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Appendix

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A. Vision Statement

A vision can be defined as an image of the future we wish to create. The department’s vision is to have the United States’ best prepared graduates, in answering relevant and important applied economic challenges that contribute to societal and their personal well-being; to have significant, measurable, and lasting impact on important research topics; and to positively impact the quality of life for Tennessee agricultural producers and citizens through Extension educational programs. The Strategic Priorities described in Vol Vision 2020 include more than an emphasis on undergraduate education. Priorities include graduate education; research, scholarship, creative activity, and engagement; faculty and staff; resources and infrastructure; and diversity and inclusion. The department’s vision includes an expanded graduate program, by reinstituting its own PhD program; continuing to emphasize academic excellence in its research and Extension programs; recruiting and retaining high quality faculty and staff; adding to its significant resource advancement program by engaging with potential donors who recognize our outstanding research and educational programs; and making sure its programs are available to all.

B. Mission Statement

The primary mission of the University of Tennessee is to move forward the frontiers of human knowledge and enrich and elevate the citizens of the state of Tennessee, the nation, and the world. As the preeminent research-based land-grant university in the state, UT embodies the spirit of excellence in teaching, research, scholarship, creative activity, outreach, and engagement attained by the nation’s finest public research institutions. Likewise, AREC’s mission statement is to be nationally recognized as an outstanding academic unit that provides: a) research to expand economic knowledge that can be used by individuals, businesses, and public officials in decisions regarding allocation of resources for production, distribution, and consumption of goods and services related to agriculture and natural resources and improvement of standards of living in rural areas; b) extension educational programs that develop and deliver current relevant information to decision makers involved in these areas; and c) resident and nonresident instruction programs that provide students with thorough understanding of economic and business aspects of agriculture, food, natural resources, and rural economies and that lead to acquisition of problem-solving skills commensurate with B.S., M.S. and Ph.D. degrees.

C. Strategic Plan
AREC’s most recent strategic plan can be found here: https://ag.tennessee.edu/arec/Documents/AcademicReviewStrategicPlan/StrategicPlanAREC2014.pdf and in the appendix (Appendix pages 1-9).

D. History and Background
AREC will celebrate its 100th anniversary in 2019 as a department. Prior to 2000, there were actually two departments – one which housed research and teaching programs, faculty, and staff; and one which housed Extension programs, faculty, and staff. After merging in 2000, administrative and business functions were combined. There was already significant interaction among the faculty of the two departments prior to the merge. But with faculty serving on committees and the addition of joint appoints (mainly Extension/research) there was increased interaction. The department’s PhD program was dropped in the late 1990’s mainly due to limited resources. Various attempts have been made to reinstitute a PhD program over the past ten years, with limited success. The most successful program has been a joint Natural Resource Economics PhD program with the Forestry, Wildlife, and Fisheries department which has yielded eight PhD graduates. The department has recently worked with UTIA administration and advancement personnel to target donors who are interested in AREC having a PhD program of its own. Undergraduate students have been successful in securing appropriate employment. Demand for AREC graduates is greater than the supply, and the department has taken steps to increase its number of undergraduate students. Increased recruiting and scholarship development have increased our undergraduates (see Section 3). Through generous gifts to AREC, each student admitted to our department will receive a scholarship of between $500 and $1000 per year for four years, on top of any other scholarships received. The Extension program in AREC has a long history of excellence. Educational programs in marketing, farm and financial management, and rural development have been and continue to be recognized regionally and nationally for their impacts.
E. Unit Structure

Organization Chart - Agricultural & Resource Economics

[Diagram of the organizational structure showing positions and hierarchy]
F. Program Administration
AREC is one of eight academic departments in the University Of Tennessee Institute Of Agriculture, not including UT Vet Med. AREC has its own business manager, bookkeeper, administrative assistants, and department head. There are three assistant department heads, representing teaching, research, and Extension. There is an undergraduate director and a graduate director, and various departmental committees. The department operates under its own set of bylaws, in addition to college and university bylaws and faculty handbooks. Departmental faculty play a vital and significant role in managing and directing departmental programs.

G. Demand for Program
In an April, 2018 article in “AgGrad” (https://aggrad.com/top-7-in-demand-ag-jobs/ it lists the top 7 “in demand” jobs in agriculture. Four of the top 7 originate from ag economics: #1) Ag Retail Sales; #2) Agribusiness Operations Manager; #4) Farm Manager; and #5) Agricultural Finance and Accounting. “College Values Online” states: “An estimated 805 million people of the world’s seven billion person population lack adequate food according to a report published by the social change advocacy group called DoSomething.org. This fact makes operating or working for an agribusiness a very rewarding career choice for many who want to promote positive social change in the world.” From “SI News” (https://www.studyinternational.com/news/phenomenal-demand-21st-century-agribusiness-graduates/ an article with the headline “The Phenomenal Demand for 21st Century AgriBusiness Graduates” states: “A degree in AgriBusiness shows the many different ways of navigating both the commercial and practical sides of agriculture, helping you shape the world’s sustainable efforts for years to come.” And it further states: “AgriBusiness combines the scientific theory of agriculture with the creative and practical skills of a business degree. This allows you to gain a 360° understanding of the agricultural field and how it can be tailored to the needs of a 21st century world.” And, from a 2015 article entitled “Agriculture: Job Growth to Boom Over Next Five Years” (https://www.cnbc.com/2015/05/20/agriculture-fertile-ground-for-job-seekers.html there is the following:” According to the report, between 2015 and 2020 an average 26,700 annual jobs openings, or nearly half of the total predicted, will be available in management and business within the food, ag and related segments. Positions will range from ag loan officers, farm labor and marketing specialists to land use managers and sales and service representatives.” These reports are supportive of other studies in the past, where Ag Business or Economics was ranked high in both unemployment and starting salaries.

H. National and International Recognition
In the global study “Ranking authors and institutions by publications in regional science journals: 2010-2014” (https://mpra.ub.uni-muenchen.de/65593/1/MPRA_paper_65593.pdf) AREC was ranked 78th in the category of “Number of 10 Core Regional Science Journal
Publications” (for comparison, Michigan State University was ranked 77th; Purdue was ranked 71st). For U.S. universities only, AREC was ranked 31st (for comparison, Michigan State University was ranked 30th, Purdue 28th, and Minnesota 44th). According to IDEAS (Research Division, Federal Reserve Bank of St. Louis) (https://ideas.repec.org/top/top.usa-tn.html) AREC placed 37th globally (24th nationally) in the “Top 25% Agricultural Economics Departments” for publications over the past ten years. For comparison, nationally, Oklahoma State ranked 23rd, the University of Florida ranked 21st, the University of Kentucky ranked 28th, and Auburn University ranked 32nd. We have also had several of our faculty members serve sabbaticals over the past ten years in such places as South Korea, Brussels, and New Zealand.
Section 2. Examples of programs/initiatives designed to reflect ways the unit values....

A. Examples of programs and activities that foster and promote diversity:
   1. When participating in search committees, faculty members are required to go through STRIDE (Strategies and Tactics for Recruiting to Improve Diversity and Excellence) training. The main purpose of STRIDE is to revitalize the University of Tennessee’s efforts to hire and retain a diverse faculty by using peer-to-peer instruction regarding academic research on bias and diversity.
   2. We have access to student demographic information from central university sources. With only 70-90 undergraduate majors in recent history, we have a good understanding of where we stand in terms of our demographics. We do not have specific recruitment goals or strategies at the department level related to diversity however, we have a departmental diversity plan (see B below). We do fully participate in Herbert College of Agriculture programs and initiatives focused on minority recruitment.

B. Include link to diversity plan/strategy if exists:
   See appendix page 10.

C. Examples of ways that the units build relationships among and between groups within the university:
   1. Several research and Extension faculty and staff work as a team, headed by Dr. Kim Jensen, to draft the agricultural section of "An Economic Report to the Governor of the State of Tennessee". The report provides the governor of the state of Tennessee and other decision makers an analysis of the state’s economy and outlooks for the future. The report is authored by the Boyd Center for Business and Economic Research. The agricultural section includes analyses related to crop and livestock outlook, agricultural trade outlook, economic impacts from agriculture and forestry, and other information on the state industry and the rural economy. This report is available at [http://cber.haslam.utk.edu/erg/erg2017.pdf](http://cber.haslam.utk.edu/erg/erg2017.pdf).
   2. Several faculty are members of the University of Tennessee Beef and Forage Center ([http://utbfc.utk.edu/](http://utbfc.utk.edu/)). The purpose of the Center is to facilitate research and communication of science-based information in hopes of advancing the Tennessee beef and forage industry. They meet once a month in the animal science department and discuss multidisciplinary research, extension, and grant opportunities across UTIA.
   3. Some faculty work closely with the Center for Renewable Carbon at UTIA ([https://ag.tennessee.edu/crc/Pages/default.aspx](https://ag.tennessee.edu/crc/Pages/default.aspx)). The Center is an internationally recognized leader in the development of new and/or improved bioenergy sources, biorefinery processes, bioproducts, and biomaterials that coordinates the science, knowledge transfer, and workforce training required to develop a sustainable and economically viable bioeconomy. Faculty have conducted experiments with scientists located at several Research and Educational Centers (RECs) including Cumberland, West Tennessee, and Milan.
   4. Several faculty work closely with the Howard H. Baker Jr. Center for Public Policy with roles such as Lindsay Young Fellow and Director of Undergraduate Programs, interdisciplinary committee member, Faculty Fellow, and guest speaker for their invited seminar series. The Center offers a number of public lectures and programs
encompassing its three main focus areas: energy & environment, global security, and leadership & governance.

5. A faculty member is involved with NIMBioS (http://www.nimbios.org/) which brings together researchers from around the world to collaborate across disciplinary boundaries to find creative solutions to today's complex biological problems.

6. A faculty member serves on a committee for the Campus Environment (advisory to the UTK Chancellor) and the Student Environmental Initiatives Fee Committee (which makes decisions on the allocation of funds from revenue generated by fees students pay each semester).

7. A faculty member is involved in a proposal on an USDA Borlaug International Agricultural Science and Technology Fellowship proposal with the Smith International Center, UTIA. If funded, he will be working with a Borlaug Fellow from Rwanda on international food safety standards for livestock products such as meat and dairy products. The purpose of the proposal is for the Borlaug fellow to be exposed to the firm-level and industry-level practices that ensure food safety standards for meat and dairy trade.

8. A faculty member worked with Herbert College of Agriculture staff recruiting students and professionals at the Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) annual meeting in 2018. MANRRS is a professional society that provides networks to support professional development of minorities in agriculture. The overall purpose of participating in this activity was to improve underserved groups recruitment efforts in the College.

9. Faculty and staff are members of Extension leadership teams and workgroups. The leadership teams and workgroups provide multi-disciplinary research based Extension programing that are coordinated at the county level. Additionally, the workgroups engage producers, agri-industry, and policy makers in determining county, regional, and state-level research and Extension needs (https://extension.tennessee.edu/Pages/ANR-CED.aspx). The workgroups provide a conduit between the UTIA/UT Knoxville campus and the county offices and Research and Education Centers (RECs).

10. Almost all faculty work with researchers in different departments across UTIA and the university (i.e., Civil and Environmental Engineering, Ecology and Evolutionary Biology, Economics, College of Veterinary Medicine, Animal Science, Food Science, Forestry, Wildlife, and Fisheries, Biosystem Engineering and Soil Science, Agricultural Leadership, Education and Communication, Plant Sciences, and Entomology and Plant Pathology) by way of grant writing, serving on students’ thesis/dissertation committees, and guest lecturing.

D. Examples of community engagement programs with a particular emphasis on those that focus on Ready for the World Initiatives

1. A couple of faculty are involved in an UTIA International Program: Faculty Seed Grant 2018, "An International Research and Extension Experience with Cooperatives in Developing Countries: The Case of Certified Coffee Cooperatives in Mexico." The purpose of this proposal is to establish a collaboration with two leading agricultural institutions located in the state of Veracruz, Mexico, to further investigate factors influencing the grower-cooperative relationship and producers’ engagement with
cooperatives. Through this collaboration, they intend to investigate strategies that can help increase or maintain grower engagement with cooperatives and guarantee the long-term sustainability of cooperatives as a market arrangement that helps certified coffee farmers access high value markets through exports.

2. In 2018, a faculty member was invited to serve on an advisory panel at UTK to develop a major in global sustainable agriculture and conservation in the Herbert College of Agriculture. The establishment of an International Major offers opportunities for all Departments in the Herbert College of Agriculture to contribute, with interactions between the hard and social sciences, basic and applied research, economics and policy, etc. Students will benefit immensely from this program, gain a greater knowledge of the world and global issues, and will be better prepared for a workforce and labor market that places increasing value on international experiences. The International Major will, in part, be managed by the Smith International Center, UTIA.

3. In 2018, a couple of faculty members wrote an Extension publication on how Chinese soybean tariffs could impact U.S. and Tennessee soybean exports. The overall purpose of the report was to educate the public about the current trade tensions between the U.S. and China and to educate extension staff within the state on trade issues that could affect Tennessee farmers. Engagement has also been through stakeholder outreach. They have worked with the Center for Profitable Agriculture, which is part of UTIA Extension discussing trade and policy issues with the Tennessee Farm Bureau and the Tennessee Department of Agriculture.

4. A faculty member received a US Fulbright Scholarship in 2018. He will spend six months (7/1-12/31) in South Korea, designing the country’s framework for forest carbon sequestration payments that optimizes risk/reward trade-offs. He will also work towards developing academic ties between the host institute and UTIA.

5. 8 students participated in study abroad programs over the past 5 years compared to 1-2 in the previous 5 years.

E. If the unit is involved in any consortium or contractual relationships with other institutions, please list those relationships and discuss the mechanism you use for evaluating effectiveness.

1. All faculty with research appointments have active HATCH grants (see Appendix page 11).

2. A few faculty have a close working relationship with GENERA Energy, Wampler Sausage, and Proton Power. GENERA, located in Vonore, TN, provides robust and integrated biomass supply systems for the advanced biofuels, biopower, and biobased products industries. The faculty are also part of the Aviation Sustainable Center (ASCENT) Center of Excellence.

National Parks Conservation Association, Tennessee Turfgrass Association, Tennessee Soybean Promotion Board, Tennessee Cattleman’s Association, Auburn University, North Carolina State University, Florida International University, Washington State University, Penn State University, Purdue University, University of Georgia, Kansas State University, Illinois State University, University of Calgary, New York, New Jersey, and Pennsylvania State Animal Health Departments, Arizona State University, Makerere University in Uganda, Montana State University, University of Kentucky, West Virginia University, Ohio State University, University of Illinois, and Iowa State University.

F. Examples of activities and/or programs that focus on issues of ethics and professional behavior:
1. As part of graduate student instruction, students are trained on issues related to ethics and professional behavior.
2. All graduate students are required to take Research Methodology in Agricultural Economics (AREC 520). In this class, students discuss issues related to ethics and professional behavior with a specific emphasis on plagiarism. As part of their coursework, students participate in online research ethics education through the Collaborative Institutional Training Initiative (CITI) program.
3. All graduates’ theses and dissertations are required to be scanned by iThenticate (a plagiarism detection software) to avoid unintentional use of similar, previously published text without proper credit to the source.

