Institutional Effectiveness
2024-2025

Program: Agriculture BSAG
College and Department: College of Agriculture & 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 10 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, Turfgrass Management, and Agricultural Science and 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 1 (Agriculture BSAG Curriculum Map)

PG 1: Enrollment, Retention, Graduation

Define Outcome:
Increase enrollment, retention and graduation rates.

Assessment Methods:
IARE dashboard will be used to monitor enrollment, retention, and graduation rates.

Criteria for Success (Thresholds for Assessment Methods):
The School of Agriculture (SOA) will increase enrolled first-time freshmen by 10 and transfers by 5 each fall.

The School of Agriculture will maintain Fall-to-Spring and Fall-to-Fall retention equal to or above the University rate.

The School of Agriculture will maintain a 4-year graduation rate for first time freshmen above 40 percent.

Results and Analysis:
Enrollment in the BS of Agriculture showed a slight increase from 2023 but fell short of the 10 first time freshman goal. 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. The lack of any Agribusiness faculty over the past two years has resulted in a decrease in effective recruitment in the Agribusiness Economics area. Student enrollment in the AGBE area has dropped from 73 students in 2020 to 34 in 2024. Enrollment in most concentrations have increased this year. While falling short with first time freshman enrollment, the transfer enrollment goal was exceeded. The transfers consisted of one freshman, two sophomores, three juniors, and one senior.

Retention rates declined drastically for first-time freshmen dropping below the university retention rate. The loss of agribusiness faculty and a plant science faculty member may have caused students to seek other options.

The data showed an increase in **graduation rates** to meet the 40% first time freshman goal but just fell short of the University percentage. This graduating class represents first class that were not under COVID restrictions while enrolled in college thus the increase in graduates is

expected. The School of Agriculture normally has a 4-year graduation rate above 40% however it is also desirable to exceed the university percentage.

Attached Files: See Appendix 2 Program Goal 1 Tables and Graphs AGRI 2025

Use of Results to Improve Outcomes:

Enrollment is expected to increase for the 2025-2026 school year as a new Agribusiness Professor started January 2025 and has been actively recruiting at all recruiting events. A second Agribusiness faculty member will start August 2025 therefore establishing a stable Agribusiness program that will provide students a more attractive option. Plans are also being made for a totally online Agribusiness concentration option that will attract students that may be unable to attend campus classes. A new Plant Science faculty member will also start in August that will support the concentrations that also experienced declines in enrollment.

Most of the concentrations that saw a decline in enrollment (Agronomy & Soils, Environmental Agriscience, Turfgrass Management, and Nursery and Landscape Management) were also low enrollment concentrations therefore those concentrations along with Horticulture were combined to create Agronomy and Precision Agriculture Concentration, Horticulture, Landscape, & Turf Management Concentration, and Soil & Water Conservation Concentration. These changes are expected to see an increased enrollment as they align with modern practices in those areas.

Retention is expected to increase with the addition of the new AGBE faculty members mentioned previously. Students will now have a dedicated professional in their area of study that they can create relationships with where previous courses were taught by adjuncts. They will also have an advisor in the School of Agriculture that is an AGBE faculty member.

Graduation rates match the university rates and tend to follow the same trend. The addition of new faculty in Agribusiness Economics, Plant Science, and Animal Science will allow for more courses to be offered for students that will provide them more opportunities to graduate in a 4-year period.

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.
    - 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.
    - at least 15 students present a research poster at the TTU Creative Inquiry Day

Results and Analysis:

The School of Agriculture had 6 tenure track faculty members since 2020 but is now up to 9 tenure track faculty and a very active research-oriented Director. Two new tenure track faculty will begin August 2025 and one more tenure track faculty position is being advertised. The School of Agriculture consists of 3 tenured faculty, a tenured Director and 8 tenure track faculty including the August starting faculty. 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 the new faculty on-board and the vacant faculty position is filled.

SCHOLARLY ACTIVITY	2024	2023	2022	2021	2020
Grant Projects Proposed	27	27	9	8	18
Grant Projects Funded	18	17	8	8	4
Number of Graduate Committees Chaired	6	4	4	7	6
Number of Graduate Committee Memberships	8	10	6	6	5
Number of Undergraduate Students Involved in Research Projects	35	20	14	14	6
Grant Funded Dollars Awarded	-	$939,312	$515,000	$342,354	$773,850

Use of Results to Improve Outcomes:

The School of Agriculture hired 2 faculty members January 2025 which will contribute further in producing more undergraduate and graduate research. The School of Agriculture proposed Master's degree in Agriscience Technology was approved by the Board of Trustees and THEC and the program will commence in the Fall of 2025. The new poultry science building has provided opportunities for research activities in all agricultural disciplines. Construction of the Agriscience Technology Innovation Center is expected to be completed in October 2025 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):
Each faculty member will be sponsored and attend at least one professional organization annual conference.

