor Power Principles
AGR elective (3 hrs)
Choose nine hours from the following:
AGR 379 Field Equipment Technology Management
AGR 470 Soil and Water Engineering
AGR 471 Applications in Precision Agriculture
AGR 488 Cooperative Education/Internship
AGR 489 Cooperative Education/Internship
AGR 551 Selected Studies in Agriculture
AGR 570 Ag Systems Technology Lab Management

AGR 571 Advanced Precision Agriculture
AGR 572 Advanced Metal Work
AGR 573 Agriculture Processing Systems
AGR 574 Agricultural Irrigation and Water
AGR 575 Combine and Grain Handling Systems
AGR 576 Agriculture Electrification Systems
AGR 578 Research and Development of Agriculture Tractors and Equipment

Support Courses ..... 6 hrs
AGR 471 Applications in Precision Agriculture
AGR 488 Cooperative Education/Internship
or select from the following:
AGR 489 Cooperative Education/Internship
AGR 571 Advanced Precision Agriculture
TSM 110 Electrical Systems I
ITD 102 CAD Applications
ITD 104 Computer-Aided Design
ITD 107 Introduction to Technical Drawing and Computer Aided Drafting
ITD 330 Machine Tool Processes

Unrestricted Electives ..... 23-24 hrs

Total Curriculum Requirements ..... 120 hrs
[1]AGR 199 will fulfill both the agriculture core and university studies elective.

AREA: Agricultural Science/Agronomy Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 42 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 222 Botany: Plant Form and Function
CHE 105 Introductory Chemistry I
MAT 140 College Algebra
•***Social and Self-Awareness and Responsible Citizenship***
BIO 103 Saving Planet Earth
or
POL 140 American National Government
AGR 199 Contemporary Issues in Agriculture[1]
•***University Studies Electives***
CHE 210 Brief Organic Chemistry
CHE 215 Organic Chemistry Laboratory
GSC 199 Earth Science

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[1]
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

Agronomy Track ..... 25 hrs
AGR 346 Soil Science Laboratory
AGR 378 Agricultural Environmental Management Systems
AGR 455 Soil Management
AGR 470 Soil and Water Engineering
AGR 471 Applications in Precision Agriculture
AGR 542 Plant Breeding I
AGR 546 Integrated Pest Management
AGR 547 Crop Management
AGR 549 Weeds and Their Control

Required Support Courses ..... 15 hrs
Choose one of the following support course emphases.

Practicum Emphasis
AGR 498 Agronomy Practicum
Choose one of the following:
AGR 330 Principles of Agribusiness
AGR 433 Farm Management
AGR 571 Advanced Precision Agriculture

Research Emphasis
AGR 328 Statistics for Food and Agriculture
AGR 571 Advanced Precision Agriculture
BIO 300 Introductory Microbiology
Agronomy advisor approved research electives (5 hrs)

Sales/Production Emphasis
AGR 330 Principles of Agribusiness
AGR 433 Farm Management
AGR 333 Agribusiness Records and Analysis
AGR 336 Agricultural Marketing and Price Analysis
or
AGR 337 Agricultural Sales and Merchandising
Agronomy advisor approved electives (3 hrs)

Unrestricted Electives ..... 12 hrs

Total Curriculum Requirements ..... 120 hrs
[1]AGR 199 will fulfill both the agriculture core and university studies elective.

AREA: Agricultural Science/Horticulture Track

Bachelor of Science in Agriculture Degree
CIP 01.9999

University Studies Requirements ..... 40 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Global Awareness, Cultural Diversity and the World's Artistic Traditions***
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 222 Botany: Plant Form and Function
CHE 101 Consumer Chemistry
or
CHE 105 Introductory Chemistry I
MAT 140 College Algebra
•***Social and Self-Awareness and Responsible Citizenship***
AGR 199 Contemporary Issues in Agriculture[1]
•***University Studies Electives***
CHE 210 Brief Organic Chemistry
and

CHE 215 Organic Chemistry Laboratory
or
GSC 199 Earth Science

Agriculture Core Courses ..... 26 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[1]
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone

Horticulture Track..... 25 hrs
AGR 263 Woody Plant Materials I
AGR 346 Soil Science Laboratory
AGR 360 Greenhouse Production and Management
AGR 361 Horticulture and Greenhouse Management Practicum
or
AGR 460 Professional Experience in Horticulture
AGR 363 Woody Plant Materials II
AGR 365 Herbaceous Plant Materials
AGR 367 Residential Landscape Design
or
AGR 462 Fine Turf Management
or
AGR 563 Arboriculture
AGR 461 Plant Propagation
AGR electives (6 hrs)

Unrestricted Electives..... 29 hrs

Total Curriculum Requirements ..... 120 hrs
[1]AGR 199 will fulfill both the agriculture core and university studies elective.