G. Examples of activities and/or programs that focus on issues of intellectual curiosity and related topics:
We have a seminar committee that organizes four to six seminars per year for students and faculty to promote intellectual curiosity. In these seminars we allow graduate students to share their research with faculty and other students. We also invite speakers from other universities, private industry, and government organizations to talk about various research topics. Additionally, we just initiated a series of seminars we intend to call “Tech Talks” which will cover topics aimed at increasing student and faculty technical skills.

H. Examples of ways the program uses data for informed decision making:
1. Information on job and graduate school placement feeds into College and University level reports and is used to inform current students on relevant opportunities. We also track trends on related data, such as the number of students who participate in internships.
2. Written and oral feedback on courses, instruction, and advising goes to our department Undergraduate Committee. This information has led to positive changes in the undergraduate program.
3. Students complete a self-assessment form indicating the degree to which they believe they have achieved each of the four broad student learning outcomes for their specific major. This information is included in our formal annual assessment report.
4. We also have SACS evaluations to assess the performance of graduate students when they propose and defend their theses. Information collected from these evaluations helps identify students’ weaknesses and strengths. Specifically, this information helps assess technical skills for developing a conceptual framework, the use of methods and
procedures, and the quality of oral presentations. This information informs the development of strategies to improve our graduate program.

I. Examples of ways that the program has improved efficiency and effectiveness:
   1. Due to effective management of endowment resources, the department currently offers scholarships for all incoming freshman students.
   2. We have developed two strategic plans over the last ten years; one in 2007 and another one in 2014. An important outcome of our last strategic plan was the modification of our curriculum to help manage a reduction in teaching FTEs.

J. Examples of activities and or programs that foster institutional pride:
   1. Bi-annually the Department presents its undergraduate and graduate student awards at the Spring and Fall Departmental picnic. The picnic is for all faculty, students, alumni, and retired faculty to celebrate the Department’s achievements for that semester.
   2. The EconoGram is published on a quarterly basis and highlights the academic achievement of the Department’s students, faculty, and alumni. It provides a means to convey achievements of those with direct ties to our Department.
   3. Our National Agri-Marketing Association (NAMA) team provides the Department and University of Tennessee regional and national exposure through annual competitions that highlights interdisciplinary team work in the field of marketing. The Tennessee team has achieved multiple awards over the last five years.
   4. Our Department participates in UTIA’s Ag Day where we connect with communities and agricultural stakeholders from across the state. We prepare a trade booth and add fun activities to engage both agricultural and non-agricultural audiences.
   5. Faculty and staff comprise the committee that selects the Tennessee Farmer of the Year. The Tennessee Farmer of the year competes in the Sunbelt Ag Expo in Moultrie, GA against 12 other Farmer of the Years from other Southern States for recognition across the region.
   6. Herbert College of Agriculture Ambassadors from our Department aid in promoting the University to new and potential students while engaging the agricultural community across the state.
   7. Faculty from our Department direct the Farm Credit Scholars Program. The Farm Credit Scholars Program works across disciplines and engages students across the four state region.
Section 3. Recruit, enrich, and graduate undergraduate students who are prepared to enter the global community as lifelong learners and authentic leaders.

A. Overview

The Department currently offers majors and minors in Food & Agricultural Business (FAB) and in Natural Resource & Environmental Economics (NREE). Four optional concentrations are available under the FAB major. Both majors have an accelerated five-year BS-MS option. (See Appendix pages 12-26, for showcases that detail the curricular requirements for each.) The remainder of this section notes substantial changes made since the previous review in 2008.

Effective with the 2008-2009 catalog, the Department implemented two major program changes. One was to change the name of its traditional major from Agricultural Economics & Business to Food & Agricultural Business. Changes were also made at that time in departmental course names/content and non-departmental course requirements to strengthen the food sector focus. The other major change was to establish a new major titled Natural Resource & Environmental Economics. The two majors share a common set of core lower division requirements but diverge substantially at the upper division level (see page 26 in Appendix for a comparison). Effective with the 2010-2011 catalog, the Department changed its name to Agricultural and Resource Economics and both majors were moved from the longstanding B.S. in Agriculture degree to a new B.S. in Agricultural and Resource Economics degree. In 2011-2012, a minor in Natural Resource and Environmental Economics was added.

Major changes were made to the FAB major effective with the 2016-2017 catalog, with the concentration in Agricultural Equipment Systems Management being dropped and the following four new optional concentrations being added (see Appendix page 27 for a comparison of requirements):

- Agricultural Production and Technology Management
- Finance and Risk Management
- Food Industry Management
- Law and Policy

Substantial changes in Departmental course offerings were made to support the new concentrations, including the following key ones:

- Ag & Environmental Law (3) was replaced by Ag Law (2) and Environmental Law (2)
- Food and Ag Policy (3) was replaced by Ag Commodity Policy (2), Food Policy (2), and Ag Conservation Policy (2)
- New courses were added or underwent major revision:
  - Rural Real Estate Appraisal (2)
Effective with the 2017-18 catalog, accelerated 5 year BS-MS options were added for both majors. Students complete requirements for the B.S. degree in seven semesters, including 9 hours of graduate course credits that double count to meet upper division AREC elective requirements for the B.S. degree. The first two students admitted to this option under the FAB major completed their B.S. degrees in December 2017 and are on track to complete their M.S. degrees in May-August 2019.

Effective with the 2018-19 catalog, minor changes were made in the FAB major requirements to allow additional options for meeting the quantitative methods and experiential learning requirements. In addition, the potential for “double-dipping” between directed electives in our College and General Education requirements was expanded and clarified. If students do so, this frees up hours that can be used for pursuing a minor or double major.

**B. Curriculum**

The Department currently has 29 AREC courses in the undergraduate catalog. These courses are listed on page 28 in the Appendix. The list indicates credit hours, the frequency with which they are taught, and whether they are required in one or both majors, the four optional FAB concentrations, and in one or both minors.

The course changes noted in the Overview were done primarily to support the FAB concentrations established in 2016-2017, but also to provide additional AREC elective options for majors and minors that are narrower in focus (e.g., Ag Law and Food Policy) or provide practical skills (e.g., Futures and Options Markets and Rural Real Estate Appraisal). Two other notable changes have occurred since the previous review, and a third is under consideration.

1. Up until recently the UTK Department of Economics taught a single four credit hour introductory course (ECON 201) that covered both microeconomics and macroeconomics. In 2008-2009 we instituted “our version” of ECON 201—AREC 201: Economics of the Global Food and Fiber System, which was approved as a General Education Social Science elective. It was required in both of our majors and our FAB minor (in the place of ECON 201) and was generally included in curricular requirements throughout the college as an either/or with ECON 201. Effective 2016-2017, the Department of Economics added two three-hour courses: ECON 211 (Microeconomic Principles) and ECON 213 (Macroeconomic Principles) that are required in all curricula in the College of Business in place of ECON 201. Initially, these courses were to be accessible only to majors in the College of Business, but we were able to arrange for AREC majors to have access as well. We now require ECON 211-213 in both of our
majors in place of AREC 201. As such AREC 201 now serves only as a General Education service course and the gateway course for our two minors (though we allow minors to take ECON 201 or ECON 211 as well).

2. Effective 2016-2017, we dropped our intermediate microeconomics course (AREC 320) and replaced it with ECON 311, reversing a move about 15 years ago to begin teaching our own version.

The two changes above reflect a shift in mindset toward relying as much as possible on other departments for basic core courses, allowing us to use our very limited teaching FTEs to offer courses that would not be offered elsewhere (e.g., Futures and Options Markets, Rural Real Estate Appraisal, Food Policy). We are considering a similar change with regard to our required quantitative methods course beyond STAT 201. Effective 2018-19 we have added BAS 320: Regression Modeling and ECON 381: Econometrics as options to our AREC 324: Quantitative Methods, and pending further experience with those courses, we may drop AREC 324 and shift teaching resources as above.

3. We are in the process of seeking General Education Social Science status for AREC 270: Economic Perspectives in Natural Resources and Environment Issues, which was added in 2016-2017 as the “gateway” course for the NREE major and minor. We believe there would be substantial demand for it on the part of students in our College majoring in Environmental and Soil Science and in Forestry, as well as students in the College of Arts and Sciences majoring in Geology and Environmental Studies and in Sustainability. This would also make it a bit easier for students from any major to complete an NREE minor.

Enrollment in Departmental UG courses for the past six academic years is presented on page 29 in the Appendix. For the 2012-13 through the 2016-17 academic years, total student credit hours (SCH) per instructional FTE for our Department (3.52) averaged 669, with a slight upward trend evident. This compares with 547 for the College and 464 for the University.

C. Recruitment

The University of Tennessee Herbert College of Agriculture takes a centralized approach to its recruitment efforts, which are led by the Program Coordinator for Recruitment. The Recruitment Coordinator reports to the Dean of the college, and works closely with the academic units as well as the UT Office of Undergraduate Admissions. The department head appoints a member of the faculty serve on the Herbert College of Agriculture recruitment committee chaired by the Recruitment Coordinator.

The College’s recruitment efforts include:

- **The Herbert College of Agriculture Ambassador Program**: The Herbert College of Agriculture Ambassadors are a student group on campus that are hired by the Dean’s office to assist in recruitment and outreach efforts. This group is led student officers who are elected by their peers, with the Recruitment Coordinator serving as the advisor to the
group. These students travel to college fairs, host campus tours, and are represent the college at various events on campus.

- **Attendance at College Fairs**: Herbert College of Agriculture participates in many of the Tennessee Association of Collegiate Registrars and Admissions Officers (TACRAO) sanctioned college fairs across the state. These events range from events at specific high schools to region wide fairs that attract thousands of students.

- **Hosting Individualized Tour for Prospective Students**: Herbert College of Agriculture gives prospective students the opportunity to visit the “Ag Campus” at UT to learn more about the college and our areas of study. These can be done in conjunction with or independent of a visit with the Office of Undergraduate Admissions. These visits include a one-on-one tour of the Ag campus with a Herbert College of Agriculture Ambassador and a meeting with a faculty member or Student Success Advisor in the student’s area of interest.

- **Attending State and National Conferences/Events**: Events like Tennessee Farm Bureau Convention, Tennessee 4-H Round-Up, or National FFA Convention are all examples of conferences and events that Herbert College of Agriculture utilizes to recruit and raise awareness of the opportunities within the college. The presence at these events may include sponsorship of activities, awarding of scholarships, or creating interactive booth spaces.

- **Utilization of Social Media**: Recognizing the importance of social media in the lives of prospective students, Herbert College of Agriculture utilizes several social media accounts to maintain lines of communications with interested students. This includes accounts on Facebook, Twitter, and Instagram.

The department coordinates directly with the college Recruitment Coordinator to provide visits with faculty members involved in undergraduate advising. This allows prospective students, as well as their parents, to gain specific insight into the curriculum for both majors (Food and Agricultural Business and Natural Resource and Environmental Economics) and concentrations. This approach provides prospective students not only an opportunity to understand our faculty-centered advising model but also to inform their decisions in choosing both college and major. In a 2015 survey of alumni from the department, 79% of participants cited the quality of faculty advising as a key factor in their decision to major in the department.

Beginning in the 2016-17 academic year the base major of Food and Agricultural Business was augmented to include the following four concentrations:

- Agricultural Production and Technology Management
- Finance and Risk Management
- Food Industry Management
- Law and Policy
The addition of these concentrations has become a significant tool in the recruitment process by providing prospective students with the opportunity to take advantage of curricular options that more closely match their career aspirations. In the 2015 survey of alumni a majority of respondents indicated that the inclusion of these four concentrations was either important or extremely important to the recruiting of quality undergraduate students.

Department funded scholarship offers to eligible entering freshman were instituted as a recruitment tool starting in the 2015-2016 academic year. Scholarships of $500, $750, or $1000 (in-state) and $1000, $1500, or $2000 (out-of-state) are awarded based on incoming ACT scores and are renewable for 3 years dependent on maintaining a 3.0 cumulative grade-point average and status as a major in the department. The number of scholarships awarded for the three previous academic years is indicated below:

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Scholarships Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-16</td>
<td>18</td>
</tr>
<tr>
<td>2016-17</td>
<td>10</td>
</tr>
<tr>
<td>2017-18</td>
<td>16</td>
</tr>
</tbody>
</table>

In addition to the Herbert College of Agriculture presence at community college transfer fairs, the department has taken an active role in sending representatives to these fairs to provide specific insight into the B. S. degree programs in Agricultural and Resource Economics. Historically a significant number of graduates have completed at least a portion of their lower division coursework at two-year institutions. The advent of the TN Promise program promoting community college attendance has been recognized as potential driver for growth in the undergraduate program. Additionally, relationships with faculty at these institutions are maintained to promote our program as well as provide a level of cooperation between curriculums.

Retention efforts are focused around the faculty advising model where students receive not only curriculum guidance but help with the overall undergraduate experience and the transition to a career path. These faculty advisers are a primary means through which students engage in opportunities for experiential learning, internships, career development, and additional scholarship and enrichment activities. (See Appendix pages 30-31).

The number of AREC majors declined from a high of 86 in Fall 2011 to the 60-65 range for Fall 2013 and 2014, for unknown reasons. Since then, we have seen steady growth to a level of 91 in Fall 2017 – 70 FAB majors and 21 NREE majors. Of the total of 70 FAB majors, 13 were in one of the optional concentrations that were established in 2016, split almost evenly
among Finance and Risk Management, Food Industry Management, and Law and Policy. The proportion of majors pursuing an optional concentration is expected to increase over the near future. While the growth in the number of both majors has been on the order of 50% over the last four years, the number of NREE majors remains too low to generate enough graduates to meet the TN Higher Education Commission (THEC) standard for B.S. degree programs – a minimum of 10 graduates per year. As such, the NREE major remains on the THEC “low productivity” list and the College and Department were ask to submit a report in July 2018 detailing what actions have been or will be taken to increase enrollment and graduation numbers, and providing a compelling justification for continuation of the program. Reasonable medium term goals for the number of AREC majors by the 2023-24 academic year would be 80-90 FAB majors and 40-50 NREE majors, for a total of 120-140.

The number of students graduating with FAB and NREE minors over recent years is presented below.

<table>
<thead>
<tr>
<th></th>
<th>FAB Minors</th>
<th>NREE Minors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>2014-15</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>2015-16</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>2016-17</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>2017-18</td>
<td>13</td>
<td>1</td>
</tr>
</tbody>
</table>

The number of FAB minors has shown substantial growth, accounted for primarily by Animal Science majors in the Animal Industries concentration. Revisions in the NREE minor are planned for 2019-20 to reduce the number of total hours required. Together with obtaining Gen Ed status for AREC 270, this should make the NREE major more attractive and accessible to students in environmentally-oriented majors in the College and elsewhere in the University.

