

Institutional Effectiveness 2021-2022

Program: Agriculture BS

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, Animal Science/Pre-Veterinary 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, veterinarians, 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 (1800+ acres) expanded the possibilities for research and teaching with access to 700 plus cows and calves with additional cropland and potential locations for greenhouses and other agricultural enterprises. These facilities are not supported by direct line funding by the state and therefore must pay their own way, however, 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."

Program Goals

PG 1. Increase undergraduate student enrollment.

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.

- PG 2. 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.

- PG 3. Promote and enhance faculty and staff development to the extent resources permit.

Student Learning Outcomes

- SLO 1. 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 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.

- SLO 2. 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.

- SLO 3. 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

PG 1: Enrollment, Retention, Graduation

1. Enrollment, retention, and graduation rates.
2. Monitor recruitment work

PG 2: Encourage external funding and increase student research projects

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.

PG 3: Promote and enhance faculty and staff development

1. Annual Faculty Reports in participation in research conferences and trainings.
2. Monitor budget increases in available funding to support research related and other professional training opportunities

SLO 1: Prepared for Employment and Advancement in Agricultural Careers

1. 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.

2. Number of students involved in internships or experiential learning.
3. 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).
4. 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.

SLO 2: Leadership and Service

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

SLO 3 - Critical thinking and problem-solving abilities

1. CCTST (California Critical Thinking Skills Test) results

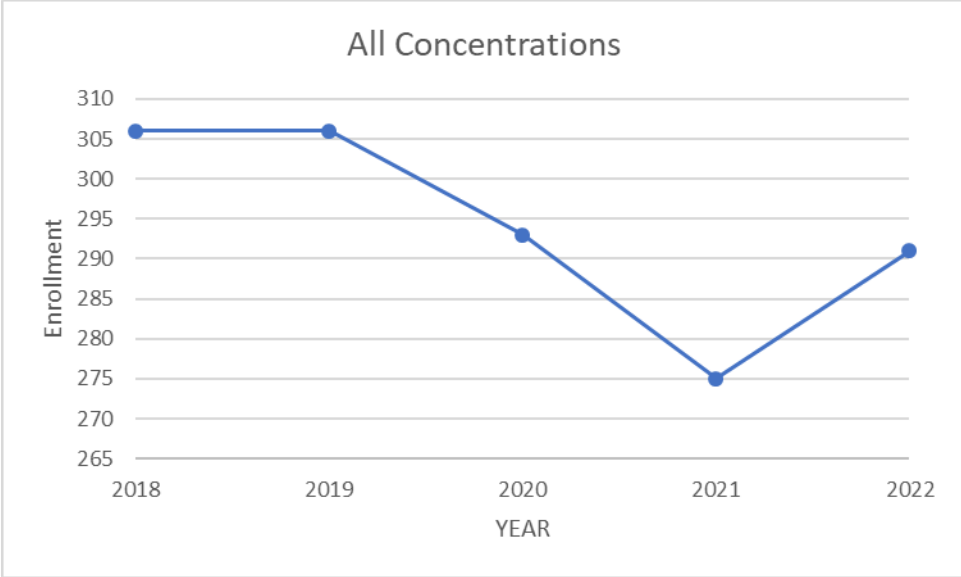
SOA seniors complete this national assessment in their final semester.

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

Results

PG 1: Enrollment, Retention, Graduation

Enrollment Trends in the School of Agriculture						
	YEAR					
Concentration	2018	2019	2020	2021	2022	
All Concentrations	306	306	293	275	291	AVERAGES
Agribusiness Management	84	81	74	55	51	69.0
Agricultural Communication	10	8	4	4	2	5.6
Agricultural Education	26	24	22	24	25	24.2
Agricultural Engineering Technology	46	52	45	31	27	40.2
Agricultural Science and Management	--	2	7	12	14	8.8
Agronomy and Soils	8	8	9	7	10	8.4
Animal Science	36	38	38	36	54	40.4
Animal Science - Pre-Veterinary Science	65	57	59	74	77	66.4
Environmental Agriscience	6	7	5	7	7	6.4
Horticulture	15	19	19	17	16	17.2
Nursery & Landscape Management	4	5	7	6	4	5.2
Turfgrass Management	6	5	4	2	4	4.2



Enrollment in the School of Agriculture increased Fall 2022 while not yet reaching the numbers from 2018-2019. The College of Agriculture and Human Ecology has increased participation in recruiting events by all faculty members and initiated several points of personal contact with recruits and admitted students via hand-written postcards and electronic messages. These efforts to increase both numbers of admitted students and actual student yield (Number of new students enrolled relative to number of new students admitted) appear to be helping increase enrollment. The same recruiting methods will be employed in the 2022-2023 academic year to continue to increase overall enrollment in the Fall Semester of 2023.

