

## **Institutional Effectiveness 2023-2024**

**Program:** Agriculture BSAG

**College and Department:** College of Agriculture and Human Ecology, School of Agriculture

**Contact:** James Baier

**Mission:**

School of Agriculture's Mission Statement: Our mission is to prepare students for leadership roles in the food, fiber, and natural resource professions by providing state of the art experiential learning through agriculture. The School of Agriculture (SOA) mission statement flows from the TTU Mission Statement "to provide leadership and outstanding programs in . . . agriculture and human ecology, nursing, music, art and interdisciplinary studies." The SOA mission statement additionally supports the TTU Flight Plan to improve the undergraduate experience.

The SOA offers a Bachelor of Science degree in Agriculture focusing on one of 9 concentrations. Those concentrations span across the broad discipline of Agriculture including: Agribusiness Management, Agricultural Communications, Agricultural Education, Agricultural Engineering Technology, Agronomy and Soils, Environmental Agri-science, Horticulture, Nursery & Landscape Management, and Turfgrass Management.

We prepare our students to, upon graduation, enter a multitude of fields in the agricultural industry or to continue their education through graduate school. Previous graduates can be found across Tennessee and the United States in such roles as park rangers, golf course superintendents, government officials, business owners, county agents, conservationists, university professors, military officers, high school teachers, consultants, agricultural product/equipment sales, bankers, farm managers, landscape developers, and the list continues to grow.

The School of Agriculture is blessed with two unique farms. In 1965 the Shipley Farm (300 acres) was acquired and houses the Hyder-Burks Pavilion, horticultural greenhouses, the organic farming operation, sheep, hogs, beef cattle, poultry, varied forage and row crops. Finally, in 2009, the Oakley Farm (1400+ acres) expanded the possibilities for research and teaching with access to 300 plus cows and calves with additional cropland and three quarters of an acre of greenhouses and other agricultural enterprises. All facilities are dedicated to the overall educational experience of our students.

Our vision states, "We are the hallmark program of experiential education in agriculture."

**Attach Curriculum Map (Educational Programs Only):**

Attached Files: See Appendix 2

## **PG 1: Enrollment, Retention, Graduation**

### **Define Outcome:**

Exceed student enrollment numbers. The School of Agriculture (SOA) will use a combination of the following to meet this goal: 1) Strive to increase the number of freshmen enrolled each fall; 2) Strive to maintain at least an 90% retention rate Fall-to-Spring and 85% Fall-to-Fall; 3) Increase our presence on community college campuses across TN with the goal of admitting a minimum of 25-30 students per year; 4) Secure new funds for building a strong, focused recruitment program; and hire a full-time staff member (recruitment specialist) that will be charged with traveling the state and meeting with prospective students, their parents, alumni, etc.

### **Assessment Methods:**

Enrollment, retention, and graduation rates.

Monitor recruitment work

### **Criteria for Success (Thresholds for Assessment Methods):**

Enrollment, retention, and graduation rates.

- Strive to increase the number of freshmen enrolled each fall
- Strive to maintain at least an 90% retention rate Fall-to-Spring and 85% Fall-to-Fall
- Goal of admitting a minimum of 25-30 students per year

Monitor recruitment work

- Secure new funds for building a strong, focused recruitment program; and hire a full-time staff member (recruitment specialist) that will be charged with traveling the state and meeting with prospective students, their parents, alumni, etc.

### **Link to 'Tech Tomorrow' Strategic Plan:**

### **Results and Analysis:**

**Enrollment** in the BS of Agriculture showed a slight increase from the 2022-2023 academic year. Increased recruitment efforts have been in place in the College of Agriculture and Human Ecology for the past three years and a major focus has been on the BS animal Science and Poultry Science concentration. The lack of any Agribusiness faculty during the 2022-2023 year resulted in a decrease in that specific area and the program saw an enrollment decline of 14 students.

**Retention rates** declined slightly for the 2022-2023 first-time freshmen but drastically declined 2023-2024. The loss of agribusiness faculty and a plant science faculty member may have caused students to seek other options.

The 2023-2024 data showed an increase in **graduation rates** over the 2022-2023 cohort. The 2023-2024 cohort corresponds to the return to in-person course coming out of the 4-year COVID 19 starting class.