E. Advising
All advising of undergraduate students is done by a selected set of faculty members within the Department. Advisors are selected by the Department Head in consultation with the UG Program Director, who also serves as the Advising Coordinator. Selection is based upon faculty interest in advising and current involvement as an instructor in one or more undergraduate courses. There is no formal mechanism in place for evaluating the quality of advising, though many graduating seniors express strong positive feedback about their advising experience on their exit form and/or in the group exit interview conducted by the Department Head. Informal mentoring of new advisors is provided by the UG Program Director. All advisors are expected to participate in College-sponsored training and professional development programs. There are currently four advisors, each with an advisee load in the 20-30 range. Faculty advisors’ contribution is acknowledged as part of their teaching appointment and considered in annual performance reviews, as well as merit raise
and tenure/promotion decisions. Based on the faculty workload formula used by the Herbert College of Agriculture Dean’s Office, advising 25 UG students would represent a 1.5% load, though from experience of current advisors this seems to be an underestimate. Since the last review we have implemented a new system for assigning FAB advisees to advisors. Each advisor takes an entire freshman cohort and works with them through graduation, adding transfer students who are at the same stage as the cohort. Thus, generally speaking, all of an advisors’ advisees are at the same stage and facing the same kinds of decisions.

Faculty advisors provide their advisees with guidance and referral on a variety of subjects including:

- Course scheduling for upcoming semesters.
- Selection of courses from directed electives lists.
- Academic policies.
- Scholarships and other forms of financial aid.
- Extracurricular activities.
- Graduation requirements (DARS).
- Career planning and placement.
- Professional development
- Personal problems.

Faculty advisors are often called on to assist students (and alumni) in their search for internships and permanent employment by writing recommendation letters. Faculty advisors also commonly provide guidance to non-majors who are pursuing a minor in the department and other students who are exploring the idea of declaring a major in our department.

Over the course of a student’s academic program, students are expected to gradually take more ownership of their academic decisions and career planning. Specific points of emphasis by year include:

- Freshman/Transfer Orientation
- How to register for courses.
- Drop/add/withdrawal policies.
- Importance of practicing good study skills.
- Freshman Year
- Availability of academic support services.
- Extracurricular opportunities.
- Academic policies and procedures
- Sophomore Year
- Importance of using directed electives wisely.
- Value of a minor or specialization.
Junior Year

- Range of career opportunities.
- How to pursue internship opportunities.
- How to use the Degree Audit Reporting System (DARS).

Senior Year

- How to pursue permanent employment opportunities.
- Opportunities for graduate studies (if appropriate).
- Graduation application.

In addition to what takes place in personal advising sessions, students have access to the UG Program section of the department’s website. Freshmen are oriented to the website, as well as to our approach to advising, curricular requirements, academic policies, key deadlines, career opportunities, etc. in AREC 110 during their fall semester. Juniors receive guidance on career planning and placement in AREC 310 during their fall semester.

Two moves are underway at the College level that will affect the role and process of advisors in the Department in the future. One is the employment of student success advisors who would handle much of the routine aspects of academic advising, especially during students’ first two years, allowing faculty advisors to be freed from some advising demands and be able to focus more on their role as mentors to students. Student success advisors are already working in several Herbert College of Agriculture Departments with large numbers of UG majors, and by the 2019-2020 academic year it is expected that one would be hired to split time between our department and one or two others. (See pages 32-33 in the Appendix outlining roles of student success advisor and faculty mentor/advisor.) The other move is to implement an online tracking system for petitions (requesting course substitutions or waivers). The hard copy system in current use has been problematic because when there are delays in a substitution being entered into DARS, it is difficult to know where the holdup is and assure students that they are on track to graduate as deadlines approach. An online system is being beta tested with several departments and is expected to go into full use by the end of 2018.

F. Teaching

1. Innovations and success strategies

   AREC 493: Executive Seminar Series

   This course was developed with the intent to engage successful individuals on the front lines of agriculture with students. Successful alumni speak to our class every week so students can (a) interact with successful alumni, (b) understand the variety of available careers in the agribusiness industry, and (c) engage successful alumni about important topics in agriculture.

   AREC 442: Advanced Agribusiness Management
Students in this course utilize the Purdue Agribusiness Simulator where the class is split into teams of 4-6 students competing against each other throughout the semester. Each team must make weekly decisions on inventory purchases and pricing for two feed products and two fertilizer products. Historical sales data from three previous years are available to aid in developing sales projections. Students must balance the goals of obtaining profitability and managing cash flows while making decisions on purchasing, pricing, inventory management, labor management, credit policies, advertising, and capital budgeting for fixed asset purchases. Decisions made by individual teams have an effect on the overall simulated market creating a dynamic environment with uncertainty for other teams.

**AREC 420: International Agricultural Trade and Marketing**

In addition to teaching students the theory behind international trade, students also study current events relating to international trade and potential trade wars. Popular press news stories are covered during the first few minutes of every class period that related to trade and are followed throughout the semester. Additionally, to ensure a wide range of trade policies in countries throughout the world are covered throughout class, students’ class projects involve them choosing a country to write their class project about and present to the class. Projects involve students discussing the country’s domestic agricultural policies, trade policies, and agricultural exports and imports.

**AREC 412: Agricultural Finance and Risk Management.**

Published case studies are used that deal with real companies/problems agribusinesses face in terms of finance and risk issues. In addition, homework assignments include solving problems which have actual and current financial information (usually from the most current fiscal quarter) from publicly traded agribusinesses.

**AREC 356: Marketing Team Participation**

Students in this course spend a year developing a marketing plan for a product relating to agricultural production. A significant component of this process is researching the markets potentially affected by the introduction of the product and developing profiles of the targeted consumer. Students travel to local and regional agribusinesses and farms to collect data and engage with producers and the industry to develop an accurate understanding of these market dynamics.

**AREC 352: Futures and Options Markets**

In addition to learning the fundamentals of futures and options markets, students use simulated trading software to select futures contracts to buy/sell and see how profitable their trading strategies are throughout the semester.

**AREC 350: The Food and Agricultural Marketing System**

Students form groups to act as market analysis teams. This provides them with the opportunity to evaluate economic forces shaping agricultural, food and fiber markets as an analytical team. Each team completes a market analysis report and a presentation to the class about the product market.

**AREC 342: Farm Business Management**

Students have to develop a farm business plan with the goal of receiving financing from a lender. They are required to turn in a final written business plan as well as present their business plan to the class. Faculty members are invited to attend the presentations and ask questions. Furthermore, students interact with guest
speakers from Tennessee Farm Bureau and University of Tennessee Extension employees. These speakers discuss their careers in agriculture and how they interact with producers on a daily basis.

**AREC 331: Agricultural Commodity Policy**
The course takes a public choice approach to agricultural policy, providing an understanding of the underlying problem(s) policy is developed to address, policy effectiveness, unintended consequences, and the role of economic self-interest in policy formation. Guest lecturers from the policy arena are invited to provide real world context.

Each year, the course culminates with a policy debate focused on a key policy issues where students are randomly divided into two teams and are expected to present and defend a position on a major policy issues. Given the random nature of how the teams are constructed, a student could be defending a position in direct opposition to personal beliefs. While the overall goal of the policy debate is to improve communications and critical thinking skills, students gain a greater appreciation for supporting and opposing views resulting in more inclusive attitudes about society.

**AREC 270: Economic Perspectives on Natural Resource & Environmental Issues**
Students participate in several role-playing simulation exercises designed to illustrate how market-based policies can be employed to achieve natural resource conservation and environmental protection goals cost effectively. These include a pollution allowance trading experiment, a water trading market that includes instream users, and exploitation of an open-access, common property fisheries resource.

**AREC 201: Economics of the Global Food and Fiber System**
This four-credit hour course includes a 75 minute lab session each week. In the lab sessions, students work in pairs or trios to solve quantitative problems related to principles and concepts from micro-economics, macro-economics, and trade. The instructor and a graduate teaching assistant serve as consultants, with the objective being to get all student groups to complete the lab work correctly by the end of the session.

2. **Engagement of students with the community**

**AREC 493: Executive Seminar Series**
This course features successful alumni from the community speaking to the class every week so students can engage successful alumni about important topics in agriculture and learn about careers in the agricultural industry.

**AREC 492: Off-Campus Internship**
Students can receive three credit hours by completing an internship and submitting the required documents. The guidelines for internship credit are provided in an Appendix. See Appendix pages 34-35, showing internships completed by AREC students over the last five years. Within this time period, over 52% of all graduated AREC students participated in an internship.

**AREC 420: International Agricultural Trade and Marketing**
To learn how agricultural policy impacts the state agricultural sector and the US agricultural sector in general, UT AREC’s Blasingame Chair of Excellence gives a guest lecture to the class.

**AREC 356: NAMA Marketing Team Participation**
Students travel to local and regional agribusinesses and farms to collect data and engage with producers and the industry to develop an accurate understanding of these market dynamics.
AREC 352: Futures and Options Markets
To learn how futures and options markets impact farmers, Extension personnel give guest lectures regarding adoption of futures and options contracts for risk management in the agricultural industry.

AREC 342: Farm Business Management
Students interact with guest speakers from Tennessee Farm Bureau and University of Tennessee Extension employees. These speakers discuss their careers in agriculture and how they interact with producers on a daily basis. A farmer panel spoke to the class and included four East TN farmers: Doyle Carden, Jay Rhyne, Gale Housley, and John Housley. They discussed how risk, labor, and financial management for their farm has changed over the years and future challenges producers face.

AREC 331: Agricultural Commodity Policy
Through invited lectures students engage with key policy makers at the regional and national level. For instance, this fall (2018) we plan to host the Associate Administrator of the USDA Foreign Agricultural Service to discuss linkages between domestic and internal agricultural policy. Invited judges for the policy debate includes state-level decision makers, proving real world comments and feedback to students on their delivery and argument structure during the debate.

3. Tools used for assessment
The quality of teaching in the Department is assessed in a number of ways. Instructors give students an opportunity for assessment in every course through the University-wide Campus Labs TN Volunteer Online Instructor & Course Evaluations (VOICE). Campus Labs TN VOICE is a new system for course evaluation that began in Spring 2017. Prior to this system of assessment, the Student Assessment of Instruction System (SAIS) was used. The SAIS system did not compute departmental means for teaching evaluations; however, TN VOICE does record this data. Therefore, a summary of Campus Labs TN VOICE results is presented on page 36 of the Appendix, in which Departmental means are compared to College and University means from Spring 2017-Spring 2018. As noted, departmental means for the questions are very similar to the means for the College and University.

In addition to student evaluations, the Department Head comes to a class session for each course near the end of the semester and informally visits with students (in the absence of the instructor) during the last 15 minutes of class. The Department Head then discusses the student feedback with the instructor after grades have been turned in. Discussion of TN VOICE/SAIS results also takes place during each faculty member’s annual review with the Department Head.

Assistant and associate professors go through two peer teaching review assessments by a faculty committee of three members, one early in their teaching career and one just before they are to go up for tenure and promotion. Committee members visit classes,
review course materials (syllabus, assignments, exams, etc.) and provide a joint report to the Department Head for inclusion in the instructor’s dossier. These peer reviews are taken very seriously by committee members and instructors and provide constructive criticism and practical suggestions for teaching improvement. Mentors to untenured faculty also play an important role in helping untenured faculty members improve their teaching effectiveness. Untenured faculty receive strong encouragement and financial support to attend teaching conferences within the discipline or general field of study.

Periodically, alumni surveys are conducted to obtain graduates’ assessments of teaching and other types of feedback. The last full alumni survey was conducted in August 2008. Results for all alumni responding to the survey as well as the subset that completed their B.S. and M.S. degrees between 2000-2008 are presented on page 37 (top) of the Appendix.

G. Scholarship
In 2016-2017, completion of some form of experiential learning became a requirement within both majors in our Department. Students must complete an internship, study abroad, or undergraduate research experience, or participate on the NAMA Marketing Team. Thus, going forward, we expect an increasing number of AREC students to complete an applied research project for three credit hours under AREC 499. This past year Charlie Sneed was named the inaugural Gibbs Scholar for Herbert College of Agriculture, providing him funding to conduct research. Charlie enrolled in AREC 499 to explore improving water use management in poultry production to lower production costs. Specifically, he summarized water consumption data of seven broiler houses in Bradley County, Tennessee from 2015 – 2017. This required him to spend months cleaning and organizing spreadsheets of data as well as building figures to summarize these data. To complete this project, Charlie worked with a multidisciplinary team and even went to the farm site to see the houses and how water consumption was measured. This proposed project combines Charlie’s strong poultry and economics interest with a very important real-world question that will help increase profits of Tennessee poultry producers. Charlie summarized his experience with the quote below.

“Getting the chance to complete this research project has given me much real world experience in the compilations, processes, and reporting of a research project. At the start I had no clue that research had so many steps to complete before you ever get close to a final report. I now have insight on what it takes to sort through and organize large sets of data. This project gave me real world experience with excel and putting data into forms useful to producers. This will prove beneficial in my future in the poultry industry. Without this scholarship I would not have been able to spend the time working on this project and excelling in my classes. It gave me the financial help to have the time to really enjoy and get the most from my last year of college. This experience has shown that the information drawn from the University of Tennessee’s research conducted at broiler farms in Bradley county is useful for producers wanting to know how water consumption in broiler houses changes with the seasons and size of birds grown. I have enjoyed this experience very much.” - Charlie Sneed
Another scholarship opportunity within the Department is the University of Tennessee (UT) Extension Internship Program, which exposes undergraduates to a career in Extension and possible in advancing their degree. This internship program allows students to work alongside Extension personnel. They are taken on farm visits and allowed opportunities to have firsthand experience with research and education programs that improve the lives of Tennessee producers. Below is a picture of a project conducted by Tanner Pritchett during his internship and a list of students on page 37 (bottom) of the Appendix that have completed undergraduate research projects and Extension internships.

H. Enrichment

1. Agribusiness Club

AREC students can participate in the Agribusiness Club. The club sponsors panel discussions, industry speakers, agribusiness tours and socials as some of its many activities. The focus is on opportunities to grow professionally and prepare for careers while enjoying fellowship and interaction among students and with industry contacts. The club meets monthly and has taken field trips to farms, seed companies, National Farm Machinery Show, bioenergy company, and local food co-op. To the right is a picture of the Agribusiness Club field trip to an East Tennessee farm.
2. **National Agri-Marketing Association Team Competition**

Students can also join the NAMA Marketing Competition Team. The NAMA Student Marketing Team prepares a total marketing plan for a product sold to or by farmers. The plan includes product definition, market competition, promotion program, financial analysis, evaluation, and contingency plan. The final presentation of the plan is made in oral, written, and visual format in competition with 30 to 35 other collegiate chapters at the NAMA Conference held each spring. Open to any student, the NAMA team works on the project during both fall and spring semesters. Academic credit can be earned for participation. Pictured is the 2018 NAMA Team from Kansas City.

3. **Discussion Meet**

Students in AREC also participate in the Tennessee Farm Bureau Discussion Meet, which the department helps to sponsor annually. AREC provides the advertising, meeting place, and a portion of the scholarships associated with this undergraduate program. Students are given a topic to discuss in front of a panel of professionals. The local winner advances to a regional/national competition, where additional scholarships are available.

4. **Executive Seminar Series**

AREC 493: Executive Seminar Series is a one hour course available to students. Each week, a global leader in agriculture or an agricultural-related field will engage students in a discussion of cutting-edge topics facing the food and agriculture industry. Topics include the challenges and opportunities of feeding the world and the impact of technology on the future of the agriculture and food industry. Students will be exposed to real-world applications of business and economic principles, agricultural policy
implications, and business and institutional leadership through face-to-face interaction with these global leaders. This course started in the Fall of 2017 and included 15 students from several different departments across the Herbert College of Agriculture. Overall, comments about AREC 493: Executive Seminar Series were very positive. Below we highlight a few student comments about their experience in the course and write up about the class. (See page 38 of the Appendix).