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.

School of Agriculture Faculty and Staff Activities					
	Year				
	2024	**2023**	**2022**	**2021**	**2020**
Professional Organizations	23	16	10	7	18
Officer in Professional Organizations	2	2	2	2	2
Professional Meetings Attended	15	20	32	16	14
Refereed Conference Papers Published	14	6	8	10	7
Refereed Journal Articles Published	7	11	4	6	2

Use of Results to Improve Outcomes:
The Director is committed to providing travel money for presentation of scholarly publications for faculty, staff, and students. The new tenure track faculty hires increase the promotion and development of faculty and staff by attending professional conferences. All faculty participated in professional conferences through posters or presentations.

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.

Students will participate in internships or field experience.

Assessment Methods:
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.

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 will be determined from Internship Course enrollment and Senior Exit Surveys.

Alumni Survey
The School of Agriculture Alumni Follow-up Survey is requested periodically from a large and varied array of alumni (2024 survey was requested of alumni graduating from 3 to 55 years prior to the end of Spring Semester 2024). The survey 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.

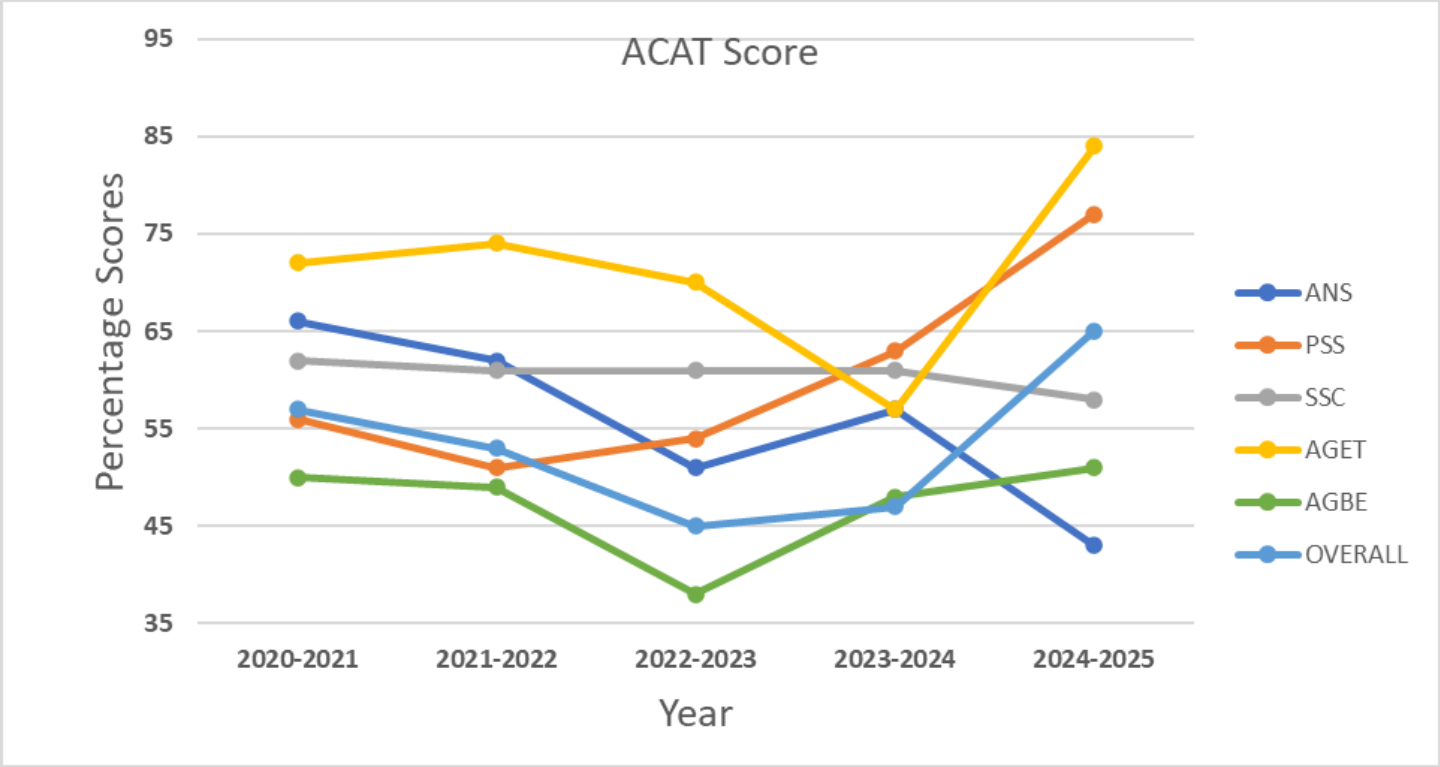
Criteria for Success (Thresholds for Assessment Methods):
Area Concentration Achievement Test (ACAT)