Attached Files: See Appendix 2

### **Use of Results to Improve Outcomes:**

The School of Agriculture will continue emphasis on recruiting efforts and faculty participation in recruiting events. As new faculty are hired to participate in recruiting efforts, the Agribusiness and Plant Science concentrations should see increased enrollment. The Plant Science concentrations should also see an enrollment increase with the combination of several low producing concentrations that will provide a greater interest to students.

### **PG 2: Encourage external funding and increase student research projects**

#### **Define Outcome:**

Increase the amount of external funding (local, state and federal levels) and increase interaction of faculty and students so as to increase undergraduate research.

The goal is to have at least as many grant applications as there are faculty members. One of the purposes of the grants are to include undergraduates in the research process. The grants can be URECA, QEP, or other grants offered through national, state, or local organizations.

As a result of undergraduate research, the SOA would like to have at least 15 students present a research poster at the TTU Creative Inquiry Day.

#### **Assessment Methods:**

1. Review of Annual Faculty Reports in the research completed and research pending areas.
2. Monitor number of grants applied for.
3. Monitor number of students participating in the SOA student organizations.
4. Monitor the number of students presenting at the Creative Inquiry day.

#### **Criteria for Success (Thresholds for Assessment Methods):**

1. Monitor number of grants applied for.
  - o The goal is to have at least as many grant applications as there are faculty members. One of the purposes of the grants are to include undergraduates in

the research process. The grants can be URECA, QEP, or other grants offered through national, state, or local organizations.

2. Monitor the number of students presenting at the Creative Inquiry day.
  - o at least 15 students present a research poster at the TTU Creative Inquiry Day

**Link to 'Tech Tomorrow' Strategic Plan:**

**Results and Analysis:**

The School of Agriculture has 6 tenure track faculty members since 2020, and the number of new grant applications and research endeavors have increased with this young faculty and are expected to continue to increase in the future as newer faculty are hired to fill vacant positions.

SCHOLARLY ACTIVITY	YEAR			
	2023	2022	2021	2020
Externally Funded Projects Proposed	17	6	5	14
Internally Funded Projects Proposed	10	3	3	4
Externally Funded Projects Funded	8	4	4	3
Internally Funded Projects Funded	4	4	4	1
Number of Graduate Committees Chaired	4	4	4	7
Number of Graduate Committee Memberships	10	6	6	5
Number of Undergraduate Students Involved in Research Projects	20	14	14	6
Externally Funded Dollars Awarded	\$643,916	\$882,136	\$505,000	\$329,150
Internally Funded Dollars Awarded	\$28,900	\$57,176	\$10,000	\$13,204

**Use of Results to Improve Outcomes:**

The School of Agriculture anticipate hiring 2 faculty members in 2025 which will contribute further in producing more undergraduate and graduate research. The School of Agriculture anticipates the Masters degree in Agriscience Technology to be approved by the Board of Trustees and THEC and for marketing the program in the Spring of 2025. The new poultry science building has provided opportunities for research activities in all agricultural disciplines. Construction of the Agriscience Technology Innovation Center has begun and will further support scholarly research.

**PG 3: Promote and enhance faculty and staff development**

**Define Outcome:**

Promote and enhance faculty and staff development to the extent resources permit.

**Assessment Methods:**

Annual Faculty Reports in participation in research conferences and trainings.

Monitor budget increases in available funding to support research related and other professional training opportunities

**Criteria for Success (Thresholds for Assessment Methods):**

Six faculty was sponsored, attended and presented at their respective professional organization annual conferences.

**Link to 'Tech Tomorrow' Strategic Plan:**

**Results and Analysis:**

Faculty members in the School of Agriculture maintained a reasonable level of developmental activities compared to the previous years and increased their level of service to national and local scientific and producer groups.

<b>School of Agriculture Faculty and Staff Activities</b>					
	<b>Year</b>				
	<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Professional Organizations	16	10	7	18	14
Officer in Professional Organizations	2	2	2	2	4
Professional Meetings Attended	20	32	16	14	17
Refereed Conference Papers Published	6	8	10	7	4
Refereed Journal Articles Published	11	4	6	2	3

**Use of Results to Improve Outcomes:**

The Director is committed to provide travel money for presentation of scholarly publications for faculty, staff, and students. The new tenure track faculty hires will also increase the promotion and development of faculty and staff.