“Being an animal science major tends to keep my view of agriculture much narrower, but this class has challenged me to extend outside of my original knowledge base to understand a much broader portion of the industry.” Hunter Jones

“This course is what college is all about and what college should be. AREC 493 has by far been my favorite class that I have ever taken for many reasons. One of my favorite things about the class is that you get to be hands on and in person with successful people in today’s society that were once in the same shoes that the students are in. This makes the students, such as myself, very optimistic for the future and proud to be UTIA students.” Jake Seeley

“Taking this class has opened my eyes not only to the larger scope of agriculture, but also how the different sectors are intertwined... I had zero interest in public policy, but after learning the importance of policy from several of our speakers, I am open to join or impact policy in the future.” Samantha Keating

5. **Study Abroad**
   UT Herbert College of Agriculture offers many study abroad opportunities for students to visit other countries and take courses. The study abroad programs can range from a mini-term to entire academic year. AREC students have participated in several study abroad trips in the past five years (see page 39 of the Appendix).

6. **Other Opportunities**
   AREC students are highly involved in other programs that are administered at the College level. One is the Farm Credit Scholar Program, which was established in 2012 by Farm Credit Mid-America to enhance the learning experience of students and to prepare them for careers as leaders in Tennessee agriculture. Students are provided a scholarship, an opportunity for an internship, and many external learning experiences such as visiting farms, visiting policy makers at the state and federal levels, and hosting guest speakers (see picture of a farm below). Over the entirety of the program 18 of the 37 Farm Credit Scholars have been FAB majors.
At least five AREC students have also participated in the UTIA East Tennessee Research and Education Center (ETREC) internship program. This is a unique opportunity for students to live on a farm and learn from working on a farm. ETREC is an agriculturally diverse experiment station that includes beef cattle, dairy, crops, organic production, and turf grass. Students rotate from unit-to-unit throughout the course of the year, which exposes them to a lot of different agricultural production practices and commodities. Students are given a list of important tasks in support of researchers, educators, and station farm managers that are labor intensive. This is a very hands-on learning experience for the students. Below is a quote from Janey Green, a recent intern at ETREC.

“Working at ETREC has exposed me to a number of different research studies that really showed me how diverse the agricultural industry is. I think that this understanding will help me in the future as I hope to work with people in the different sectors of agriculture and not just one specialized field.” Janey Green

The College has student Ambassadors who are selected through an interview process to serve the college, its student body, and the community through the recruiting of prospective students, representing and supporting of the college, and promoting public awareness of opportunities within the college and the field of agriculture. Ambassadors are selected based on academic performance and passion for the College and its programs and are typically the “cream of the crop” among student leaders in the College. AREC majors have accounted for 22% of all ambassadors in the last five years, though AREC majors constituted only 5-6% of the student body over that period.

I. Student Success

   1. Assessment

   In the summer of 2013, four student learner outcomes were formally established for each of our majors, in conjunction with campus-wide efforts to meet expectations on the part of SACS regarding assessment. Three of the four outcomes (1, 2, and 4) are common to both majors, while one differs (3). The outcomes are listed below, along with the required courses in each major that most directly contribute toward meeting each outcome.

   AREC Course Mapping to Student Learning Outcomes
   B.S. in Agricultural & Resource Economics, Major in Food & Agricultural Business
(1) Students can explain and illustrate economic concepts and principles related to the market system’s role in allocating society’s resources to and within the food and fiber system.

ECON 211: Microeconomic Principles  
ECON 213: Macroeconomic Principles  
ECON 311: Intermediate Microeconomics  
AREC 350: The Food and Agricultural Marketing System

(2) Students can explain and illustrate economic concepts and principles related to decision-making by consumers and producers with regard to agricultural commodities, food products, and natural resources.

ECON 211: Microeconomic Principles  
ECON 311: Intermediate Microeconomics  
AREC 212: Intro to Agribusiness Management  
AREC 342: Farm business Management  
AREC 350: The Food and Agricultural Marketing System

(3) Students can explain basic principles in the areas of management, marketing and finance, and apply them in the context of agribusiness decision making.

ACCT 200: Principles of Accounting  
AREC 342: Farm Business Management  
AREC 350: The Food and Agricultural Marketing System  
AREC 412: Agricultural Finance and Risk Management  
AREC 442: Advanced Agribusiness Management

(4) Students can use economic logic and quantitative data to analyze problems and identify solutions related to the food and fiber system, the natural resource base, and environmental quality.

AGNR 291: Spreadsheets (Excel)  
AGNR 292: Databases (Access)  
STAT 201: Intro to statistics  
AREC 324: Quantitative Methods  
AREC 342: Farm Business Management  
AREC 350: The Food and Agricultural Marketing System  
AREC 412: Agricultural Finance and Risk Management  
AREC 442: Advanced Agribusiness Management

B.S. in Agricultural & Resource Economics, Major in Natural Resource & Environmental Economics

(1) Students can explain and illustrate economic concepts and principles related to the market system’s role in allocating society’s resources to and within the food and fiber system.

ECON 211: Microeconomic Principles  
ECON 213: Macroeconomic Principles  
ECON 311: Intermediate Microeconomics  
AREC 350: The Food and Agricultural Marketing System
(2) Students can explain and illustrate economic concepts and principles related to decision-making by consumers and producers with regard to agricultural commodities, food products, and natural resources.

ECON 211: Microeconomic Principles
ECON 311: Intermediate Microeconomics
AREC 270: Econ Perspectives on Natural Resource and Environmental Issues
AREC 342: Farm Business Management
AREC 350: The Food and Agricultural Marketing System

(3) Students can identify and explain the market failures associated with environmental externalities, public goods, and scarce natural resources along with the array of policy tools that can be used to address these failures.

AREC 270: Econ Perspectives on Natural Resource and Environmental Issues
AREC 314: Environmental Law
AREC 333: Agricultural conservation Policy
AREC 345: Econ of Renewable Energy
AREC 470: Policy Analysis for Environmental and Natural Resource Management
ECON 362: Environmental and Natural Resource Policy
ECON 463: Environmental Economics

(4) Students can use economic logic and quantitative data to analyze problems and identify solutions related to the food and fiber system, the natural resource base, and environmental quality.

AGNR 291: Spreadsheets (Excel)
AGNR 292: Databases (Access)
STAT 201: Intro to statistics
AREC 324: Quantitative Methods
AREC 470: Policy Analysis for Environmental and Natural Resource Management
AREC 472: Natural Resource Economics
GIS course (one of three options)

Two direct and two indirect methods are used in our assessment plan. One direct method involves major field exams for each of our two majors. The Tennessee Higher Education Commission (THEC) has required departments to administer and report results of a major field exam once every five years dating back to the 2002-03 academic year. In the summer of 2013, we revised our major field exams for each of our majors, such that 15 of the total of 60 multiple choice questions were aligned with each of the four student learner outcomes. We administer the major field exams in the fall semester each year during the final exam period for AREC 410: Senior Seminar. All FAB and NREE majors projected to graduate that semester or in the following spring or summer semesters are enrolled in AREC 410. The other direct method involves a written paper assignment embedded in AREC 442: Advanced Agribusiness Management for FAB majors and AREC 470: Policy Analysis for Environmental and Natural Resource Management for NREE majors. A subcommittee of three faculty members grades these
papers using an explicit grading rubric and the results are used in relation to learner outcome #3 for each major.

The two indirect methods involve (a) self-assessment by students that applies to all four learner outcomes and (b) student performance on the California Critical Thinking Skills Test (CCTST), which is used in relation to learner outcome #4. During our group senior exit interview each December and May, graduating seniors are asked to complete two forms. One form requests information on future plans, a few specific questions related to internships and their employment search process, and three open-ended questions soliciting feedback on students’ experience in the Department. The other form asks students to indicate on a 1-7 scale (from strongly disagree to strongly agree) whether they believe have achieved each learner outcome. The CCTST, another assessment tool that THEC requires all universities in the state to use, is administered in AREC 410: Senior Seminar. A mean score is reported by major and can be compared with college-wide and University-wide means.

Results from these four assessment methods are reviewed by the Department’s UG Program Committee each summer in the process of completing our assessment report. (See Appendix pages 40-44, for a summary of our most recent report for 2017-2018). This review and the written/oral feedback received from seniors during the group exit interview are used to inform discussions of changes in curriculum requirements, course content and approach, guidance by advisors, etc., by the UG Program Committee.

2. **Placement**

Over the past five years, we graduated a total of 77 FAB majors. Of this number, 14 (or 18.2%) went directly into a graduate or professional program. Nine of the 14 went into our M.S. program, while the other five pursued a variety of programs (MBA, MPPA, Law, Public Health, and Ag Econ at TAMU). Of the other 63 graduates, we have information on 48 who secured employment at or soon after graduation. The distribution by employment sector is indicated below:

<table>
<thead>
<tr>
<th>Employment Sector</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time farm management</td>
<td>5</td>
</tr>
<tr>
<td>Input supply sector</td>
<td>7</td>
</tr>
<tr>
<td>Finance, insurance, real estate</td>
<td>5</td>
</tr>
<tr>
<td>Food industry</td>
<td>7</td>
</tr>
<tr>
<td>UT Research/Extension/Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>Non-profit, ag-related</td>
<td>3</td>
</tr>
<tr>
<td>Private sector, non-ag</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
</tbody>
</table>
Over the past five years we graduated 19 NREE majors. Of this number, six (or 31.6%) entered our M.S. program, and four have completed it. Of the 17 no longer in school, we have information on 13 who secured employment at or soon after graduation, seven in the private sector and six in the non-profit or public sectors. A full listing of NREE placements follows:

Private Sector
- Environmental Health & Safety Coordinator, Mahle Engine Components, Morristown, TN
- Regulatory Analyst, IGS Energy, Columbus, OH
- Project Coordinator, Franklin Energy Services, Norristown, PA
- Business Intelligence Analyst, Pilot Flying J, Knoxville, TN
- Business Development Associate, Genera Energy, Vonore, TN
- Software Services, EFC Systems, Brentwood, TN
- Research Associate, Production Research Team, Monsanto Company, Farmer City, IL

Non-profit/Public Sectors
- Environmental Specialist, Knoxville Utilities Board, Knoxville, TN
- Public Service Coordinator, Office of Solid Waste and Recycling, City of Knoxville, TN
- Environmental Specialist, Knox County Health Department, Knoxville, TN
- Research Analyst, UT Center for Renewable Carbon, Knoxville, TN
- Extension Agent, University of Tennessee, Rutherford County, TN
- Sustainable Agriculture Specialist, Peace Corps, Senegal
A. Overview
The Department conducts an MS option program in Agricultural and Resource Economics. The Master of Science degree in Agricultural Economics contains concentrations in Agricultural Economics (thesis and non-thesis) and Natural Resource Economics (thesis). The department discontinued the Agribusiness Concentration Non-thesis Option in 2010. In its place, the Haslam College of Business Administration and the College of Agricultural Sciences and Natural Resources instituted in 2009 a dual program leading to the conferral of both the MBA and the MS in Agricultural and Resource Economics degrees with an emphasis on agribusiness. In 2017, the Department also instituted an Accelerated Five Year BS-MS Program for qualified undergraduate students with a major in Food and Agricultural Business or Natural Resource and Environmental Economics.

Most of the students in the MS program are on graduate research or graduate teaching assistantships. In 2007, funding for graduate assistantships included $108,000 from the Tennessee Agricultural Experiment Station for four Graduate Research Assistants and $50,000 for two teaching assistantships through the College of Agricultural Sciences and Natural Resources, with the remainder written directly into grants and contracts or from salary savings from grant and contract activity. For the 2017-18 academic year, the Department received line item $65,600 for graduate assistantships from University of Tennessee AgResearch (Tennessee Agricultural Experiment Station). The Department in the 2017-18 academic year received two graduate teaching assistantship tuition waivers ($18,424 for fiscal year, actual dollars) and $15,600 in stipend funds from the College of Agricultural Sciences and Natural Resources. Therefore, the Department’s graduate programs are heavily reliant on extramural funding from a variety of sources. Connections with funding agencies and organizations are critical to the funding of research by graduate students. Faculty have obtained extramural funding from a variety of sources, including federal agencies such as DOE, DOD, EPA, FAA, NASA, ORNL, and USDA and state agencies, such as Tennessee Department of Agriculture and Tennessee Department of Economic and Community Development, and groups such as Tennessee Farm Bureau, commodity organizations such as Cotton Incorporated, Tennessee Valley Authority, private companies, and the Farm Foundation.

MS assistantship stipends increased from $13,200 per year in 2003 to $14,400 in 2006. In 2006, the Department began offering performance supplements to applicants who showed excellent potential. These supplements were $100 and $200 per month depending on Departmental Graduate Committee ratings of the applicants. Thus, beginning in 2006, MS assistantship stipends ranged from $14,400 to $16,800 per year. In 2017, the base stipend level was raised to $15,600 per year. For fall semester of 2017, the base stipend level increased to $18,000 per year. Supplements currently offered to applicants who showed
excellent potential are $50 and $100 per month depending on Departmental Graduate Committee ratings of the applicants. Thus, stipend levels ranged from $18,000 to $19,200 per year beginning fall semester of 2017.

The Department has an important tie with the Department of Forestry, Wildlife, and Fisheries through its participation in the intercollegiate Natural Resources Doctoral Program. In 2006, the Department entered into an agreement with the Department of Forestry, Wildlife and Fisheries (FWF) to establish a Natural Resources PhD program. In 2007, a Natural Resource Economics Concentration was established within the Natural Resources PhD program. The PhD program in Natural Resources is located administratively within the Department of Forestry, Wildlife and Fisheries. In the Natural Resource Economics concentration, the coursework for the degree draws heavily from both the Department of Agricultural Economics and the Department of Economics. Hence, the Department also has an important academic tie with the Department of Economics. Both the concentration and the PhD program appear on the academic histories of PhD graduates. Funding for two, three-year assistantships was originally from the Natural Resources Policy Center (http://nrpc.ag.utk.edu/), a Cooperative effort between the Agricultural and Resource Economics, FWF and Civil and Environmental Engineering faculties. Thereafter, Departmental funding has supported other assistantships.

B. Curricula

The Accelerated Five Year BS-MS Program allows qualified students to obtain a BS degree in Agricultural and Resource Economics with a major in Food and Agricultural Business or Natural Resource and Environmental Economics in seven semesters by completing 120 credit hours, including nine credit hours of graduate courses that count towards both the BS degree and the MS degree. Students then go on to obtain a thesis-based MS degree in Agricultural and Resource Economics (Agricultural Economics Concentration or Natural Resource Economics Concentration) in three semesters and one summer, completing an additional 22 credit hours of graduate work. The Program came online fall semester of 2017 and two undergraduates enrolled in the program starting fall semester of 2017. The two undergraduates completed nine semester credit hours of graduate work as undergraduates during fall semester of 2017 and enrolled in the MS Program in spring semester of 2018. Curriculum requirements are given in the Appendix pages 45-46.