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.

Results and Analysis:

Average ACAT Scores for the School of Agriculture						
	Percentiles by Concentration Area Material					
Year	**ANS**	**PSS**	**SSC**	**AGMECH**	**AGBE**	**Overall**
2024-2025	43	77	58	84	51	65
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
Average	55.8	60.2	60.6	71.4	47.2	53.4

ACAT scores of students graduating in the 2024-2025 cohort improved in three of the five tested areas. Although these scores are averaged over the entire academic year, scores from Animal Science drastically declined from the 2023-2024 cohort (57 percentile to 43 percentile) and scores for Agricultural Mech rose substantially from the 57 percentile to the 84 percentile as did the scores for Plant Science (PSS) increasing from the 63 percentile to the 77 percentile. The decline in Animal Science test results could be due to changes in the Animal Science curriculum. The curriculum was changed such that most upper division Animal Science courses require prerequisites that non-Animal Science students are not required to take.



Improvement in ACAT scores may be attributed to efforts made to review test area subject matter during the semester that the ACAT exam is administered. Faculty of each test area either met with students or provided a presentation for the students to review covering the basics in each test area. These review efforts were practiced in both the 2024 fall and 2025 spring semester. The 2024-2025 ACAT overall score increased 18% which is the largest score difference over the last 5 years.

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 indicated that their current job duties were not related or hardly related to Agriculture. 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:

ACAT test review practices will continue with a focus on improving Animal Science results while also maintaining or improving all ACAT area scores.

The Alumni Survey is conducted every 2 years. The SOA missed administering the 2024 survey therefore a new Alumni Survey will be conducted this academic year and results will be updated.

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.

On successful completion of the degree in Agriculture, students will demonstrate application of leadership and service to complex agriculture issues.

Assessment Methods:

a. IDEA course evaluations
b. Graduating Exit Interview and Survey
c. School of Agriculture Alumni Follow-Up Survey

Criteria for Success (Thresholds for Assessment Methods):

IDEA Course Evaluations:

Graduating Exit Interview and Survey: Strive for at least 75% of graduating students to realize that Leadership Training in Agricultural Clubs and Organizations that is beyond the classroom to be beneficial.

School of Agriculture Alumni Follow-Up Survey: Expect that over 75% of Alumni find that Leadership Training in Agricultural Clubs and Organizations was beneficial.

Results and Analysis:

IDEA course evaluations:

IDEA Factors related to leadership and service	
	YEAR
FACTOR	2024-2025
Encouraged students to use multiple resources (e.g., Internet, library holdings, outside experts) to improve understanding*	4.03
Created opportunities for students to apply course content outside the classroom*	4.34
Involved students in hands--on projects such as research, case studies, or real life activities*	4.32
Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories)**	4.19
Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course**	4.14
Learning to apply knowledge and skills to benefit others or serve the public good**	3.91
*1=Hardly ever, 2=Occasionally, 3=Sometimes, 4=Frequently, 5=Almost	
**1=No apparent progress, 2=Slight progress, 3=Moderate progress, 4=Substantial progress, 5= Exceptional progress	

The IDEA evaluations show that the students are provided with the tools to develop the skills needed to exhibit leadership skills and apply that knowledge for the benefit of the public. The faculty need to modify how to demonstrate to the students how to utilize those tools. The influx of new faculty can also provide improved methods in allowing the students to apply those skills.