**SLO 1: Prepared for Employment and Advancement in Agricultural Careers****Define Outcome:**

Students will acquire the knowledge and skills to be prepared for employment and to advance in Agricultural careers.

Students will perform at or above the national average on the ACAT.

The School of Agriculture uses a national assessment tool (ACAT) to determine how prepared the students are for industry and graduate school. The main objective of all SOA curriculum is to prepare students for the global workforce and provide the tools necessary to grow as an individual. Therefore, faculty and staff desire to see an increase in ACAT scores each year and to always be above the national average.

Students will participate in internships or field experience.

**Assessment Methods:****Area Concentration Achievement Test (ACAT)**

The Area Concentration Achievement Test (ACAT) assessment is administered to all final semester seniors in the SOA. This national assessment is an indication of how well prepared the students are for his or her chosen profession. According to ACAT, scores range from 200-800 with a national average of 500 and a standard deviation of 100. Nationally in any given year, 68% of scores should fall between 400-600. Number of students involved in internships or experiential learning.

**Number of students involved in internships or experiential learning.**

**Conversations and focus groups with stakeholders** (Tennessee Farm Bureau, TN Farmers Coop, TriGreen Implement, Perdue Foods, National Resources Conservation Services, and United States Department of Agriculture).

**Alumni Survey**

The School of Agriculture Alumni Follow-up Survey is requested periodically from a large and varied array of alumni (2020 survey was requested of alumni graduating from 3 to 55 years prior to the end of Spring Semester 2020, and including all concentrations) provides feedback on the college academic experiences of alumni while completing their respective

concentrations in the SOA, and the effectiveness of these experiences in the workplace. The last survey was conducted in 2020 and plans are to conduct another survey in 2022.

**Criteria for Success (Thresholds for Assessment Methods):**

**Area Concentration Achievement Test (ACAT)**

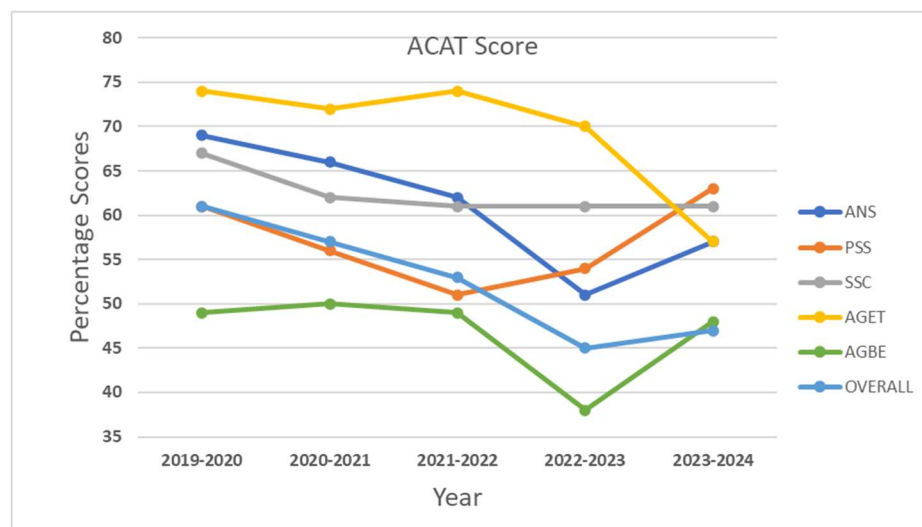
Nationally in any given year, 68% of scores should fall between 400-600. At least 25% of School of Agriculture students involved in internships and 75% in experiential learning.

**Link to 'Tech Tomorrow' Strategic Plan:**

**Results and Analysis:**

Average ACAT Scores for the School of Agriculture						
Year	Percentiles by Concentration					
	ANS	PSS	SSC	AGMECH	AGBE	Overall
2023-2024	57	63	61	57	48	47
2022-2023	51	54	61	70	38	45
2021-2022	62	51	61	74	49	53
2020-2021	66	56	62	72	50	57
2019-2020	69	61	67	74	49	61
<b>Average</b>	61	57	62.4	69.4	46.8	52.6

ACAT scores of students graduating in 2024 improved in every category except Ag Mechanization. Although these scores are averaged over the entire academic year, scores from AGBE drastically declined from fall to spring (57 percentile to 39 percentile) and scores for Agricultural Mech rose substantially from the 48 percentile to the 66 percentile. The remaining scores tended to follow historic results.