The Agricultural Economics Concentration is targeted to students wishing to enter careers in the public and private sectors of agriculture, agribusiness, and business and those wishing to pursue a PhD degree in Agricultural Economics, Natural Resources, Economics, or related fields. Thirty-one hours of graduate credit (including six hours of thesis research) plus oral defense of the thesis are required for the thesis option. Thirty-six hours of course work plus written and oral comprehensive examinations are required for the non-thesis option. Curriculum requirements for the thesis and non-thesis options are shown on page 47 of the Appendix.
The **Natural Resource Economics Concentration** is designed for students who are interested in working in public and private organizations that manage natural resources and those that impact allocation of natural resources. The curriculum combines courses in economic theory, quantitative methods, and natural resource economics with a research thesis for a total of 31 hours of graduate credit. Directed electives are available in a wide variety of fields that relate to natural resource allocation. Curriculum requirements are given on pages 48-49 of the Appendix.

The **Dual MBA-MS Program** curriculum consists of 60 credit hours of coursework, 30 credit hours for the Master of Business Administration and 30 credit hours for the Master of Science. A minimum of 30 credit hours must be from the Haslam College of Business. Of the 30 credit hours required for the Master of Science, a minimum of 21 credit hours must be at the 500 level, excluding 500 and 502, a minimum of 21 credit hours must be from the Department of Agricultural and Resource Economics, and nine credit hours of electives may be from the Haslam College of Business, the Department of Agricultural and Resource Economics, and/or other courses approved by the student's Master's Committee. The program includes a 10-week internship experience. A written comprehensive examination is required in the form of an approved written internship report and oral presentation integrating relevant coursework material with an approved internship project. Curriculum requirements are given on pages 50-51 of the Appendix.

The Department offers students the opportunity to pursue a **PhD in Natural Resources** with a concentration in Natural Resource Economics. The program is intended for students who wish to pursue a career in academics, research, or a related field. Course work for the degree (72 hours including 24 hours of dissertation) draws heavily from both the Department of Agricultural and Resource Economics and the Department of Economics. Students pursuing the Natural Resource Economics Concentration in the Natural Resources PhD program are required to complete a dissertation. Successful completion of a written qualifying examination in microeconomics, a written comprehensive examination in natural resource economics, and an oral comprehensive exam over all coursework are required in addition to successful defense of the dissertation. A majority of the faculty members on the student's doctoral committee are from the Department of Agricultural and Resource Economics, including the major professor. Course requirements are shown on Appendix pages 52-53. In addition, descriptions for courses taught in graduate program are presented on Appendix pages 54-56.

**C. Recruitment**

Our faculty have devoted to recruit prospective graduate students through attending job and internship fairs within the University of Tennessee (including UT Knoxville, UT Martin and UT Institute of Agriculture), and at other universities, such as East Tennessee State (2017),
Murray State University (2016, 2017), Tennessee Tech University (2014–2017), Middle Tennessee State University (2017), Maryville College (2016–2017). In addition, faculty members have promoted our graduate program and recruited students at professional conferences, for instance Southern Agricultural Economics Association annual meeting (2015-2018), Minorities in Agriculture, Natural Resources, and Related Sciences annual conference (2018), and Tennessee Louis Stokes Alliance for Minority Participation annual conference (2016). The department has held an annual Graduate Program Open House to meet prospective students since 2014.

To increase the diversity of graduate student body, faculty have also outreached prospective international students through visiting universities overseas, for example, the Nanyang Technological University (Singapore), the National University of Kaohsiung (Taiwan), National Cheng Kung University (Taiwan), Nanjing Agricultural University (China), Shenyang Agricultural University (China). The information of our graduate program was shared with faculty and prospective students in those universities and we have received applications from those programs over the past few years.

Assistantships are awarded on a competitive basis after admissions decisions have been made. Our assistantships of $1,500 per month include health insurance and a tuition waiver for two years. The assistantship requires 20 hours of work per week in the Department’s research and teaching programs, but much of that time can be used for work towards a thesis/dissertation, which is a requirement of the program.

D. Student Profile

High quality graduate students are attracted to a department because of its reputation for having superior programs designed to prepare them for future employment opportunities. Simultaneously, enrolling high quality graduate students is an essential element for improving the reputation of a department’s teaching, research, and Extension programs.

Enrollment data are available for 2008-09 through 2018-19 for the MS program (Appendix pages 57- 59) and the Natural Resource Economics option of the Natural Resources Ph.D. program administered by the Department of Forestry, Wildlife and Fisheries. Enrollment in the MS Thesis Option averaged 20 students, with a high of 24 students in 2011-12 and a low of 15 students in 2008-09. Most of the students in the MS Thesis Option are funded on Graduate Research Assistantships. The Department had a small number of students matriculate in the Agribusiness Concentration of the MS Non-thesis Option with the last student graduating in 2013 and the Dual MBA-MS Program. New enrollment averaged 10 MS students per year, with a range of 7 students in 2015-16 to 11 students in both 2012-13 and 2013-14. Undergraduate GPAs for entering students averaged 3.53 for the 2012-13 through 2018-19 academic years. Among the historical data collected, the undergraduate
GPA is the most reliable measure of potential success in the MS program because all students who enter the program must submit academic histories. Scores for the GRE are less reliable because undergraduate students from within the Department typically have not been required to submit GRE scores.

The department has funded a small number of PhD students in the intercollegiate Natural Resources PhD Program. For the Natural Resource Economics Concentration, a faculty member in the Department chairs the dissertation committee primarily made up of faculty in the Department. Between 2008 and 2018, eight PhD candidates have completed a dissertation and passed the final oral comprehensive examination under the direction of faculty members in the Department. The Department has struggled to fund students in both the MS Thesis Option and the Natural Resource Economics Concentration in the Natural Resources PhD Program. An additional challenge for the Department is recruiting PhD students with the ability to pass at the PhD level the microeconomics qualifying examination administered by the Department of Economics. Students in the Natural Resources Economics Concentration are required to take the exam after completing the first year PhD microeconomics sequence in the Department of Economics.

E. Advising/Mentoring

The foundation for graduate student advising is provided by the University’s Graduate Catalog, the Department’s excerpt in the Graduate Catalog (Appendix pages 54-56) and the Department’s Graduate Program Requirements (Appendix page 60-65). The Department’s website provides links to electronic copies of both the Graduate Catalog and the Department’s Graduate Program Requirements. The Graduate Catalog outlines Graduate School policies and program-specific requirements and provides a list of all graduate courses offered. Graduate Program Requirements booklet sets forth the requirements, policies and procedures pertaining to the Department’s graduate programs and contains copies of the various forms graduate students are required to complete as they progress through the programs.

Each semester the Graduate Coordinator and Department Head conduct an orientation session for incoming graduate students. This session welcomes students with a thorough overview of Department expectations and program requirements, policies and procedures. In addition, students are assigned initial Work Supervisors and Major Professors (typically the same individual(s)) before they enter the program. Students are encouraged to interact with their Major Professor before they enter the program. Graduate students are strongly encouraged during orientation to meet regularly with their major professor/work supervisor to ensure that (1) administrative deadlines are met in a timely fashion, (2) work goals are achieved, and (3) classroom progress is maintained. New graduate students are also
encouraged to take the Graduate School’s New Graduate Student Orientation, available online at http://gradschool.utk.edu/orientation/.

MS Thesis Option students are expected to select an MS Faculty Committee with a permanent Major Professor and identify a tentative thesis topic by the end of their first semester. PhD students are expected to select a Doctoral Committee with a permanent Major Professor and identify a tentative dissertation topic by the end of their second semester. Selection of the students Committee and identification of a thesis or dissertation topic is accomplished through the completion of the Department’s Form A (a blank copy of which is attached to the Graduate Program Requirements booklet) and approval by the Department Head. The student’s plan of study must be agreed upon by the student’s Faculty Committee and by the Department Head. Forms B-1 through B-5 (each form is specific to each graduate program and concentration) are used to identify the student’s graduate program and concentration (if applicable), set forth the student’s plan of study, and as proof of consent to such plan by the student’s Committee and the Department Head (blank copies of Forms B-1 through B-5 are attached to the Graduate Program Requirements booklet). MS students are required to submit a completed Form B to the Graduate Coordinator prior to the end of the student's first semester, while PhD students are required to do so by the end of the student’s second semester. Responsibility for completion and filing of these forms rests with the student and his or her Major Professor.

Thus, the student’s Major Professor serves as his or her principal advisor and advising is generally accomplished through regular one-on-contact between the student and his or her Major Professor. However, the student’s Committee is expected to consult with the student in developing the student’s plan of study and help guide the student’s research. In addition, students and Major Professors frequently consult the Graduate Coordinator and Department Head for guidance and interpretation of Department rules and requirements.

The initial assignment of a Major Professor by the Graduate Coordinator is designed to assist the student in registration for the first semester of graduate work and to provide a supervisor for the student’s first semester of work related to his or her assistantship. Despite this initial assignment, selection of a Major Professor is made by the student with the consent of the Major Professor and approval of the Department Head. The student is required to complete the first semester’s assistantship work responsibility with the initial advisor. Changes in Committee membership may be made in keeping with the student's research plan with the approval of the Department Head.

There is a graduate student organization in the Department. This organization helps relay issues and concerns of the graduate students to the Department and provides a means for students to organize social events. First year MS graduate students are assigned to a second
year MS student who acts as a mentor to the student. Incoming MS students are encouraged to interact with their student mentor before they enter the program.

Students enrolled in the thesis option in the Department’s MS program are required to prepare a written proposal that outlines their thesis research plans. The proposal includes a problem statement and identification, description of objectives, preliminary review of the literature, overview of the conceptual framework, description of the methods and procedures to be employed, tentative time schedule for completing the research, and description of related resource needs, if any. Failure to have a completed proposal approved by all members of the student’s Faculty Committee within 12 months of beginning the program exposes the student to possible loss of financial support. After the thesis has been prepared in acceptable form, students are required to pass a final oral comprehensive examination. For the period from 2008 to 2018 to date, 90 students within the Department’s MS program have completed a thesis and passed the final oral comprehensive examination. A list of these students, the year and title of the thesis, along with the student’s Major Professor(s) is provided on pages 66-72 of the Appendix.

Starting Fall 2017 we began offering an accelerated 5-year Bachelors of Science and Masters of Science (BS-MS) Program for qualified students. Students obtain a BS degree in Agricultural and Resource Economics with a major in Food and Agricultural Business or Natural Resource and Environmental Economics in seven semesters by completing 120 credit hours, including 9 hours of graduate courses that count towards both the BS degree and the MS degree. Students then go on to obtain a thesis-based MS degree in Agricultural and Resource Economics (Agricultural Economics Concentration or Natural Resource Economics Concentration) in three semesters and one summer, completing an additional 22 credit hours of graduate work.

F. Teaching

The Department teaches eight 500 MS level courses and one 600 PhD level course (Appendix pages 54-56). AREC 505 is the foundational course in microeconomic theory. The Department has three methods oriented courses—AREC 520, AREC 524, and AREC 525—that teaches research, econometric, and operations research (primarily mathematical programming) methods and procedures. The other courses in the Department—AREC 512, AREC 542, AREC 550, and AREC 570—are microeconomic application courses. AREC 670 is a field course for the Natural Resource Economics Concentration in the Natural Resources PhD Program.

Notable teaching innovations and success strategies in teaching in graduate courses are as follows:
• **AREC 512 (agribusiness finance):** Students are exposed to data from actual (publicly traded) agribusinesses. Dr. Trejo-Pech tries to achieve this by following two approaches: a) students are provided with (published mainly) case studies featuring problems agribusinesses face. Whenever Dr. Trejo-Pech cannot find a case study fitting the topic, he prepares “assignments” using actual financial statements by agribusinesses. Exams, quizzes, and homework assignments (solutions for case studies mainly) are used to assess graduate student learning.

• **AREC 520 (research methodology):** Each student provides a class presentation that covers an assigned chapter from the text. The students are encouraged to bring in information that pertain to the subject matter in their 30 minute presentation. Following the presentation, questions are asked and the instructor reinforces pertinent points. Students have two writing assignments. They must provide a problem statement and develop a proposal for their thesis. The thesis proposal is limited to eight pages not including references, figures, and tables. They are strongly encouraged to work with their major professor in developing these two writing assignments. They are also encouraged to use iThenticate software to examine potential plagiarism issues.

• **AREC 524 (econometrics):** Dr. Boyer assigns class projects that require students to set up an econometric model, gather data, and interpret results. The most successful strategy for teaching econometrics is making students do many, lengthy homework assignments. He has observed that econometrics is learned by doing.

• **AREC 525 (operations research):** This course combines economic theory and spreadsheet modeling in determining the optimal solution for real-world problems. Thus, we use articles in newspaper, journal papers, and handouts in addition to textbook to show the relevance between economic theory and agribusiness decisions. We also demonstrate various spreadsheet skills and tools to identify the optimization decision for those problems. Dr. Yu requests students to conduct a group project that applies the tools learned from the class to business decision questions. Most topics selected by students are related to the agribusiness within the state or the region, for example, cattle pregnancy test decision, retail store pricing strategies, soybeans processing location decision, household weeds control choice, etc. Students are evaluated by quizzes and exams, homework, and group project. They are responsible for selecting the topic, identifying the issue, collecting data, formulating the model, and analyzing the output. They need to present the project and turn in a final report. The grade for their presentation considers both their presentation and their participation in other groups’ presentations (e.g. questions, comments).

• **AREC 542 (applied decision and risk analysis):** Corner (1997) put it best when he stated that “decision analysis must be applied to be mastered”. Thus, Dr. Larson emphasizes hands-on analysis of real-world decision problems and the development of computer models (using Excel and the Decision Tools (includes @RISK) software package) to represent and analyze decision problems under risky conditions. The course uses a combination of lectures, problem assignments, case studies, examinations, a term project, and an oral presentation to give students the basic tools of decision analysis and practice in the application of tools to decision problems.

• **AREC 550 (agricultural and resource marketing applications):** Dr. Jensen teaches this course in a web-based and small group format. In addition to a textbook, news articles, journal articles, real-world secondary data, and other publications are used to bring in external information and current market issues into the course. As part of the course, students form market analysis groups and, by working with a company, entrepreneur, or agency, identify a market research problem or need. The groups perform market research and write a report and draft a PowerPoint presentation that are then provided to the company, entrepreneur or agency. The project grading consists of grading the paper, PowerPoint, and also group team member grading. Between 2008 and 2018, over 10 companies, agencies, or producer organizations were assisted with these projects.
AREC 570 (natural resource economics): A central goal of this course is to familiarize students with the theoretical concepts and analytical tools that support the economic and bio-economic analyses of a range of natural resource issues. At the conclusion of this course, students should have gained insight into how and why humans manage natural resources in the way they do and also developed an understanding of the:
- Economically efficient allocation of scarce natural resources over time and among competing uses;
- Tendency of competitive market processes toward economically efficient allocations;
- Effect of various market failures on these tendencies;
- Array of policy instruments utilized to ameliorate or correct these failures; and
- Tools used by economists to design and evaluate the worth of these policies.