Graduating Exit Interview and Survey:

Graduating senior assessment of opportunities to develop team-building and problem solving skills								
	Percent of Respondents							
	COURSES IN LANGUAGE AND COMMUNICATION SKILLS	TRAINING IN PUBLIC SERVICE	LEADERSHIP TRAINING IN AGRICULTURAL COURSES	LEADERSHIP TRAINING IN NON-AGRICULTURAL COURSES	VERBAL COMMUNICATION SKILLS	WRITTEN COMMUNICATION SKILLS	PARTICIPATION IN CLUBS AND ORGANIZATIONS	LEADERSHIP AND SOCIAL DEVELOPMENT ENHANCEMENT
Extremely Beneficial	25%	33%	63%	17%	44%	43%	54%	44%
Beneficial	25%	22%	25%	33%	19%	21%	23%	13%
Fairly Beneficial	25%	22%	6%	17%	25%	21%	-	38%
Hardly Beneficial	8%	11%	6%	17%	13%	14%	23%	6%
Not Beneficial	17%	11%	-	17%	-	-	-	-
Students (N)	12	12	16	15	16	14	13	16

The graduating senior response is clear that improvement in communication, public service and leadership from non-agricultural course need to be addressed.

School of Agriculture Alumni Follow-Up Survey:

Alumni assessment of leadership and service opportunities						
	Percent of Respondents					
	COURSES IN LANGUAGE AND COMMUNICATION SKILLS	TRAINING IN PUBLIC SERVICE	LEADERSHIP TRAINING IN AGRICULTURAL COURSES	LEADERSHIP TRAINING IN NON-AGRICULTURAL COURSES	PARTICIPATION IN CLUBS AND ORGANIZATIONS	LEADERSHIP AND SOCIAL DEVELOPMENT ENHANCEMENT
Extremely Beneficial	36%	33%	36%	24%	30%	39%
Fairly Beneficial	34%	22%	33%	27%	42%	30%
Hardly Beneficial	8%	22%	7%	8%	4%	22%
Not Beneficial	6%	11%	5%	7%	9%	7%
Not Taken	17%	11%	20%	34%	15%	3%
Students (N)	53	74	76	74	76	74

The alumni survey reflects similarly as the graduating senior survey with respect to communication, public service and leadership training from non-agricultural courses.

Use of Results to Improve Outcomes:

Although tending toward the upper end of the beneficial scale, all measures of assessment indicated that the program should improve methods of helping students develop more skills in leadership, teamwork, and communication. The program appears to provide somewhat better preparatory skills in the technical and factual knowledge areas than in skills preparing graduates to deal with other people. The addition of new faculty members creates a potential tool to improve areas not meeting expectations, especially concerning public service training.

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)**.

Results and Analysis:

California Critical Thinking Skills Exam Results					
	Year				
Group	**2024-2025**	**2023-2024**	**2022-2023**	**2021-2022**	**2020-2021**
School of Agriculture	72.8	72.3	72	73.2	70.6
TTU Total	74.8	74.4	74.3	75.2	74.4
CCTST Standards	72.8	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 did increase to 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. The course sequence that was developed to help students develop critical thinking skills, AGR 3250 – Introduction to Research and AGR 3275 – Practical Applications in Research has only been offered twice since being approved. Limited offerings of the courses for critical thinking limits any insight to student improvement. The influx of new faculty will provide new teaching and learning strategies that will possibly be effective in developing critical thinking skills.

Summative Evaluation:

Most Program Goals were met with the exception for not meeting first freshman enrollment and retention goals. Enrollment should increase with the increased efforts from new tenure track faculty hires especially in the Agribusiness concentration which has historically been one of the highest enrollments in the Agricultural BS program. The new Agribusiness faculty will also provide current students the commitment from the agricultural department that they will have a dedicated faculty member for them.

Student learning outcome 2 assessment, leadership and service, has provided insight into deficiencies in demonstrating to students how to apply the knowledge provided to them.

Assessment Plan Changes:

Future alumni surveys will need to distinguish between the BS of Agriculture and BS of Animal Science. The outcomes and assessment tools will be totally reevaluated for the BS of Ag program now that new tenure track faculty are the majority of the program faculty with only 3 of the 11 being tenured.