Alumni assessment of relationship of education in School of Agriculture to career responsibilities			
	JOB RELATIONSHIP TO ACADEMIC MAJOR*	JOB RELATIONSHIP TO AGRICULTURE*	PREPARATION FOR ENTRY AND ADVANCEMENT IN AGRICULTURAL CAREERS**
Highly Related/ Highly Adequate	29%	55%	47%
Related/ Fairly Adequate	24%	9%	38%
Somewhat Related/ Adequate	26%	12%	6%
Hardly Related/ Somewhat Inadequate	7%	5%	9%
Not Related/ Highly Inadequate	14%	19%	0%
Alumni (N)	42	42	34
*Relationship Scale			
**Adequacy Scale			

Over 90% of alumni respondents indicated that they were at least adequately prepared by their educational experiences to meet their present career responsibilities. However, almost one-fourth of alumni respondents are in jobs that are not directly or not at all related to their current job duties. These results imply that their educational experiences have prepared them well for whatever vocation they chose. The School of Agriculture will continue to strive to prepare students with adequate breadth as well as depth of preparation to meet their future needs.

#### **Use of Results to Improve Outcomes:**

Review of ACAT scores will continue with more thorough research into the student performance within their field of study for example, analyze the scores for plant science students within their own discipline. The low ACAT score results have prompted faculty to develop a strategy to incorporate test outcome into a portion of a course which will provide incentive for students to not dismiss the exam and create skewed results.

The alumni survey will continue while adding new personal exit interviews and exit surveys that are similar to the alumni survey.

### **SLO 2: Leadership and Service**

#### **Define Outcome:**

Beyond the classroom, students will engage in high quality scholarly and service learning activities designed to enhance leadership and service roles in food, agriculture, and natural resource systems.



SOA students will actively participant and serve in leadership roles in one or more clubs/organizations (e.g. National FFA, 4-H, Omicron Delta Kappa, Delta Gamma Sigma, MANRRS, and many others) - both locally and nationally.

**Assessment Methods:**

Review of student involvement with student organizations, service projects and competitions.

Review of faculty involvement with student organizations, service projects and competitions.

**Criteria for Success (Thresholds for Assessment Methods):**

Link to 'Tech Tomorrow' Strategic Plan:

**Results and Analysis:**

Internships in the School of Agriculture				
	Internships		Work Experience	
Year	Courses (n)	Students (n)	Courses (n)	Students (n)
2023-24	11	32	0	0
2022-23	15	41	1	1
2021-22	12	40	0	0
2020-21	14	36	1	1
2019-20	12	27	5	5

Graduating senior assessment of benefit of courses in Work Experience, Internships, and Applied Agricultural Lab						
(Percent of Respondents)						
	WORK EXPERIENCE		INTERNSHIP		APPLIED EXPERIENCE	
YEAR	2023-24	2022-23	2023-24	2022-23	2023-24	2022-23
<b>Extremely Beneficial</b>	57	53	66	62	55	58
<b>Beneficial</b>	21	20	21	23	30	26
<b>Fairly Beneficial</b>	13	20	9	8	15	16
<b>Hardly Beneficial</b>	9	7	4	8	.	.
<b>Not Beneficial</b>	.	.	.	.	.	.
<b>Students (N)</b>	14	19	14	16	20	23

<b>Alumni assessment of benefit of Internships and Applied Agricultural Lab experience (Percent of Respondents)</b>				
	<b>INTERNSHIP</b>		<b>APPLIED EXPERIENCE</b>	
<b>YEAR</b>	<b>2023-24</b>	<b>2022-23</b>	<b>2023-24</b>	<b>2022-23</b>
Extremely Beneficial	59	72	32	40
Beneficial	.	.	.	.
Fairly Beneficial	31	16	43	32
Hardly Beneficial	7	4	19	14
Not Beneficial	3	8	6	14
Students (N)	29	25	37	65

The number of internship course or course sections and students enrolled in internship courses decreased relative to the previous years due to faculty loss in the AGBE concentration which requires an internship. There does not appear to be an emphasis on increasing the level of experiential learning with the Work Experience course. More students receive applied training via Work-Study Scholarships, Special Topics and Senior Problem courses, and jobs working on the farms.