MAJOR: Agricultural Science

Bachelor of Science/Bachelor of Arts Degree
CIP 01.9999

University Studies Requirements..... 40 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•Global Awareness, Cultural Diversity and the World's Artistic Traditions
Choose one of the following:
AGR 200 International Agricultural Experience
AGR 353 World Food, Agriculture and Society
SPA 106 Basic Spanish and Culture for Agriculture
•Scientific Inquiry, Methodologies, and Quantitative Skills
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
MAT 120 College Algebra with Business Applications
or
MAT 140 College Algebra
•Social and Self-Awareness and Responsible Citizenship
BIO 103 Saving Planet Earth
or
POL 140 American National Government
AGR 199 Contemporary Issues in Agriculture[1]

•***University Studies Electives***
CHE 210/215 Brief Organic Chemistry and Organic Chemistry Laboratory
or
GSC 199 Earth Science

Agriculture Core Courses ..... 38 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 160 Horticultural Science
or
AGR 240 Crop Science
AGR 170 Introduction to Agricultural Systems Technology
AGR 199 Contemporary Issues in Agriculture[1]
AGR 339 Computer Applications for Agriculture
AGR 345 Soil Science
AGR 399 Professional Development Seminar I
AGR 599 Agriculture Senior Capstone
AGR electives (12 hrs)

Required Minor ..... 21 hrs

Unrestricted Electives ..... 21 hrs

Total Curriculum Requirements ..... 120 hrs
[1]AGR 199 will fulfill both the agriculture core and university studies elective.

Agriculture Minor ..... 21 hrs
Program must be approved by an advisor with at least six hours of 300-level or above completed at Murray State. Six hours must be upper-level courses.

Golf Course Management ..... 21 hrs
ACC 200; AGR 160, 345, 460; MGT 350; and three hours of electives selected from either AGR 462 or MGT 370. Six hours must be upper-level courses.

Graduate Program

Graduate Coordinator - Alyx Shultz
216S Oakley Applied Science Building
270-809-6925

The Master of Science in Agriculture provides concentration in agricultural science. The concentration also services agriculture education. An on-line masters is available by taking a series of advisor approved web classes. Please contact the graduate coordinator for details.

Requirements for Admission

Applicants must meet all Murray State University requirements (see *Graduate Admissions*). The status (conditional/unconditional) of an applicant must be determined before the student enrolls in the first class. Additional requirements for unconditional and conditional admission are as follows.

Unconditional

For unconditional admission, students must meet both of the following requirements:
•An overall grade point average (GPA) of 3.0 in the last 60 hours of undergraduate work; and
•The equivalent of an undergraduate area or major in agriculture is required.

Conditional

Students may be conditionally admitted according to the following requirements:
•An undergraduate GPA of at least 2.75 or a GPA of 3.0 in the last 60 hours of undergraduate work; and
•In some cases, students without the undergraduate area or major may be admitted on the condition of significant agricultural work experience and/or complete prerequisites consisting of at least the undergraduate agriculture core courses in a respective field. The plan of study must be approved by the advisor and graduate coordinator and may allow taking of a combination of undergraduate/graduate courses concurrently.

Upon completion of nine hours of graduate work a student admitted conditionally must have a 3.0 GPA or the student will be dropped from the program. A graduate student dropped for academic reasons may reapply after withdrawal from the graduate program for one semester. Readmission decisions will be made according to the recommendation of an appointed graduate admissions committee.
Note: L=literature; R=research; PT=professional training. See page 68.

Master of Science: Agriculture

CIP 01.9999

THESIS REQUIREMENTS

Total Course Requirements..... 31 hours

AGR 686 Training and Presentation Development Strategies for Agricultural Audiences
AGR 713 Graduate Computer Applications[R]
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar[1,PT]
AGR 735 Research Methodology[L]
AGR 798 Thesis[R]
AGR 799 Thesis[R]

Specialty..... 12 hrs

600- or 700-level, approved by faculty advisor.