MS and PhD students have opportunities to TA in undergraduate and graduate classes. Drs. Boyer and Clark used PhD students as TAs in AREC 505 in fall semesters of 2016 and 2017. They primarily assisted in grading homework assignments and holding office hours to assist students. In addition, Dr. Boyer gave his TA an opportunity to teach two classes. Dr. Yu had a TA in AREC 525 in spring semester of 2016 to conduct an independent lab session every Friday. In addition, she provided office hours to answer student’s questions. Dr. Clark will be assisted by a PhD (Natural Resource Economics Concentration) level TA in AREC 570 for fall semester of 2018. On the undergraduate level, Drs. Larson and Trejo-Pech have used an MS student to TA in AREC 412. TAs have assisted with grading assignments, assisting with in-class computer exercises, and holding office hours. In addition, over the past 5 years, Dr. Park has supervised three TAs in AREC 201 (Econ of the Global Food and Fiber System). They were involved with delivering lectures in addition to grading and holding office hours/exam review sessions. Most of the aforementioned TAs enrolled in AGNR 512, a teaching practicum course in the Herbert College of Agriculture.

G. Scholarship

Graduate students have become increasingly active in publishing and presenting their thesis and dissertation research. The number of peer-reviewed journal articles published with graduate students as lead-author or co-author rose from four in 2008 to 15 in 2016 and 14 in 2017 (Appendix page 73). A total of 94 articles have been published from 2008 to 2018 to date with 58 of those articles lead-authored by graduate students in the program. Articles were published in a wide array of disciplinary and multidisciplinary outlets including AgBioForum; Agribusiness: An International Journal; Agricultural and Resource Economics Review; Agricultural Systems; Agricultural Water Management; Agronomy Journal; African Journal of Economic and Sustainable Development; Air Quality, Atmosphere and Health; Applied Energy; Biomass and Bioenergy; Canadian Journal of Agricultural Economics; Energy; Energy Economics; Energy Policy; Environmental Conservation; Environmental Economics and Policy Studies; Journal of Agricultural and Applied Economics; Journal of Agriculture and Environmental Sciences; Journal of Agriculture and Environmental Sciences; Journal of Agriculture and Resource Management; Journal of Extension; Journal of Agricultural Science; Journal of Transport Geography; Journal of Transportation Research.
Forum; Papers in Regional Science; Precision Agriculture; and The Annals of Regional Science. Citations for journal articles published by graduate students are presented in Appendix III- I. Journal articles lead-authored by graduate students are increasing cited by others, e.g., Ward et al. (2011)—110 citations; Walton et al. (2008)—51 citations; Qualls et al., (2012)—49 citations; Toliver et al. (2012)—47 citations; Tong et al. (2014)—32 citations; and Stewart and Lambert (2011)—30 citations [Source: Google Scholar, 6-19-2018]. The output of peer reviewed journal articles by graduate students and the citation of those articles by others is evidence that the Department is seriously encouraging high quality research and professionalism from graduate students in fulfillment of thesis/dissertation and assistantship requirements.

H. Enrichment

Graduate students are encouraged to present papers or posters at professional meetings such as the Agricultural and Applied Economics Association and Southern Agricultural Economics Association. Departmental funds are made available to help support students’ expenses when presenting papers or posters. The Graduate Student Senate at the University of Tennessee, Knoxville has a travel award program to support students traveling to present their research at professional meetings. In addition, the Herbert College of Agriculture has a travel fund program for graduate students that supplement the Graduate Student Senate travel awards. The University has initiated a 3-Minute Thesis (3MT) competition for graduate students. MS Thesis Option students in the Department have participated in the competition in 2017 and 2018. As appropriate, graduate students may accompany a faculty member to client meetings to discuss current research efforts or may assist faculty members with Experiment Station Field Day presentations or other presentations to clientele groups in the state. Also, the Department periodically hosts seminars. These seminars are delivered by faculty in the Department or by faculty or industry professionals from outside the Department. Graduate students are also encouraged to and have presented seminars.

I. Student Success

1. SACS Assessment of Learner Outcomes for MS Thesis Student

To satisfy University SACS accreditation requirements, the Department in 2012 instituted an assessment of the quality of student MS thesis research projects. The assessment by the thesis advisory committee is conducted at the time of the thesis defense. The three student learner outcomes evaluated by the committee are:

a. Learner Outcome 1: MS committee member ratings of the appropriateness of the conceptual frameworks in student theses at the time of the thesis defense, averaged across all graduating students during an academic year (fall, spring, and summer semesters) (See rubric).

b. Learner Outcome 2: MS committee member ratings of the appropriateness of the methods and procedures in student theses at the time of the thesis defense, averaged
across all graduating students during an academic year (fall, spring, and summer semesters) (See rubric).

c. **Learner Outcome 3**: MS committee member ratings of the professional quality of student oral presentations during thesis defenses, averaged across all graduating students during an academic year (fall, spring, and summer semesters) (See rubric).

Committee members rank on a scale of 1 to 10 the appropriateness of the conceptual frameworks, methods and procedures, and the professional quality of student oral presentations during thesis defenses. The specific elements of the SACS assessment criteria and rubrics are presented in Appendix pages 82-83. MS thesis committee member ratings are averaged across all graduating students during an academic year (fall, spring, and summer semesters) and are presented on page 84 of the Appendix.

AREC 505 is the primary course taught to meet the microeconomic theory aspect of Learner Outcome 1. The Department has three methods oriented courses—AREC 520, AREC 524, and AREC 525—that meet the research, econometric, and operations research methods and procedures encompassed in Learner Outcome 2. That also support meeting Learner Outcomes 1 and 2. In addition, AREC 524, AREC 525, AREC 542, and AREC 550 have project and/or presentation requirements that meet Learner Outcome 2.

The average assessment score for the rubric assessing conceptual frameworks (Learner Outcome 1) is 7.0 out of 10. The score is in the Satisfactory category but is 1.0 points below the Exemplary category. Students averaged 7.4 for the rubric assessing methods and procedures used in thesis research (Learner Outcome 2), 0.6 points below Exemplary. For the rubric assessing oral presentations during defense of theses, the average score was 7.6 each for Organization, Content, and Style elements.

### 2. Placement of Graduates

Placement of graduates from graduate programs in gainful employment provides insight into the quality of the Department’s academic programs. Initial placement for MS, MBA-MS, and PhD graduates is shown on page 85 of the Appendix. The largest number of AREC graduate students have positions in industry (29 individuals, 29%). Graduates started careers with a wide assortment of agribusiness and business related employers including Alcoa, Cargill, Entira, Ernst & Young, Farm Credit Services, Huvepharma, Informa Economics, Monsanto, Neogen, Pilot/Flying J., Pioneer Seeds, Shelton Group, The PictSweet Company, and the U.S. Soybean Export Council. The next largest category of graduate placement was in PhD and other graduate and professional programs (26 individuals, 26%). Most students in this category enrolled in PhD programs in agricultural economics, economics, and finance but several students also entered MBA and law programs. Students matriculated into PhD programs at Colorado State, Georgia
Tech, Kansas State, Illinois, London School of Economics, Maryland, Minnesota, Missouri, Michigan State, Oklahoma State, Penn State, Purdue, Tennessee, Texas A & M, Virginia Tech, and Washington State. University Extension and University non-faculty positions are also an important source of employment for graduates. Alumni have obtained positions with Extension in Kentucky, North Carolina, and Tennessee and with the Center for Renewable Carbon and the Boyd Center for Business and Economic Research at the University of Tennessee. Governments at the federal, state, and local levels are also significant employers of graduates (16 individual, 16%). Students embarked on careers with federal agencies such as the U.S. Army Corps of Engineers, U.S. Bureau of Economic Analysis, U.S. Census Bureau, U.S. Department of Interior, National Oceanic and Atmospheric Administration, USDA ERS, and USDA NASS. Graduates of the Department have gone on to rewarding careers in marketing, management, manufacturing, and banking and finance in agribusiness and business, as well as careers in natural resource management, Extension, and government and nongovernmental agencies. In addition, the department has been successful placing students MS thesis students in well regarded PhD program (Appendix page 85).
Section 5. Strengthen our capacity, productivity, and recognition across our total portfolio of research, scholarship, creative activity, and engagement.

In a review of UTIA, it is stated that “The Department of Agricultural and Resource Economics (AREC) has strength in its diversity of research topics. These topics provide significant research breakthroughs and support for both undergraduate and graduate teaching. Extension education offers applied research to answer farm level educational needs. During the past 5 years, AREC has significantly strengthened its Extension component and continues to increase peer reviewed publications. Between 2013 and 2017, faculty in AREC have composed 239 peer-reviewed publications (page 86 in the appendix, Research plus Extension). AREC has been successful in attracting USDA/AFRI funding playing large roles in both the bioenergy and food/water/energy areas. Internationally, AREC has accepted the administration challenge to be further involved in international research.

A large strength of AREC is the cooperation and collaborations amongst faculty. This is noted by one of the assistant professors within AREC, who states that “The strengths of our department in funded research is our willingness to work together. This is especially helpful for new faculty and assistant professors such as myself. Faculty who have more experience grant writing all have open door policies and are always willing to help newer faculty learn the ropes of how to write grants. More experienced faculty are also excellent at inviting newer faculty to be Co-PIs of a grant proposal they are leading.”

Another strength is that AREC encourages newer faculty and graduate students to travel; assisting in obtaining the funds necessary to allow them to develop a network of other faculty, along with industry and government decision makers, to expand knowledge and find solutions to problems, renew excitement about work and bring information back to AREC and the University of Tennessee Institute of Agriculture (UTIA).

A significant and extremely appreciative strength is the startup package for new faculty. Initiated in the recent past, this startup package provides graduate student funds, office furniture, and travel. Updating computing equipment in AREC is reliant on Facility and Administration funds returned back to the investigator. These funds can also be used to support the faculty’s program, travel, and office furnishings.

AREC houses two chairs – Greever Chair and the Blasingame Chair. Dr. David Hughes is the Greever Endowed Chair in Agribusiness Development. The Greever Chair has established a nationally recognized program that enhances agribusiness development in Tennessee and the nation. Dr. Hughes works with agricultural and economic development clientele groups throughout the state with the objective to grow the Tennessee agricultural and agribusiness sectors. Dr. Andrew Muhammad was recently hired as the Blasingame
Chair of Excellence in Agricultural, Food, and Natural Resource Policy. The Blasingame Chair focus is to assist the state and nation’s agricultural decision makers in evaluating potential policies and programs dealing with agricultural commodities, food and nutrition, natural resources and international trade, as well as advocating for state and regional agricultural opportunities. The overall aim is to inform decision making by farmers, agribusinesses and policy makers on international trade and trade policy issues and attract resources to improve the global competitiveness of state and regional agriculture.

1. National and Regional Recognition

A ranking of agricultural economics departments in the world produced by the Federal Reserve Bank of St. Louis (Christian Zimmermann, 2018) found the University of Tennessee Agricultural and Resource Economics Department in the top 37 departments worldwide. The ranking was based on publications and working papers that were cited and/or downloaded along with abstracts viewed over the past 10 years.

While the ranking is notable, it will likely improve with the addition of the new faculty who have been actively publishing and participating in professional meetings (Appendix page 86). In addition, AREC has several faculty members who are nationally and internationally recognized for their research and Extension work in the areas of international trade, bioenergy production, farm management, livestock and crop marketing, and agricultural policy (Appendix page 87). Dr. Chris Boyer received several awards during the past three years including first place in the Southern Agricultural Economics Association’s poster competition in 2015 and the Emerging Scholar award in 2017. Drs. Karen Delong and Carlos Trejo-Pech received Arizona State University’s Best Dissertation (2015) and Financial Education Association’s Best Paper (2016) awards respectively. Dr. Seong-Hoon Cho was honored as a Fellow of the Howard H. Baker Jr. Center for Public Policy. Dr. Aaron Smith has received numerous awards including the Premier Forecasting award from the Agricultural and Applied Economics Association and the J.E. Moss award from UTIA. Dr. Kimberly Jensen received from the Southern Economics Association the Lifetime Achievement Award in 2017.

2. Faculty productivity

Productivity in publishing and creating other intellectual outputs, and disseminating them to peers and stakeholders provides evidence of faculty quality within AREC. Unique refereed papers authored by AREC faculty show an upward trend, attaining 62 in 2016 (Appendix page 88 top, sum of Research and Extension). Examples of creative achievements produced by Departmental faculty during the 2013-17 period include 208 peer-reviewed journal articles; 10 book chapters; 128 bulletins, circulars, pamphlets and fact sheets; 497 popular press, trade, UTIA magazine or newspaper articles, and 156 abstract from scientific or disciplinary meetings (Appendix page 86).
Measures of faculty success in obtaining external funding to support the production of the creative achievements on page 86 of the Appendix are presented at the bottom of Appendix page 88. This table presents annual grant and contract proposals and awards for AREC by number of proposals submitted, total funds awarded, and grant funds spent. In 2011, AREC received a portion of a 5 year USDA Capacity grant in biofuels. While the data show a slight downward trend in total dollars awarded there has been no discernable trend in grant expenditures. External funding for Extension activities has remained fairly constant, with slightly more than average received in 2016. During the past ten years, Extension had a significant reversal in FTEs. Down to nearly 0.75 early in the ten year period, this part of AREC has expanded since then.

The primary source of external funding for the current faculty based on current projects has been USDA. Listed on the faculty’s current contracts are $36 million in projects from USDA sources with one of the projects being a CAP of $15 million and another CAP of $5 million. The projects are titled as follows:

- Alternative fumigants for log exports;
- Building A Biofuels Industry: Southeastern Partnership for Integrated Biomass Supply Systems;
- Developing a Cost-Effective Payment System for Forest Carbon Sequestration;
- Enhancing Agro-Grasslands Sustainability through Innovation and Improved Soil Biodiversity;
- Increasing the Resilience of Agricultural Production in the Tennessee and Cumberland River Basins through More Efficient Water Resource Use;
- Performance and Adoptability of Biodegradable Plastic Mulch for Sustainable Specialty Crop Production;
- U.S Agricultural Sector Modeling, Modification, and Support;
- Using Hydro-Economic Modeling to Optimally Allocate Water in the Humid Southeastern U.S.;
- Improving Record Keeping and Risk Management for Underserved Producers in Tennessee;
- Tennessee Beginning Farmer Development Program;
- Evaluating Market Opportunities for Small Scale Distillery and Brewery Spent Grains in Tennessee;
- Extending Roots of Fresh Stop Markets across the Southeast Region;
- Expanding the FIBIN Farm Financial Database and Benchmarking to Farms in Tennessee; and
- Accrual Adjusted Financial Statement Education and Linkages with Whole Farm Revenue Protection (WFRP) Insurance.
In addition to USDA, projects are funded from the Federal Aviation Agency, Soybean Checkoff, Tennessee Department of Environment and Conservation and Department of Agriculture, National Science Foundation, and USAID. There are $5.9 million in proposals pending.

**Interdisciplinary Work**

There is a long-time tradition within AREC to work with other disciplines both inside the UTIA and UTK. Interdisciplinary work is encouraged within AREC. AREC has, since its beginning, worked with other disciplines within the UTIA and the University System. Faculty are encouraged to work with individuals outside the University of Tennessee and faculty have developed networks of individuals. Here are some examples of how our faculty conduct multidisciplinary research and education.

Dr. DeLong collaborates with the University of Tennessee Beef and Forage Center (http://utbfc.utk.edu/). She is currently working on a project with entomologists, led by Becky Trout Fryxell in UT’s Entomology and Plant Pathology Department, regarding the impact of horn flies on the US cattle population. She has published her multidisciplinary work in journals such as the *Journal of Dairy Science, International Food and Agribusiness Management Review*, and the *Journal of Agricultural and Applied Economics*.