**Use of Results to Improve Outcomes:**

New faculty often bring new contacts where students have opportunities for internships. The School of Agriculture has conducted study abroad trips and are planning more which will provide students opportunities to grow. Also new faculty contacts will provide new internship opportunities for example the new poultry research center will bring new companies into the school that may need agricultural business or agricultural engineering technology interns.

**SLO 3: Critical thinking and problem-solving abilities**

**Define Outcome:**

Students will identify their critical thinking skill levels and problem-solving abilities through a variety of assessments structured to meet the demands of the individual concentrations and develop new strategies to increase their ability to think critically and problem solve.

SOA students will score at or above TTU's student body average on the California Critical Thinking Skills Test (CCTST).

**Assessment Methods:**

**CCTST (California Critical Thinking Skills Test) results**

- SOA seniors complete this national assessment in their final semester.
- SOA students will score at or above TTU's student body average on the **California Critical Thinking Skills Test (CCTST)**.

**Criteria for Success (Thresholds for Assessment Methods):**

SOA students will score at or above TTU's student body average on the **California Critical Thinking Skills Test (CCTST)**.

**Link to 'Tech Tomorrow' Strategic Plan:**

**Results and Analysis:**

<b>California Critical Thinking Skills Exam Results</b>				
	<b>Year</b>			
<b>Group</b>	<b>2023-2024</b>	<b>2022-2023</b>	<b>2021-2022</b>	<b>2020-2021</b>
<b>School of Agriculture</b>	72.3	72	73.2	70.6
<b>College of Agriculture and Human Ecology</b>	72	72	72.8	74.8
<b>TTU Total</b>	74.4	74.3	75.2	74.4
<b>CCTST Standards</b>	72.8	73.3	73.3	74

The School of Agriculture appears to be somewhat successful in their efforts to improve average scores on the California Critical Thinking Skills exam. Though average scores were not as high as the average of graduating seniors of the University, students in the School of Agriculture are approaching the average of the CCTST standards. The faculty will continue to search for ways to improve our students' critical thinking skills.

**Use of Results to Improve Outcomes:**

Discussions to determine why students graduating in the School of Agriculture are scoring below the college and university averages on the California Critical Thinking Skills Test are continuing. It is difficult to effectively study other characteristics of our students that may relate to their scores on this test due to the fact that individual scores on our students are not reported. Thus, it is difficult to determine methods of improving skills among our students that may be correlated with their scores on the CCTST exam. In a general sense, the faculty are incorporating more activities, assignments, and test questions into all courses to help our students improve their critical thinking abilities. A new course sequence was developed to help students develop critical thinking skills, AGR 3250 – Introduction to Research and AGR 3275 – Practical Applications in Research. This course was not offered last year due to faculty medical leave however the new faculty hires have expertise such that the course will be available in the future. The influx of new faculty also will provide new teaching and learning strategies that will possibly be effective in developing critical thinking skills.