The specialty area courses may be chosen, in consultation with an advisor, from courses that most effectively achieve the student's educational goals.

Other Degree Requirements

Comprehensive written examination over coursework.

[1]Class must be taken during the last semester of enrollment. Each student will be expected to prepare and present one seminar based on their thesis project.

NON-THESIS REQUIREMENTS

Total Course Requirements..... 31 hours

AGR 686 Training and Presentation Development Strategies for Agricultural Audiences
AGR 700 Research in Agriculture[R,1]
AGR 713 Graduate Computer Applications
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar[2, PT]
AGR 735 Research Methodology[L]

Specialty..... 15 hrs

600- or 700-level, approved by faculty advisor.

The specialty area courses may be chosen, in consultation with an advisor, from courses that most effectively achieve the student's educational goals.

Other Degree Requirements

Comprehensive written examination, oral examination, and research presentation.

[1]Course must include a creative component or significant research report.

[2]Class must be taken during the last semester of enrollment. Each student will be expected to prepare and present one seminar based on their creative component, research report or work experience.

Master of Science: Agriculture/Agribusiness Economics Concentration

CIP 01.9999

NON-THESIS ONLY

Total Course Requirements..... 31 hours

AGR 686 Training and Presentation Development Strategies for Agricultural Audiences
AGR 700 Research in Agriculture [R,1,2] (6 hrs)
AGR 713 Graduate Computer Applications
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar [PT]
AGR 735 Research Methodology [L, 3]

Agribusiness Economics Concentration

Select 12 hours from the following:

AGR 628 Agriculture, Food and Rural Law
AGR 631 Agricultural Finance
AGR 652 Agricultural Policy
AGR 739 Agribusiness Management
AGR 744 Graduate Cooperative Education[4]

Advisors may approve substitutions to non-core courses in special situations or to better align coursework with the student's professional goals. Students should consult with their advisor to identify appropriate online courses among the following prefixes: ACC, AGR, COM, ECO, FIN, MGT, or MKT. Note: No more than two classes from ACC, ECO, FIN, MGT or MKT may be taken.

[1]Must include a significant creative or scholarly component that will be presented as part of a student's final oral presentation. See HSOA Creative Component Guidelines for details.

[2]Must be taken with advisor/committee chair.

[3]Can be substituted with AED 735.

[4]Experience must be related to agribusiness and approved by advisor prior to enrollment.

Master of Science: Agriculture/Agricultural Education Concentration

CIP 01.9999

NON-THESIS ONLY

Total Course Requirements..... 31 hours

AGR 686 Training and Presentation Development Strategies for Agricultural Audiences
AGR 700 Research in Agriculture R,1,2 (6 hrs)
AGR 713 Graduate Computer Applications
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar3, PT
AGR 735 Research Methodology L, 4

Agricultural Education Concentration

Select 12 hours from the following:

AED 682 Instructional Design for Agricultural Education
AED 683 Instructional Material in Agricultural Education
AED 684 Beginning Teacher Workshop[5]
AED 685 Teaching Adults in Agriculture
AED 735 Qualitative Research Methods

Advisors may approve substitutions to non-core courses in special situations or to better align coursework with the student's professional goals. Students should consult with their advisor to identify appropriate online courses among the following prefixes: AGR, COM, CTE, EDU, or NLS.

[1]Must include a significant creative or scholarly component that will be presented as part of a student's final oral presentation. See HSOA Creative Component Guidelines for details.

[2]Must be taken with advisor/committee chair.

[3]Must be taken during semester of graduation.

[4]Can be substituted with AED 735.

[5]Intended for current secondary agriculture teachers. Kentucky teachers should enroll the fall following completion of the first year of teaching.