School of Agriculture (SOA) retention rates (%)		
Year	Fall-to-Spring	Fall-to-Fall
2020-2021	80.8	65.4
2019-2020	86.9	67.2
2018-2019	94.10	78.60
2017-2018	91.94	77.42

The normally high retention rate of students in the School of Agriculture has declined over the last two academic years. One plausible reason for the decline may be the incidence of the Covid 19 epidemic in the Spring Semester of 2020. The teaching modality of most classes has returned to on ground however students were hesitant to interact with faculty outside of class until Spring 2022. Young and vibrant faculty have been assigned to the University Connections courses with which to inject energy and develop student success in the program. This declining trend will continue to be monitored while evaluating all aspects of the first-year student experience.

School of Agriculture Graduation Results	
Year	Graduates
2021-2022	74
2020-2021	65
2019-2020	59
2018-2019	71
2017-2018	78

The number of degrees conferred by the School of Agriculture increased to levels approaching previous years. This is likely a reflection of the high retention of students during the 2018-2019 academic year along with a higher enrollment of students over that same academic period. Efforts to continue increasing enrollment have already been discussed, and are a primary goal of the School of Agriculture.

PG 2: Encourage external funding and increase student research projects

	YEAR		
	2019	2020	2021
Externally Funded Projects Proposed	-	14	5
Internally Funded Projects Proposed	-	4	2
Externally Funded Projects Funded	2	3	3
Internally Funded Projects Funded	3	1	1
Number of Graduate Students	4	4	4
Number of Graduate Committees Chaired	6	7	4
Number of Graduate Committee Memberships	8	5	3
Number of Undergraduate Students Involved in Research Projects	7	6	5
Externally Funded Dollars Awarded	\$765,000	\$329,150	\$505,000
Internally Funded Dollars Awarded	\$8,850	\$13,204	\$10,000

Overall assessment of criteria measured would indicate that the School of Agriculture maintained a comparable level of success in this program goal over the past 2 years. External grants were lower in 2020 partially because of the pandemic. The number of proposed external grants in 2021 were significantly down from 2020 however the number of internally and externally funded awards were similar. The combined funded dollars for 2021 increased from 2020 and this activity should continue to trend up as three new faculty have joined the School of Agriculture and have been successfully obtaining grants.

PG 3: Promote and enhance faculty and staff development

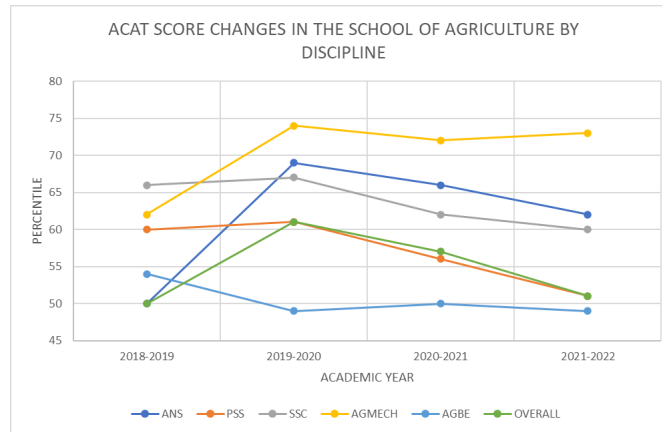
School of Agriculture faculty and staff activities			
	Year		
	2019	2020	2021
Professional Organizations	14	18	17
Officer in Professional Organizations	4	2	4
Professional Meetings Attended	17	14	9
Refereed Conference Papers Published	4	7	0
Refereed Journal Articles Published	3	2	2

Faculty members in the School of Agriculture maintained a reasonable level of developmental activities compared to the previous year, given the restrictions on faculty travel and activities resulting from Covid-19. The degree of faculty development activities increased during the summer months of 2021 and are expected to increase in the subsequent academic year. Staff activities have also been hindered during the previous year.

SLO 1: Prepared for Employment and Advancement in Agricultural Careers

Average ACAT Scores for the School of Agriculture						
	Percentiles by Concentration					
Year	ANS	PSS	SSC	AGMECH	AGBE	Overall
2018-2019	50	60	66	62	54	50
2019-2020	69	61	67	74	49	61
2020-2021	66	56	62	72	50	57
2021-2022	62	51	60	73	49	51
Average	62	59	65	69	51	56

Required senior exit ACAT scores which measure the academic competency of our students to national averages indicate that the School of Agriculture is improving the level of basic academic knowledge in respective discipline areas. The trend for most concentrations was toward an increase from 2018-19 to 2019-20 and a decrease into 2020-21 that continued through 2021-22 as indicated by the following graph. These declines may be attributed to classes being online instead of on ground due to the pandemic. This declining trend will be monitored.