**List of Appendices:**

Appendix 1: Agriculture BS Curriculum Map

Appendix 2: PO1 Results

Appendix 1: Agriculture BS Curriculum Map

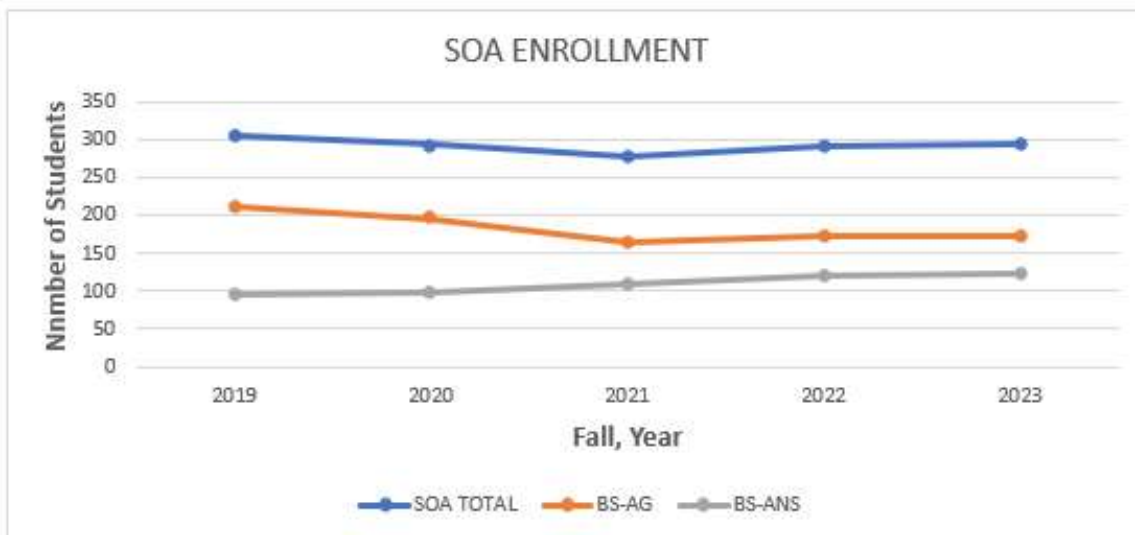
Appendix 1: SOA Core Course Map

Course No.	Title	Career Readiness	Critical Thinking & Problem Solving	Service Learning	Leadership
AGRN 1100	Plant Science	x	x		
AGRN 1110	Plant Science Lab	x	x		
AGRN 2400	Intro to Soils	x	x		
ANS 1200	Intro Animal Science	x	x		
ANS 1210	Intro Animal Science Lab	x	x		
AGBE 2100	Economics of Agriculture	x	x		
AGET 2110	Ag Engineering Tech	x	x		
AGET 2115	Ag Engineering Tech Lab	x	x		
AGR 1020	Connections in Agriculture	x	x	x	x
AGR 2022	Professionalism in Ag	x	x		x
AGR 3000	Leadership & Service	x	x	x	x
AGR 3200	Study Abroad Exploration	x	x	x	x
AGR 4500	Senior Seminar	x	x	x	x

## Appendix 2: PO1 Results

### PG 1: Enrollment

Enrollment Trends in the School of Agriculture						
Concentration	YEAR					AVERAGES
	2019	2020	2021	2022	2023	
Agribusiness Management	81	73	59	56	42	62.2
Agricultural Communication	8	6	4	2	5	5.0
Agricultural Education	24	22	25	25	24	24.0
Agricultural Engineering Technology	52	46	29	31	28	37.2
Agricultural Science and Management	2	4	11	16	23	11.2
Agronomy and Soils	8	9	7	11	11	9.2
Environmental Agriscience	7	5	7	9	16	8.8
Horticulture	19	17	17	17	16	17.2
Nursery & Landscape Management	5	6	6	1	3	4.2
Turfgrass Management	5	3	2	4	5	3.8
<b>All Concentrations</b>	<b>211</b>	<b>191</b>	<b>167</b>	<b>172</b>	<b>173</b>	<b>185.3</b>
<b>All Degrees (includes BS Animal Science)</b>	<b>306</b>	<b>288</b>	<b>281</b>	<b>291</b>	<b>295</b>	<b>292.2</b>



### PG 1: Retention

School of Agriculture (SOA) retention rates (%)				
Year	Fall-to-Spring		Fall-to-Fall	
	First-Time Freshmen	Transfers	First-Time Freshmen	Transfers
2023-2024	82.8	77.8	64.4	77.8
2022-2023	90.5	94.1	75.8	94.1
2021-2022	92.6	94.1	82.4	76.5
2020-2021	80.8	85.7	65.4	71.4
2019-2020	86.9	90.9	67.2	77.3

PG1: Graduation

SOA Graduation Rates (4-Year)		
	Percent of Enrollment	
Year	Freshmen	Transfers
2023-2024	40.4	52.4
2022-2023	34.4	63.6
2021-2022	53.6	80
2020-2021	45.2	65
2019-2020	42.6	78.3