List of Appendices:

Appendix 1: Agriculture BSAG Curriculum Map
Appendix 2: Program Goal 1 Tables and Graphs AGRI 2025

Appendix 1: Agriculture BSAG Curriculum Map

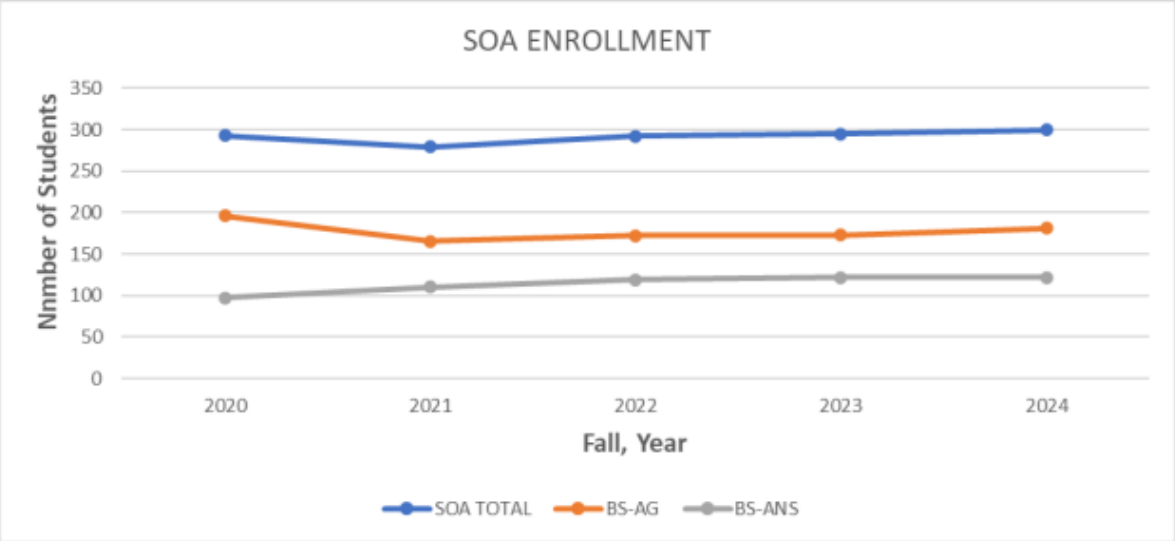
Appendix 1: SOA Core Course Map

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: Program Goal 1 Tables and Graphs AGRI 2025

PG 1: Enrollment

Enrollment Trends in the School of Agriculture						
	YEAR					
Concentration	2020	2021	2022	2023	2024	AVERAGES
Agribusiness Management	73	59	56	42	34	**52.8**
Agricultural Communication	6	4	2	5	7	**4.8**
Agricultural Education	22	25	25	24	24	**24.0**
Agricultural Engineering Technology	46	29	31	28	31	**33.0**
Agricultural Science and Management	4	11	16	23	25	**15.8**
Agronomy and Soils	9	7	11	11	9	**9.4**
Environmental Agriscience	5	7	9	16	13	**10.0**
Horticulture	17	17	17	16	24	**18.2**
Nursery & Landscape Management	6	6	1	3	3	**3.8**
Turfgrass Management	3	2	4	5	5	**3.8**
Other (Non-Declared)					6	
All Concentrations	**191**	**167**	**172**	**173**	**181**	**176**
New Transfer Students	**23**	**20**	**15**	**5**	**7**	**14.0**



PG 1: Retention

	SOA retention rates (%)		University retention rates (%)	
Year	Fall-to-Fall		Fall-to-Fall	
	First-Time Freshmen	Transfers	First-Time Freshmen	Transfers
2023-2024	69.6	100	78.2	82
2022-2023	79.6	92.9	77.3	84.6
2021-2022	82.4	76.5	78.5	81.5
2020-2021	65.4	71.4	72.9	75.7
2019-2020	67.2	77.3	77.5	82.4
	72.8	**83.6**	**76.9**	**81.2**

	SOA retention rates (%)		University retention rates (%)	
Year	Fall-to-Spring		Fall-to-Spring	
	First-Time Freshmen	Transfers	First-Time Freshmen	Transfers
2023-2024	84.8	100	91	90.2
2022-2023	93.9	100	91.7	93.3
2021-2022	92.6	94.1	91.1	90.9
2020-2021	80.8	85.7	86.8	88.8
2019-2020	86.9	90.9	89.9	91
	87.8	**94.1**	**90.1**	**90.8**

PG 1: Graduation

SOA Graduation Rates (4-Year)			University (4-Year)	
	Percent of Enrollment		Percent of Enrollment	
Year	Freshmen	Transfers	Freshman	Transfers
2023-2024	40.4	52.4	41.2	65.6
2022-2023	34.4	63.6	38.4	69.2
2021-2022	53.6	80	41.1	71.2
2020-2021	45.2	65	39.5	69.1
2019-2020	42.6	78.3	37.2	70.5
Averages	**43.2**	**67.9**	**39.5**	**69.1**