

Department of Agricultural and Biological Engineering

Agricultural Engineering Technology and Business (AETB)

Interim Department Head: Dr. Jonathan Pote

Office: 150 Agricultural and Biological Engineering Building

The AETB program provides an educational opportunity for students interested in applying technical, business, and management skills to problems in agricultural production, processing, commodity related business and finance, and natural resources utilization. A Bachelor of Science degree is offered by the Agricultural and Biological Engineering Department through the College of Agriculture and Life Sciences.

The AETB program provides the industry with men and women possessing excellent skills in the engineering technologies, as well as a thorough background in business and management. This combination allows the AETB graduate to excel in virtually any business enterprise. The AETB Base Curriculum prepares the graduate for the many diverse opportunities afforded by the industrial and agricultural industries. In addition to the broad background in agricultural technologies and business, students may concentrate on a particular career-path by completing an AETB concentration. The AETB Base Curriculum provides six concentrations:

1. Aquacultural Systems,
2. Enterprise Management,
3. Gin Management & Technology,
4. Natural Resources & Environment Management,
5. Precision Agriculture, and
6. Surveying/Geomatics.

These concentrations are achieved by completing 12-18 hours of specified technical electives as approved by an AETB advisor. In addition, the Surveying/Geomatics concentration is supported through a unique AETB curriculum.

The Aquacultural Systems concentration provides an enhanced background in fishery management, fish disease, and water quality. The Enterprise Management concentration is designed to provide skills for agricultural and business enterprise management. The curriculum provides a broad background including both animal and plant sciences, agricultural technology, economics, business and management. The Gin Management and Technology concentration provides graduates with a thorough education in cotton gin management and fiber processing. Courses emphasize technologies that are specific to the fiber processing industry including: hydraulics, pneumatics, industrial controls, seed technologies, biological materials handling, industrial safety and human relations. The Natural Resources and Environmental Management concentration provides an enhanced background in geology, hydrogeology, resource conservation, and water quality for students pursuing careers that require environmental training. The Precision Agriculture and Surveying/Geomatics concentrations provide courses in remote sensing, GPS, GIS, and surveying to enhance the student's abilities for careers involving spatial technologies. The Surveying/Geomatics students take an additional 12 hours of surveying

courses. The jobs available in several of these concentrations exceed the supply of graduates.

Transfer credits with a grade of C or higher will be considered toward fulfillment of the degree requirements in the AETB curriculum. A maximum of 12 transfer hours of technical credit can be applied toward degree requirements.

Employment for AETB graduates includes the following agricultural industries/government agencies: food/fiber production (farming), agri-chemical, agricultural lending, aquaculture, banking, cotton ginning, seed & grain processing, crop consulting, agricultural equipment manufacturers and sales, farm management, land surveying in both the public and private sectors, food processing, and hydrographic surveying and map development via the use of remote sensing, GIS, GPS, photogrammetry, etc. data.

General Education Requirements

English Composition

EN 1103	English Composition I	3
or EN 1163	Accelerated Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

Mathematics

MA 1313	College Algebra	3
MA 1323	Trigonometry	3

Science

PH 1113	General Physics I	3
PH 1123	General Physics II	3
CH 1043	Survey of Chemistry I	3

Humanities

Select from General Education courses		3
Select from General Education courses		3

Fine Arts

Select from General Education courses		3
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Social Science

AEC 2713	Introduction to Food and Resource Economics	3
Select from General Education courses		3

Major Core

ABE 1073	Agricultural Mechanics	3
ABE 2873	Land Surveying	3
ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering	3
ABE 4263	Soil and Water Management	3
ABE 4383	Building Construction	3
ABE 4473	Electrical Applications	3
ABE 4961	Seminar	1
EG 1143	Graphic Communication	3
Technical Elective		3

AETB Elective

Choose one of the following:		3
ABE 2173	Internal Combustion Engine Technology	
ABE 4163	Machinery Management for Agro-Ecosystems	

Science Courses

CH 1053	Survey of Chemistry II	3
CH 1051	Experimental Chemistry	1

Business Courses

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BL 2413	The Legal Environment of Business	3
MGT 3513	Introduction to Human Resource Management	3

Financial Elective

Choose one of the following:		3
FIN 2003	Personal Money Management	
FIN 3113	Financial Systems	

Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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Writing Requirement

AIS 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
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Computer Literacy Requirement

EG 1143	Graphic Communication	3
ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering	3
ABE 4473	Electrical Applications	3

Choose one of the following concentrations:

Aquaculture Systems (ACSY)

ABE 1863	Engineering Technology in Agriculture	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
ADS 1114	Animal Science	4
or BIO 1134	Biology I	
PSS 1313	Plant Science	3
or BIO 1023	Plants and Humans	
AEC 3133	Introductory Agribusiness Management	3
MA 1613	Calculus for Business and Life Sciences I	3
or ST 2113	Introduction to Statistics	

Electives - Choose from the following: ² 18

BIO 3524	Biology of Vertebrates	
CVM 4134	Aquatic Animal Health Management	
WFA 4183	Principles and Practices of Aquaculture	
Approved Electives - consult advisor		

Enterprise Management (EMGT)

ABE 1863	Engineering Technology in Agriculture	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
ADS 1114	Animal Science	4
or BIO 1134	Biology I	
PSS 1313	Plant Science	3
or BIO 1023	Plants and Humans	
AEC 3133	Introductory Agribusiness Management	3

Electives - Choose from the following: ² 18

MA 1613	Calculus for Business and Life Sciences I	
ST 2113	Introduction to Statistics	
AEC 3213	International Trade in Agriculture	

AEC 3233	Introduction to Environmental Economics and Policy	
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Enterprise Mgt Elective - consult advisor (3 hours)

Enterprise Mgt Elective - consult advisor (3 hours)

Precision Agriculture (PRAG)

ABE 1863	Engineering Technology in Agriculture	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
ADS 1114	Animal Science	4
or BIO 1134	Biology I	
PSS 1313	Plant Science	3
or BIO 1023	Plants and Humans	
AEC 3133	Introductory Agribusiness Management	3
MA 1613	Calculus for Business and Life Sciences I	3
or ST 2113	Introduction to Statistics	

Electives - Choose from the following: ¹ 18

FO 4452	Remote Sensing Applications	
& FO 4451	and Remote Sensing Applications Laboratory	
FO 4472	GIS for Natural Resource Management	
& FO 4471	and GIS for Natural Resource Management	
GR 2313	Maps and Remote Sensing	
PSS 4373	Geospatial Agronomic Management	
Precision Ag Elective - consult advisor (3 hours)		
Approved Elective - consult advisor		

Gin Management and Technology (GMT)

ABE 1863	Engineering Technology in Agriculture	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
ADS 1114	Animal Science	4
or BIO 1134	Biology I	
PSS 1313	Plant Science	3
or BIO 1023	Plants and Humans	
AEC 3133	Introductory Agribusiness Management	3

Electives - Choose from the following: ² 18

ABE 4453	Cotton Ginning Systems and Management	
PSS 4133	Fiber and Oilseed Crops	
TKI 4113	Industrial Fluid Power	
TKI 4103	Industrial Control Systems	
ABE 3700	Internship in Gin Management and Technology	
Approved Electives - consult advisor		

Surveying/Geomatics (SGEO)

ABE 4803	Biosystems Simulation	3
CE 2213	Surveying	3
CE 4233	Control Surveys	3
CE 4243	Land Surveys	3
MA 1713	Calculus I	3
or ST 2113	Introduction to Statistics	
BL 4333	Real Estate Law	3
MGT 3323	Entrepreneurship	3
or BL 4243	Legal Aspects of Entrepreneurship	
GR 2313	Maps and Remote Sensing	3
HS 4733	Computer-Aided Design for Human Sciences	3

Emphasis Electives ³	12
Natural Resource & Environmental Management (NREM)	
ABE 1863 Engineering Technology in Agriculture	3
PSS 3303 Soils	3
PSS 3301 Soils Laboratory	1
ADS 1114 Animal Science	4
or BIO 1134 Biology I	
PSS 1313 Plant Science	3
or BIO 1023 Plants and Humans	
AEC 3133 Introductory Agribusiness Management	3
MA 1613 Calculus for Business and Life Sciences I	3
or ST 2113 Introduction to Statistics	
Electives - Choose from the following: ²	18
BIO 2503 Environmental Quality	
PSS 4373 Geospatial Agronomic Management	
GG 3133 Introduction to Environmental Geology	
GG 3613 Water Resources	
GG 4613 Physical Hydrogeology	
Approved Elective - consult advisor	
Total hours	124

¹ The ABE Department will offer ABE 4990 Special Topics in Agricultural and Biological Engineering courses periodically. Depending on the subject matter of the course, ABE 4990 may be an approved concentration elective.

² For approved Emphasis Electives, consult advisor.