The School of Agriculture developed a survey tool to use with potential employers of our graduates and used it during our spring career fair, February 8, 2022 with all representatives of companies that scheduled interviews with School of Agriculture Students. Preliminary data suggests that early-career employees strive to be well informed (3.9/5.0), are able to get along with people who do not share the same opinions (3.9/5.0), are looking for opportunities to solve problems (3.6/5.0), enjoy finding answers to challenging questions (3.7/5.0), and ask good questions when trying to clarify a solution (3.6/5.0). However, early-career employees are lacking in their ability to find multiple solutions to problems (3.0/5.0), relate to a wide variety of issues (3.1/5.0), consider the facts and not let biases affect their decisions (3.1/5.0), searching for truth even when it makes them uncomfortable (3.2/5.0), and problem-solving skills (3.2/5.0). Therefore, developing courses and/or pedagogical strategies that promote critical thinking skills will equip students in the School of Agriculture to become valuable contributors to the global workforce.

SLO 2: Leadership and Service

Internships in the School of Agriculture				
Year	Internships		Work Experience	
	Courses (n)	Students (n)	Courses (n)	Students (n)
2021-22	12	40	0	0
2020-21	14	36	1	1
2019-20	12	27	5	5

The number of internship course or course sections and students enrolled in internship courses remained near levels from past academic years. Faculty are involved in an effort to increase the number of contacts with potential providers of internships for our students. The faculty recognize the value of internships and work experience for students to develop career goals and to learn to be responsible and productive employees once they graduate from the program.

SLO 3 - Critical thinking and problem-solving abilities

California Critical Thinking Skills Exam Results				
	Year			
Group	2018-2019	2019-2020	2020-2021	2021-2022
School of Agriculture	72	72	70.6	73.2
College of Agriculture and Human Ecology	72	72	74.8	72.8
TTU Total	76	75	74.4	75.2
CCTST Standards	74	74	74	73.3

Once again, 2020-2021 graduates in the School of Agriculture fell below the College, University, and national average on the California Critical Thinking Skill Test Scores. The faculty have held a number of group discussions regarding these results last year and will continue to search for ways to improve our students' critical thinking skills.

The capstone course that was implemented for senior students in Agricultural Engineering and Technology to provide additional problem solving and critical thinking experiences is too new to provide any data. Students in the new AGET-4850 course performed at similar levels to other senior students on the CCTST. However, only 14 students have been enrolled in the course and completed the CCTST. We will continue to provide the new capstone course and push the capstone experience out to other concentrations.

Modifications for Continuous Improvement

PG 1: Increase undergraduate student enrollment.

The School of Agriculture developed a Bachelors of Science degree in Animal Science with concentrations in Animal Science Industries and Pre-Veterinary Science. The Bachelors program provides students with specialized degrees that are more recognized in their respective industry. Preliminary enrollment in the Animal Science program increased by 18 students. A Poultry Science concentration is being developed to be implemented Fall 2023 to increase enrollment. Enrollment trends in the BS in Animal Science will be monitored to provide a more complete assessment.

SLO 1: Prepared for Employment and Advancement in Agricultural Careers

The Alumni Follow-up study used in part as an assessment for this goal is conducted every other year, and additional data is not available from that study. The study will be conducted during the Fall 2022 semester and new information will be added to data from last year in the 2022-2023 report.

SLO 3 - Critical thinking and Problem-solving Abilities

Discussions continue 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. Faculty in the School of Agriculture are working with institutional assessment to gain a better understanding of the CCTST sub-scores and how our student performance on other assignments may be correlated with their scores on the CCTST exam. In a general sense, the faculty are trying to incorporate more activities, assignments, and test questions into all courses to help our students improve their critical thinking abilities. An Introduction to Research (AGR 3250) course has been developed and offered Fall 2022 and Spring 2023. The AGR 3250 course was developed for the students to be able to find and evaluate helpful resources, read and understand scholarly articles, collect and interpret data, and use their knowledge to answer scientific questions of value to the agricultural industry.

Appendices

1. SOA Core Course Map

Appendix 1: SOA Core Course Map

Course No.	Title	Career Readiness	Critical Thinking & Problem Solving	Service Learning	Leadership
AGRN 1100	Plant Sci	x	x		
AGRN 1110	Plant Sci Lab	x	x		
ANS 1200	Intro Animal Sci	x	x		
ANS 1210	Intro Animal Sci Lab	x	x		
AGBE 2100	Economics of Ag	x	x		
AGET 2110	Ag Engineering Tech	x	x		
AGET 2115	Ag Engineering Tech Lab	x	x		
AGHE 1020	Connections in AGHE	x	x	x	x
AGHE 2022	Professionalism	x	x		x
AGHE 3000	Leadership & Service	x	x	x	x
AGHE 3200	Study Abroad	x	x	x	x
AGHE 3275	Research Processes	x	x		
AGHE 4500	Senior Seminar	x	x	x	x