Dr. Margarita Velandia has two funded projects working with departments of Plant Sciences, Biosystems Engineering and Soil Science, and Agricultural Leadership, Education and Communications. In addition, she has a funded project working closely with faculty in the Department of Sociology at University of Kentucky.

Dr. English and Dr. Jensen formed the Bio-based Energy Analysis Group (BEAG) which has numerous AREC faculty (Boyer, Clark, Hellwinckel, Larson, Trejo-Pech, and Yu) involved. BEAG has worked with the Center for Renewable Carbon and its physical scientists in evaluating feedstock quality, feedstock logistics, and co-product analysis. As part of IBSS and other AFRI and DOE grants, a team of AREC faculty has formed to address the economic and environmental components of sustainability. This group has also teamed up with Washington State University, Penn State University, and MIT to form an FAA Center of Excellence to examine the potential of large scale production of alternative jet fuels via the full range of pathways being considered for ASTM approval.

Dr. David Hughes and Ms. Wright collaborate with a number of individuals outside their discipline. They collaborate with Dr. Prather in Biosystems Engineering and Soil Science on a USDA/NIFA funded project “Tennessee Beginning Farmer Development Program.” They, along with Dr. Aaron Smith, work with the Center for Profitable Agriculture on a project “Adding Value to Rural and Farm Communities” and with Department of Plant Sciences and
Center for Profitable Agriculture on “Opportunities for Specialty Crops in Tennessee: Focus on Hops for Brewing.” Specialty Crop Block Grant Program, Tennessee Department of Agriculture.

Mr. John Walton continues to maintain relationships with county Extension personnel as a means to provide undergraduate students exposure to a variety of enrichment experiences off-campus. These include, but are not limited to, the biofuels/bioenergy/renewable energy industry, the agricultural input supply industry, farm management, agricultural equipment, and marketing. These experiences broaden the knowledge base of students and provide them guidance and information in focusing their career path. In addition, Mr. Walton has developed relationships with individuals from the UTK College of Law and the Dale Carnegie Institute to help students develop the soft skills necessary to succeed in applying and interviewing for jobs and networking within their chosen career field.

Dr. Clark’s primary involvement in multidisciplinary research is working with physical scientists and engineers on issues related to water quality, use and availability. These individuals are primarily faculty in BESS and CEE. Through this work, a team of AREC faculty have formed a close working relationship with those engineers and physical scientists from UT’s Civil and Environmental Engineering (CEE) and Biosystems and Environmental Soil Science (BESS) Departments and from other universities (Tennessee Tech, University of Tennessee, Martin, and University of Memphis) on a variety of issues related to water quality, quantity and use. This work has been funded by grants from USDA and the Tennessee Department of Environment and Conservation. This team was recognized through UT’s Success in Multidisciplinary Award through their work in a USDA-AFRI CAP project teamed with faculty from the Tickle College of Engineering and other departments within UTIA (see Appendix page 87).

Dr. Larson utilizes multidisciplinary research to evaluate the profitability and sustainability of alternative production systems. He focuses on cover crops, row crops such as corn and cotton, renewable energy logistics, and agricultural input placement. A founder of the Production Economics Analysis Group (PEAG), Dr. Larson works with other physical scientists both at UTIA and at other universities and institutions to evaluate alternative agricultural production and marketing systems that have the potential to enhance net farm income, economic development, and the environment in rural Tennessee.

Dr. Boyer also utilizes multidisciplinary research to discover more profitable and environmentally-conscious production systems in hopes of increasing the long-term sustainability of agricultural production. He works closely with Extension personnel across the state beginning with the conception of a research project to its completion. Dr. Boyer incorporates multidisciplinary interactions in both his classroom and research efforts.
Dr. Carlos Trejo-Pech, a relatively new faculty member, has fostered several multidisciplinary research teams in both the AREC department and the Institute of Agriculture, by joining research grant proposals on which he has been invited to participate. He also participates on several research projects with faculty from other institutions across different business and economics disciplines including marketing (with faculty from Tennessee State University), finance (with faculty from University of Maryland and University of Idaho), and economics and finance (from universities in Mexico).

Dr. Seong-Hoon Cho’s recent research focuses on the economic effectiveness of land use policy and its ecological impacts. This analysis area was initiated with NSF funding of $250K in 2012 for a project under the Dynamics of Coupled Natural and Human Systems program with an ecologist at UTK and a forest scientist at ORNL.

This Department operates on the premise that knowledge from several disciplines allows a research team to identify more relevant research questions and develop more effective solutions to the issues facing agriculture. The experience is typically both educational and highly rewarding for multi-disciplinary research teams. As economists, having access to brilliant minds and incredible resources to address tough research questions will improve the overall quality of our research, make AREC more competitive for future research funding and extend our results to producers and other decision makers.
Section 6. Attract, retain, and recognize stellar faculty and staff who strive for excellence and proudly embody Volunteer values.

A. Faculty Profile

The Department is composed of 20 Agricultural and Resource Economics faculty (Appendix page 90). The faculty research emphasis includes land use, agricultural trade and policy, environmental and resource economics, bioenergy, agricultural finance, marketing, production economics, and rural development. Summarize changes in faculty since last program review.

Since 2013, six faculty positions have been filled (Appendix page 91), which represent thirty percent of the faculty. Of these six positions, two positions (Lewis DeLong- Livestock Economics and Hughes- Greever Chair) were filled in the academic year 2013-2014, one position (Trejo-Pech- Agricultural Finance) was filled in the academic year 2015-2016, two positions (Upendram- Community Economics and Thompson- Animal Health Policy) were filled in the academic year 2016-2017, and one position (Muhammad- Blasingame Chair) was filled in the academic year 2017-2018. These hires were consistent with the strategic plan objectives. According to the strategic plan, in addition to the recent hires, the need for new hires in the areas of farm management, horticulture, and econometrics would further strengthen the core areas of the Department.

These positions were filled after national searches were conducted. During each search, minorities and women were encouraged to apply. Position announcements were published online and/or in print with the Agricultural and Applied Economics Association (AAEA) and other regional agricultural economics associations. Mailings of announcements were also sent to members of the Committee on Women Agricultural Economists and the Committee on the Opportunities and Status of Blacks in Agricultural Economics.

New faculty members have received generous startup packages to assist them in setting up their teaching, research, and extension programs and encouraged to participate in a faculty fellows program that is designed to understand the roles and responsibilities of tenure-track faculty. All tenured and tenure-track faculty members are assigned a mentor from the senior faculty within the department. Funding has been made available for all faculty members to attend at least one professional conference each year. The Department has faculty development funds available to provide travel funds for new faculty members, and for established faculty members to attend conferences and workshops to acquire new knowledge or skills, or to enhance existing expertise.

1. The department is ranked 37th by Research Papers in Economics (RePEc), which places the department in the top 25% of agricultural economics programs worldwide based on publications over the past ten years. In the global study “Ranking authors and institutions by publications in regional science journals: 2010-2014” (available at:
AREC was ranked 78th in the category of “Number of 10 Core Regional Science Journal Publications.” For U.S. universities only, AREC was ranked 31st.

In addition to rankings, faculty serving on editorial boards of academic associations or journals, serving on grant panels, and receiving external academically recognition, provide a qualitative measure of AREC faculty quality.

Four faculty serve as editors and serve on editorial boards as depicted on Appendix page 92 (top). Five faculty members served on grant review panels as shown on bottom of Appendix page 92.

Faculty have received several competitive awards. The most recent awards include a Lifetime achievement award, Fulbright scholarship, and a Distinguished Extension and Outreach award. This list of national awards are presented on Appendix page 93.

2. Four positions have been approved or are awaiting approval to be filled in the department:
   a. Farm Management Faculty Position (Tenure-track)
      i. This position has been approved as a 25% R and 75% E appointment.
   b. Econometrics Health/Safety Faculty Position (Tenure-track)
      i. This positions is approved to be advertised as 90% R, 10% T. This position has become open as Dayton Lambert accepted a position at Oklahoma State University.
   c. Horticulture/Greenhouse Faculty Position (Tenure-track)
      i. This positions is approved to be advertised as 75% R, 25% E.
   d. MANAGE Director/Extension Specialist Position
      i. This 75% Extension and 25% Research position is awaiting approval.

3. Sabbatical leave: Faculty can request professional leave with a minimum of six years full-time campus service. Eligible faculty may be granted professional leave for one year at one-half the faculty member’s base salary or for six months at the base salary.

Start-up Funds: Tenured and tenure-track faculty are offered generous start-up funds to support research, teaching and extension programs. In addition to start-up funds, all new faculty members have received departmental funding for at least one GRA or GTA

Faculty Fellows Program: Faculty are encouraged to participate in a year-long faculty fellows program that helps them understand the roles and responsibilities of tenure-track faculty.

Other Fellowship Programs (Fulbright): Faculty members can pursue research or teaching opportunities in foreign countries for one or two-semesters.
International Catalyst Fund and Global Seed Grant: Faculty are offered catalyst and international seed grants to assemble teams to address global agricultural and natural resource challenges through teaching, research and extension activities.

Mentoring program: Tenure track faculty are paired with at least one senior faculty member as a mentor to guide them in the promotion and tenure process. The faculty member and mentor meet with the Department Head at least annually to review progress towards meeting expectations.

B. Faculty Productivity

1. Appendix page 94 (top), provides a summary of refereed paper publications and scientific presentations with abstract from 2013 to 2017. The number of refereed paper publications, the main output of research productivity, has increased during the last five years from 28 publications in 2013 to 45 in 2017 (or from 32 in 2013 to 47 in 2017 based on a 3-year rolling average). When measured by FTE, 45 publications in 2017 implies 4.9 paper publications per 1.0 FTE researcher on average (the department had 9.24 research FTE as of the end of 2017). Similarly, refereed publications by extension personnel increased from 3 in 2013 to 9 in 2017. Research and extension faculty, on average, had 0.7 presentations in scientific conferences per paper published during the past 5 years.

Appendix page 94 (bottom), presents a summary of grant activity during the past five years. Total submissions has been, on average, around $3.75 million per year (equivalent to around $150,000 per proposal submitted), with this figure varying from $5.895 million in 2013 to $4.459 million in 2017. Total grants awarded have decreased from around $1.5 million in 2013 to around $1.0 million in 2017 based on a 3-year rolling average basis. Actual total dollars awarded per year decreased from $1.979 million in 2013 to $1.583 in 2014 and remained in the $1 to $1.1 million range during the past 3 years.

Grant expenditures can more accurately reflect extramural support for departmental research and Extension programs, as it includes project expenditures on grants where the PI is from another department. It also reflects the multidisciplinary support our department gives to other departments in the institute. Total grant expenditures (Research and Extension) on Appendix page 94 (bottom) range from just over $1 million in 2013 to $1.2 million in 2017.
2. Appendix page 95 (top), provides the number of citations per year to refereed articles authored by faculty in the department of Agricultural & Resource Economics (AREC) at UTIA over the past four and a half years.\textsuperscript{1} Data in this table were obtained from Scopus\textsuperscript{®} - an Elsevier B.V product, the largest citation database of peer-reviewed articles.\textsuperscript{2} Citations in Scopus are limited to articles published in journals indexed by Scopus and cited by Scopus papers. The table contains citations available in Scopus for all AREC faculty as of June 2018. The first column shows the year a citation occurred, considering all papers published during the last 10 years (from 2009 to 2018). The second column provides the total number of citations for unique papers by AREC faculty. That is, for papers coauthored by more than one AREC faculty, only one citation was considered in the report, even though Scopus provides one citation for each paper/faculty. With the exception of 2018, year for which only 5 months data are available, the number of citations has consistently increased since 2014, implying that the visibility of high-quality research output by AREC faculty has improved over the past five years.

3. The University of Tennessee Faculty Handbook (https://provost.utk.edu/faculty-handbook/), the UT Institute of Agriculture’ bylaws, and the Department of Agricultural and Resource Economics’ bylaws provide a guidance to the faculty and department head in managing assignments of workload to faculty members. The UT Faculty Handbook states that “The assigned workload for full-time faculty consists of a combination of teaching, advising, research / scholarship / creative activity, and institutional and/or public service. The individual mix of these responsibilities is determined annually by the department head, in consultation with each faculty member, with review and approval of the dean and chief academic officer. The university requires that each member of the faculty perform a reasonable and equitable amount of work each year.”

Faculty annual evaluation guidelines in AREC are provided by the department’s bylaws (Sections 3.3., process of annual review of tenure-track faculty; 3.5., process of annual review for tenure-track and tenured faculty; and 4, appointment, evaluation, and appeals for all non-tenure-track faculty). The mix of professional activities and outputs with respect to teaching, research, public service and grants is reviewed annually. Tenured faculty members have inputs in the evaluation process (for tenure-track and non-tenure-track faculty) while tenured faculty is evaluated by the

\textsuperscript{1} Statistics are as of June 2018. No disaggregated citation data exist before 2014 in the Scopus\textsuperscript{®} database.

\textsuperscript{2} https://www.elsevier.com/solutions/scopus
department head (unless a cumulative review of a tenured faculty member is triggered by the person’s annual reviews as specified in the UT Faculty Handbook).

In accordance with the UT Faculty Handbook, “The normal maximum teaching responsibility of a full-time faculty member engaged only in classroom teaching is 12 credit hours each semester.” The precise teaching responsibility for each faculty member is adjusted according to the faculty’s appointment mix of research, teaching, and/or Extension. Expectations, based on faculty rank are provided in section 3.2. of the UT Faculty Handbook (3.2., Criteria for Appointment to Faculty Rank). Appendix A of the department’s bylaws provides more specific criteria regarding performance indicators that may be used as a guide during annual evaluations. These criteria consider competencies, performance, and expectations depending on faculty rank and the stage of the faculty member’s career.

C. Staff Profile
The Office of Institutional Research and Assessment summarized the Department’s staff profile over the past five years. There has been a reduction in the number of staff and graduate research assistants (GRA) (middle of Appendix page 95). The GRA are subject to change depending on a variety of circumstances (i.e., funding, demand). The number of part-time staff has remained relatively constant. In terms of FTE, fulltime staff FTE has increased (bottom of Appendix page 95) since 2013. Whereas GRA FTE decreased, graduate teaching hours have increased, due to the growing size of the undergraduate program. These data show staff numbers that are basically flat or in slight decline with 19 staff members in 2013 and 17 staff positions in 2017. The number of graduate assistants show more fluctuation with 21 in 2013, 26 in 2014 and a slight but steady decline to 18 in 2017. Effectively generating resources for supporting graduate students remains a challenge as virtually all graduate students (16 out of 18 in 2017, for example) are supported through research-based grants and contracts from external sources. The number of undergraduate majors has shown steady growth from 63 in 2013 to 90 in 2017 (an increase of 42.9%) to 99 in Fall 2018. Increased departmental efforts to recruit undergraduate majors, including increased scholarship funding, has undoubtedly helped fuel this growth. Given that many non-majors take our classes, the Department’s ability to support further increases in undergraduate enrollment is to some extent dependent on teaching resources.