Master of Science: Agriculture/Sustainable Agriculture Concentration

CIP 01.9999

Total Course Requirements..... 31 hours

AGR 686 Training and Presentation Development Strategies for Agricultural Audiences
AGR 700 Research in Agriculture R,1,2 (6 hrs)
AGR 713 Graduate Computer Applications
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar3, PT
AGR 735 Research Methodology L

Sustainable Agriculture Concentration

Select 12 hours from the following:

AGR 655 Advanced Soil Fertility[4]
AGR 661 Sustainable Agriculture
AGR 662 Principles of Agroecology
AGR 671 Advanced Precision Agriculture
AGR 744 Graduate Cooperative Education[5]

Advisors my approve substitutions to non-core courses in special situations or to better align coursework with the student's professional goals. Students should consult with their advisor to identify appropriate online courses among the following prefixes: AED, AGR, GSC, WSC.

[1]Must include a significant creative or scholarly component that will be presented as part of a student's final oral presentation. See HSOA Creative Component Guidelines for details.

[2]Must be taken with advisor/committee chair.

[3]Must be taken during semester of graduation.

[4]See current Academic Bulletin for prerequisite requirements.

[5]Experience must be related to sustainable agriculture and approved by advisor prior to enrollment.

Master of Science: Agriculture/Veterinary Hospital Management Concentration

CIP 01.9999

THESIS OR NON-THESIS

Total Course Requirements..... 31 hours

AGR 700 Research in Agriculture [R,1,2] (6 hrs)
or
AGR 798/799 Thesis[3] (6 hrs)
AGR 720 Experimental Design and Statistical Analysis
AGR 722 Graduate Capstone Seminar[PT]
AGR 735 Research Methodology[L]

Veterinary Hospital Management Concentration

AGR 680 Veterinary Products
AGR 682 Veterinary Practice and Operations
AGR 683 Veterinary Law and Ethics
AGR 713 Graduate Computer Applications
MGT 654 Seminar in Human Resource Management
600-700 level elective in AGR, BUS, MGT, MKT, or Human Resources

Students completing this degree will also receive the Veterinary Hospital Management Certificate.

[1]Must include a significant creative or scholarly component that will be presented as part of a student's final oral presentation. See HSOA Creative Component Guidelines for details.

[2]Must be taken with advisor/committee chair.

[3]Students who plan to pursue a terminal degree are encouraged to enroll in AGR 798/799 in lieu of AGR 700.

[4]Must be taken during semester of graduation.

Department of Animal and Equine Science

212 Oakley Applied Science South
270-809-3327

Interim Head: O.L. Robertson. **Faculty:** Atkerson, Conover, Davis, Porr, Robertson, Robinson, A. Shultz, Van Hooser.

The Department of Animal and Equine Science offers a Bachelor of Science in Agriculture degree with three emphases: (1) food animal emphasis and (2) equine science emphasis and (3) equine management. The department also offers a minor in equine science. Career preparations include the scientific study of feeding, breeding, management and marketing of animals and their products along with the multitude of related businesses and industries.

Facilities for animal and equine science include an equine center, rodeo facilities, and a beef cattle complex including a registered Angus herd and stocker calf intensive grazing systems.

AREA: Animal Technology/Animal/Equine Science Track

Bachelor of Science in Agriculture Degree
CIP 51.0808

University Studies Requirements..... 40-41 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:

•Scientific Inquiry, Methodologies, and Quantitative Skills
BIO 101 Biological Concepts
or
BIO 221 Zoology: Animal Form and Function
MAT 140 College Algebra
and one of the following:
CHE 101 Consumer Chemistry
CHE 105 Introductory Chemistry I
CHE 201 General College Chemistry

•Social and Self-Awareness and Responsible Citizenship
AGR 199 Contemporary Issues in Agriculture

•University Studies Electives
Choose one of the following:
CHE 210/215 Brief Organic Chemistry and Organic Chemistry Laboratory
CHE 202 General Chemistry and Qualitative Analysis
GSC 101 The Earth and the Environment
GSC 102 Earth Through Time
GSC 199 Earth Science

Agriculture Core Courses ..... 24 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 300 Principles of Animal Nutrition
AGR 310 Applications in Animal Technology
AGR 339 Computer Applications for Agriculture
AGR 399 Professional Development Seminar I
AGR 504 Diseases of Livestock
AGR 599 Agriculture Senior Capstone
and one of the following:
AGR 170 Introduction to Agricultural Systems Technology
AGR 377 Agriculture Safety
AGR 375 Animals Emergency Preparedness
and one of the following:
AGR 403 Equine Reproduction
AGR 506 Reproductive Physiology
AGR 523 Artificial Insemination Techniques for Cattle

Required Emphasis Courses ..... 23-24 hrs
Choose one of the following emphases.

Food Animal Emphasis
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 240 Crop Science
AGR 345 Soil Science
and two of the following:
AGR 311 Beef Science
AGR 321 Poultry Science
AGR 324 Veterinary Diagnostic Imaging
AGR 326 Swine Science
and one of the following:
AGR 301 Livestock Judging and Evaluation
AGR 313 Livestock Production Management Systems
AGR 320 Livestock Behavioral Analysis
AGR 402 Advanced Livestock Judging
and one of the following:
AGR 502 Advanced Nutrition
AGR 503 Genetics and Animal Breeding
AGR 512 Beef Cattle Management Systems

Equine Management Emphasis
AGR 101 Basic Stock Seat Horsemanship
or
AGR 111 Basic Forward Seat Equitation
AGR 130 Agricultural Economics
AGR 133 Field Applications for Agriculture
AGR 201 Intermediate Horsemanship
AGR 302 Horse Science
AGR 309 Equine Facility Management
or
AGR 317 Equine Health Care and Management
AGR 318 Equine Forage Management
or
AGR 319 Equine Nutrition and Feeding
and one of the following:
AGR 304 Advanced Stock Seat
AGR 306 Advanced Forward Seat
AGR 405 Equine Behavior Modification
AGR 514 Teaching Students Horsemanship

Equine Science Emphasis
AGR 101 Basic Stock Seat Horsemanship
or
AGR 111 Basic Forward Seat Equitation
AGR 130 Agricultural Economics

AGR 302 Horse Science
AGR 303 Advanced Horse Science
AGR 309 Equine Facility Management
or
AGR 317 Equine Health Care and Management
AGR 315 Equine Exercise Physiology
AGR 318 Equine Forage Management
or
AGR 319 Equine Nutrition and Feeding
AGR 407 Equine Selection and Evaluation

Required Support Courses ..... 12 hrs
Choose the following support courses for the equine management or equine science emphases only:

Equine Management
AGR 330 Principles of Agribusiness
AGR 333 Agribusiness Records and Analysis
AGR 433 Farm Management
MGT 350 Fundamentals of Management

Equine Science
AGR 133 Field Applications for Agriculture
AGR 240 Crop Science
AGR 345 Soil Science
AGR 328 Statistics for Food and Agriculture

Unrestricted Electives ..... 18-33 hrs

Total Curriculum Requirements ..... 120 hrs

Equine Science Minor ..... 21 hrs
Program must include 15 hours of required courses: AGR 101 or 111; and AGR 201, 302, 303, and 317. Six additional hours of upper-level equine courses must be.

Department of Veterinary Technology and Pre-Veterinary Medicine

A. Carman Animal Health Technology Center
270-809-7001

Head: Terry Canerdy. **Faculty:** Canerdy, DeWees, Doom, Hoffman, Jones, Papajeski, Provine.

The Veterinary Technology Program at Murray State University is one of only 22 schools in the nation that offers a fully accredited bachelor of science degree in the area of veterinary technology. Students are also given the track to complete the prerequisite courses required by any of the thirty veterinary schools in the U.S. The program involves hands-on experience with many animal species including small, large, and exotic animals. The program has been continually accredited by the American Veterinary Medical Association (AVMA) since 1986. Facilities for the Veterinary Technology/Pre-Veterinary Medicine program include classrooms and laboratories at the A. Carman Animal Health Technology Center and the university farms. This program is not only academically challenging, but provides students the opportunity to gain valuable hands-on experience.

A portion of the veterinarian technology curriculum will involve students taking courses, which have been labeled the BVC (Breathitt Veterinary Center) courses. The BVC courses include AGR 340, AGR 400, AGR 410, AGR 420, and AGR 430. BVC courses must be taken together in one semester. Because the Veterinary Technology/Pre-Veterinary Medicine program is an accredited program, available space is limited to ensure the quality of instruction. Registration in BVC courses is based on available openings. The veterinary technology program will make every effort to ensure that students who need BVC courses will be placed, but no guarantee is made that the student will be enrolled during the preferred semester. Applications are due February 1st for the fall term and September 1st for the spring term. Once completed applications are reviewed, students will be notified of their placement into BVC courses by March 1st for the fall semester and October 1st for the spring semester.

The following prerequisites are required for the BVC classes: AGR 310, AGR 322, AGR 332, and eight hours of chemistry. The student must have a grade of *C* or higher in these courses before being considered. After the prerequisites have been evaluated, the following criteria will be reviewed in order to determine the student's placement into the BVC courses:

- Completed applications were submitted by the appropriate deadline.
- BVC courses are the ONLY classes remaining.
- BVC courses plus one other course are the only classes remaining.
- Unavoidable course conflicts will be evaluated on a case by case basis.
- Once the placed students are enrolled any space available will be given to students on a first come basis.

The following courses are required by the American Veterinary Medical Association for Veterinary Technician certification: AGR 310, 322, 324, 331, 332, 340, 400, 410, 420, 430, 504, 506, 510, 511, 540, 550, 590, and 599.

AREA:
Animal Technology/Veterinary Technology Track

Bachelor of Science in Agriculture Degree
CIP 51.0808

ACCREDITED BY: American Veterinary Medical Association

University Studies Requirements ..... 41 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•Scientific Inquiry, Methodologies, and Quantitative Skills
BIO 101 Biological Concepts
CHE 105 Introductory Chemistry I
MAT 140 College Algebra
•Social and Self-Awareness and Responsible Citizenship
AGR 199 Contemporary Issues in Agriculture
Ethics, Social Responsibility and Civic Engagement sub-category elective
•University Studies Electives
CHE 210 Brief Organic Chemistry
CHE 215 Organic Chemistry Laboratory

Agriculture Core Courses ..... 24 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 300 Principles of Animal Nutrition
AGR 310 Applications in Animal Technology
AGR 339 Computer Applications for Agriculture
AGR 399 Professional Development Seminar I
AGR 504 Diseases of Livestock[1]
AGR 599 Agriculture Senior Capstone
and one of the following:
AGR 170 Introduction to Agricultural Systems Technology
AGR 377 Agriculture Safety
AGR 375 Animals Emergency Preparedness
and one of the following:
AGR 403 Equine Reproduction
AGR 506 Reproductive Physiology
AGR 523 Artificial Insemination Techniques for Cattle

Veterinary Technology Track[1] ..... 22 hrs
AGR 322 Introduction to Veterinary Laboratory I
AGR 324 Veterinary Diagnostic Imaging
AGR 329 Introductory Veterinary Laboratory II
AGR 332 Veterinary Nursing
AGR 510 Animal Anatomy and Physiology
AGR 540 Veterinary Surgery and Anesthesia
AGR 489 Cooperative Education/Internship
or
AGR 590 Internship in Animal Technology

Required Support Courses ..... 30-31 hrs
Choose one of the following support courses emphases:

Veterinary Technology Emphasis
AGR 331 Small Animal Diseases
AGR 340 Veterinary Laboratory Sciences
AGR 400 Veterinary Microbiology[1]
AGR 410 Advanced Veterinary Hematology[1]
AGR 420 Veterinary Clinical Chemistry[1]
AGR 430 Veterinary Parasitology[1]
AGR 511 Animal Anatomy and Physiology Laboratory[1]
AGR 550 Applied Pharmacology[1]
Approved Electives (6 hrs)

Large Animal Emphasis
AGR 313 Livestock Production Management Systems
AGR 340 Veterinary Laboratory Sciences
AGR 400 Veterinary Microbiology[1]
AGR 410 Advanced Veterinary Hematology
AGR 420 Veterinary Clinical Chemistry
AGR 430 Veterinary Parasitology
AGR 511 Animal Anatomy and Physiology Laboratory
AGR 550 Applied Pharmacology
AGR Elective - Animal Science or Animal Health Technology
and one of the following:
AGR 302 Horse Science
AGR 311 Beef Science
AGR 326 Swine Science

Zoological Animal Health Technology Emphasis
AGR 331 Small Animal Diseases
AGR 340 Veterinary Laboratory Sciences
AGR 400 Veterinary Microbiology[1]
AGR 410 Advanced Veterinary Hematology
AGR 420 Veterinary Clinical Chemistry
AGR 430 Veterinary Parasitology
AGR 511 Animal Anatomy and Physiology Laboratory
AGR 550 Applied Pharmacology
Approved elective (3 hrs)
and one of the following:
BIO 570 Ichthyology
BIO 572 Herpetology
BIO 573 Ornithology
BIO 574 Mammalogy

Unrestricted Electives..... 2-3 hrs

Total Curriculum Requirements ..... 120 hrs
[1]Required by American Veterinary Medical Association for certification.

AREA: Animal Technology/Veterinary Technology/Pre-Veterinary Medicine Track

Bachelor of Science in Agriculture Degree
CIP 51.0808

ACCREDITED BY: American Veterinary Medical Association

University Studies Requirements..... 44 hrs
(See *Academic Degrees and Programs.*)

University Studies selections must include:
•***Scientific Inquiry, Methodologies, and Quantitative Skills***
BIO 101 Biological Concepts
CHE 201 General College Chemistry
MAT 150 Algebra and Trigonometry
•***Social and Self-Awareness and Responsible Citizenship***
PHI 202 Ethics
or
POL 140 American National Government
PSY 180 General Psychology
•***World's Historical, Literary, and Philosophical Traditions***
CIV 201 World Civilizations I
•***University Studies Electives***
CHE 202 General Chemistry and Qualitative Analysis
CIV 202 World Civilizations II
Note: 3rd year Veterinary School Applicants must also take HUM 212 and English Literature.

Agriculture Core Courses ..... 24 hrs
AGR 100T Transitions
AGR 100 Animal Science
AGR 300 Principles of Animal Nutrition

AGR 310 Applications in Animal Technology
AGR 339 Computer Applications for Agriculture
AGR 399 Professional Development Seminar I
AGR 504 Diseases of Livestock
AGR 599 Agriculture Senior Capstone
and one of the following:
AGR 170 Introduction to Agricultural Systems Technology
AGR 377 Agriculture Safety
AGR 375 Animals Emergency Preparedness
and one of the following:
AGR 403 Equine Reproduction
AGR 506 Reproductive Physiology
AGR 523 Artificial Insemination Techniques for Cattle

Pre-Veterinary Medicine Track ..... 23 hrs
AGR 322 Introductory Veterinary Laboratory I
AGR 324 Veterinary Diagnostic Imaging
AGR 332 Veterinary Nursing
AGR 510 Animal Anatomy and Physiology
AGR 550 Applied Pharmacology
AGR 489 Cooperative Education/Internship
or
AGR 590 Internship in Animal Technology
BIO 300 Introductory Microbiology

Required Support Courses ..... 25 hrs
AGR 331 Small Animal Diseases
BIO 221 Zoology: Animal Form and Function
CHE 312 Organic Chemistry I
CHE 320 Organic Chemistry II
CHE 330 Basic Biochemistry
PHY 130 General Physics I
PHY 131 General Physics I Laboratory
BIO 321 Cell Biology

Unrestricted Electives..... 4 hrs

Total Curriculum Requirements ..... 120 hrs

Graduate Program

The Certificate in Veterinary Hospital Management is designed to complement the undergraduate and graduate professional degree programs. The program's objectives are to provide students with opportunities to expand their knowledge in veterinary technology, to explore the business operation of a veterinary clinic, and to experience how the combination of their academic undergraduate and certificate course work can complement their job search.

CERTIFICATE: Veterinary Hospital Management

CIP 51.0808

Requirements for Admission

Students who hold an undergraduate degree in veterinary technology or are currently enrolled in a graduate program may apply for acceptance to the Certificate in Veterinary Hospital Management program. Persons who already hold a graduate degree may also apply for the program.

Applicants must comply with the Murray State University requirements (see *Graduate Admissions*).

- For unconditional admission, an undergraduate GPA of 3.0 or higher.
- For conditional admission, judgement will be determined by probable success based on 1) Graduate Record Examination scores, 2) letters of recommendation, and/or 3) other evidence such as a planned program of prerequisite courses.

Total Course Requirements.....18 hours
AGR 680 Veterinary Products
AGR 682 Veterinary Practice and Operations
AGR 683 Veterinary Law and Ethics
AGR 713 Graduate Computer Applications
MGT 654 Seminar in Human Resource Management
600-level elective in AGR, BUS, MGT, MKT or human resources.