Qualitative measure of Staff
Staff are evaluated by the department head, with input from their immediate supervisors. There are five key elements for annual staff evaluations. Each of those key elements contains five evaluation ratings. Evaluations for all staff are summarized for 2017 (See Appendix page 96, asterisks indicate number of ratings achieved).
D. Faculty and Staff Diversity

1. The University of Tennessee does not discriminate on the basis of race, sex, color, religion, national origin, age, disability or veteran status in provision of educational programs and services or employment opportunities and benefits. This policy extends to both employment by and admission to the University. The University does not discriminate on the basis of race, sex or disability in the education programs and activities pursuant to the requirements of the title VI of the Civil Rights Act of 1964, Title IX of the educational amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990. Inquiries and charges of violation concerning Title VI, Title IX, Section 504, ADA or the Age Discrimination in Employment Act (ADEA) or any of the other above referenced policies should be directed to the Office of Equity & Diversity, 2110 Terrace Avenue, Knoxville, TN 37996-3560. Requests for accommodation of a disability are directed to the ADA Coordinator at the above address.

2. Faculty recruitment in AREC follows the guidelines set by the UT Office of Equity and Diversity (https://oed.utk.edu/) and the internal processes according to the department bylaws. During each search for candidates, minorities and women were encouraged to apply. According to the UT Office of Equity and Diversity, all faculty serving in search committees must attend or have attended a presentation by STRIDE (Strategies and Tactics for Recruiting to Improve Diversity and Excellence), which has the purpose of revitalize UT efforts to hire and retain a diverse faculty by using peer-to-peer instruction about academic research on bias and diversity (https://stride.utk.edu/).
Section 7. Develop a resource base for the future and continue the transformation of campus infrastructure.

A. Budget Summary
Budgeting data for 2015-2018 was provided by the departmental business manager and is summarized on page 97 in the appendix.

B. Budget Efficiency
1. The total department budget has ranged from $2.8 million in FY 2015 to $3.4 million in FY 2018 (See Appendix page 97). The Department meets the needs of faculty, staff, and students by working with centrally-provided services within both the University of Tennessee, Knoxville (UTK) and the University of Tennessee Institute of Agriculture (UTIA). Centralized services provided by experts have the potential to efficiently support our various efforts through division of labor (based on specialized knowledge and abilities). Services that support grant and contract activities and computer-based activities are especially important to our mission.

2. Centrally-provided resources include the UTIA’s Office of Sponsored Programs and UTK’s Office of Research & Engagement, UTIA’s Information Technology Services and UTK’s Office of Information Technology, UTIA’s Office of International Programs and UTK’s Center for International Education, UTK’s Tennessee & Learning Innovation, UTIA’s Office of Institutional Advancement, UTIA’s Office of Marketing and Communications, UTIA’s Human Resources Office, UT’s IRIS information System, UTK’s Office of Equity and Diversity, UTIA’s Safety Office, and UTK’s Facility Services, Telephone Services, and University Printing and Mail Services.

The UTIA Office of Sponsored Programs (OSP) facilitates research, extension, and education activities by supporting faculty and staff in their pursuit of external funding. OSP provides specialized, high-quality service in all aspects of proposal development and award negotiations for federal, state, and private funding. OSP also helps ensure compliance with internal and external requirements. Specific services include identify funding opportunities, reviewing and interpreting sponsor guidelines to ensure compliance, developing proposal packages including electronic submissions, developing proposal budgets and budget justifications, coordinating strategic development of large proposals, assisting in subcontract development and monitoring, arranging technical editing of proposal narratives (upon request), ensuring accuracy and approval of cost share commitments, facilitating budget revisions and no-cost time extensions, reviewing compliance issues, analyzing intellectual property issues, establishing material transfer agreements/confidentiality agreements, preparing Faculty Incentive Plan applications, requesting advanced account set-up, negotiating contract language with sponsors and collaborators, entering of Evisions Cayuse SP proposal information for project
investigators, and assisting with proposal graphics (upon request). OSP also works with the department’s business manager in making budget revision requests for awarded

UTK’s Office of Research & Engagement (ORE) provides technical expertise in proposal development, faculty development, sponsored programs administration and compliance requirements for the UTK campus similar to the role OSP plays for UTIA. However, ORE also provides some services not offered by OSP, such as the Institutional Review Board.

UTK’s Office of Information Technology (OIT) provides support for the university’s email service, faculty, staff, and student (university) computers, the university Canvas system, the UT network, and related services. UTIA’s Information Technology Services (ITS) provides support for UTIA units and departments, including web design and the development of tailored enterprise and business solutions. Up until spring of 2018, the Department had a full-time information technology specialist who supported all of these functions within the Department and served as a liaison with OIT and ITS. Thus, the Department is evolving in its relationship with OIT and ITS.

One element of this evolution is that the Department is now sharing a staff member – Tammy McKinley – with ITS. The intent of this arrangement is to provide AREC with consultation, guidance and technical solutions that enable the Department to build effective, dynamic and informative websites; manage projects that involve the development of technological procedures and Web applications to meet specialized needs within the Department; identify and match technology to meet program and departmental needs; and collect, process and manage data to support departmental activities with a focus on meeting the growing strategic and business needs of the faculty, staff, students, and the general public. Tammy’s office was moved to OIT to more effectively leverage OIT’s human and physical capital and to maximize her ability to recognize and implement new and emerging technologies. Tammy is also expected to create instructional materials and conduct training and instruction for departmental personnel when necessary. Tammy will work closely with other members of ITS to develop instructional materials and identify the best delivery methods, either hands-on and/or electronic, on advanced IT topics. Currently she is responsible for printing posters that we use in presentations and has administrative rights to our computers.

Support for international programs are provided through UTIA’s Smith Center for International Sustainable Agriculture and UTK’s Center for International Education. The Smith Center exists to advance UTIA’s international engagement by empowering faculty, staff and students to think and act globally in pursuit of sustainable solutions to our world's agricultural, food, and natural resource challenges. The Smith Center strives to
achieve this mission by building interdisciplinary faculty programs, developing international academic programs, strengthening international partnerships and networks, and highlighting the importance of global engagement to our communities in Tennessee and around the world. For example, the Smith Center offers seed grants for interdisciplinary, international education and research projects. Several departmental faculty and graduate students have worked with the Center on recent projects, including USAID-funded project to develop poultry production in Rwanda.

UTK’s Center for International Education (CIE) leads, coordinates, and supports the university’s strategies for global education, research, and engagement. CIE’s responsibilities include: developing and managing international partnerships, welcoming and assisting international students and scholars, providing study abroad opportunities for our students, and creating international and inter-cultural programming for the campus and broader community. CIE is organized into seven major units: Confucius Institute, English Language Institute, International House, International Students and Scholar Services, Office of International Partnerships and Exchanges, Office of the Peace Corps, and Programs Abroad Office.

Human resources support is provided by the UT System Office of Human Resources, UTK’s Office of Equity & Diversity (OED), and by UTIA’s Chief Human Resources Officer.

Integrated Resources Information System (IRIS) is the University branded enterprise resource planning system providing financial, and human resource support. IRIS Administrative Support is responsible for the primary support of the IRIS system. Organizationaly, IRIS Administrative Support reports to the System Office of Finance. The office is responsible for: systems and business analysis and configuration to design solutions for financial, HR, and payroll functions, programming support to develop solutions, design and implementation of interfaces with other University systems and the State of Tennessee, assignment of user permissions for the IRIS system and other systems. The My IRIS Web Portal is an entry point into a wide array of administrative functions. It provides employees the ability to access Employee Self-Service for functions such as accessing pay statements, W-2s, and time reporting. It provides access for researchers to certify effort and access financial reports. It allows IRIS users to access a web interface for the IRIS system and provides a method for approving work items generated from IRIS and other systems that are accessed through My IRIS Web. An IRIS system help desk is also provided.

The UTIA Advisory Council serves in a liaison role among faculty, staff, UT Faculty Senate representatives, UT Employee Relations Advisory Council representatives, and
the Institute Administration. The Council facilitates effective communication among all parties at the Institute, and makes recommendations to UTIA’s Chancellor. The UTIA Safety Office promotes a safe and healthful work and academic environment. The University of Tennessee University Printing & Mail provides a variety of services including document printing and binding, wide-format printing (primarily used for posters), and copiers.

In general, Accounting services have been largely decentralized to the Department level. However, Department staff work with closely with staff from the Deans’ offices and from other Departments especially with OSP.

3. As discussed later in the document, enhanced use of OIT in supporting departmental efforts (personnel and possible student computer lab) is the primary way that we could optimize our use of centrally-provided resources.

C. Development Efforts

1. Summary of Development Efforts since Last Review
   The Department works closely with the UTIA Office of Institutional Advancement in developmental efforts. That office has garnered $71 million in funding for 2017-18 fiscal year up from $21 million the prior fiscal year. We anticipate that our work with that office should yield benefits in the foreseeable future.

   The Department’s endowment has increased by 11.89% over the last five years, from a total of $11,630,810 on May 31, 2014 to a total of $13,014,039 on May 31, 2018. Income from the endowment has increase by 25.28% over the last five years, from $268,574 for the fiscal year ending June 30, 2014 to $336,465 for the fiscal year ending June 30, 2018 (Appendix page 98 top)

2. Key Development Priorities and Activities
   The Departmental Faculty was surveyed regarding priorities with respect to future resource allocation. As shown on Appendix page 98 (bottom), by far the largest level of support was expressed for developing and supporting a new PhD program in the department followed by efforts to either recruit or support further development of our graduate program. It is noteworthy that a new PhD program would require additional faculty resources and hence additional commitments of resources from the University (UTIA or otherwise) or from other sources (such as an endowment).

3. Potential Development Activities
   As for support for potential development activities (Appendix page 99), the faculty support working more closely with UTIA Advancement on inviting alumni and others to
speak to classes and at faculty and student seminars. A number of faculty would be willing to join UTIA Advancement personnel on telephone calls with alumni and others. The faculty is also generally supportive of continued efforts to market the Department through social media. Finally, there is some interest among the faculty in the possibilities associated with a Departmental Advisory Committee.

Specific possible developmental activities include an alumni tailgate event tied to a home football game, an annual banquet where alumni and other supporters are honored, and the development of a departmental advisory board.

D. Additional Revenue
1. Additional resources have been provided through sponsored program activities, gift accounts, and earnings from endowments. Sponsored programs (grants, contracts, and cooperative agreements with federal, state, and local governments) have generally been the largest contributor to these outside sources of funding ranging from 58% in FY 2015 to 49% in FY 2018 (Appendix page 100). Total funds from all of these sources have ranged from $1.7 million to $1.9 million. These outside sources of funding are responsible for a large proportion of the total departmental budget.

2. Potential sources of additional revenue include further development of endowments, support by corporations and charitable foundations. Further support through grants, contracts, and cooperative agreements with federal, state, and local governments are important means of support that could be further developed. Lab fees could be used to support provision of computer hardware and software, especially for students (see discussion below). Teaching online courses could be a way to tap funds that flow through UT main campus.

E. Space and Facilities
Departmental faculty, students, and staff feel that while space provided for our activities are adequate there are several concerns or factors that sometimes limit our effectiveness. An antiquated HVAC system means that offices spaces are often either much too heat or much too cold. This situation hinders our ability to work effectively and can even cause equipment (such as computers) to either malfunction or to be damaged. In certain offices, leaks have resulted in mildew, which can endanger health and in general reduces our ability to perform necessary tasks. The recent closed hallway doors policy mandated by the Fire Marshall reduces airflow thereby exacerbating HVAC problems and increases noise level from frequent opening and closing of the doors.

1. Graduate Student Cubicles
The Department’s two conference rooms (MH 301 and MH 308) have been recently renovated. For MH301, a dedicated camera for teleconferences (Zoom) would enhance Departmental productivity. Widespread use of MH301 by other departments and UTIA Administration also can hamper our efforts at times.

Finally, the recent reduction of space in the MH 226 classroom by order of the fire marshal will constrain future Departmental activities. The faculty remains concerned by the decision to renovate 226 without soliciting any input from, or even notifying, the Department and the adverse effect this decision has had on the resulting renovation.

F. Computing Support
While computing support is adequate, the Department still has some concerns in that area. As previously discussed, support is provided through the UTIA ITS and UTK OIT. Until recently, the Department had a staff position in the department dedicated to meeting the Department’s computer and information technology needs. Thus, the Department is still adjusting to the transition to having all computer and IT support being routed to the OIT Help Desk and ITS.

1. Shared storage and transmission
The UT Office of Information Technology provides file sharing and storage space that the Department uses heavily (especially our faculty). A Personal quota of 50 GB and a Departmental Quota: 200 GB/user is provided along with access to data encryption service such as VPN.

2. Computers for faculty
Computers are provided for faculty. While our equipment is adequate, some faculty have expressed concern about appropriate up-dating of machines although additional resources in this area was not expressed as a major concern in our survey of faculty (Appendix page 98 bottom).

3. Software needs (IMPLAN, GAMS, etc.)
A related concern is the availability and tracking of specialized software, such as IMPLAN, GAMS and STATA, of which access to appropriate versions is vital to our activities. While access to specialized software is adequate, issues have existed regarding appropriate tracking of software that has even limited access in some cases. Licensing on software is being tracked and maintained by Ms. McKinley.

   a. Machines and software for graduate students
   Computers are currently provided for graduate students along with software on an at needs basis. However, the current situation is a use of departmental
resources with the attendant opportunity cost. An alternative would be a campus-funded student computer lab.

b. UTK-funded student computer lab
The main campus is willing to provide the equipment for a computer lab for use by the Department’s graduate and undergraduate students. The main advantage is the freeing of resources for other purposes. Disadvantages include current lack of an appropriate location, concerns over the storage of research and other limited-access data, and unrestricted use of the lab by students outside of the department (as we would have no right of restricting access).

G. Library Support
The University of Tennessee Library provides strong support for Departmental activities. Isabella Baxter is the Agriculture Librarian and provides service and support for the Department. Ms. Baxter works closely with the Herbert College of Agriculture to provide library services and develop and manage collections that meet the curricular and research needs of faculty and students. She also has developed the Agricultural and Resource Economics Guide, which includes effective online learning tools and tutorials. She evaluates and maintains print and electronic collections and collaborates on collection needs with departmental faculty and students. Each Academic Department has a representative who served as a liaison with the UT Libraries and who periodically meets with Ms. Baxter. Dr. Lewis-Delong is our current liaison. A Student Advisory Committee, composed of student government officers as well as graduate and undergraduate students appointed by the academic deans, meets regularly with the Dean of Libraries to provide feedback and engage in discussions about library resources and services. The Library and Information Technology Committee of the UT Faculty Senate fulfills the same purpose for faculty interests. The Libraries’ website (lib.utk.edu) provides a gateway to library services for undergraduates, graduate students, faculty, and the community. The Pendergrass Agriculture and Veterinary Medicine Library’s webpage (lib.utk.edu/agvet) is the access point for library services, subject guides, and to more than 600 databases related to agriculture. The library also provides interlibrary loan and document delivery services.

H. Student Support

1. Undergraduate Lounge Area
   A small area for our undergraduate students to meet is currently available

2. Help with housing/transition for international students
Many of our graduate students are from other countries and hence have little knowledge regarding how to obtain housing. Access to university resources that would facilitate the ability of these students to find adequate and affordable housing would be a great benefit and at relieve use of staff and faculty time.
A. Strengths
The department’s strength centers on a productive and engaged faculty. There is a good mix of full, associate, and assistant professors with faculty-on-faculty mentoring providing support for assistant professors. The M.S. program prepares its graduates for employment in both the public and private sectors. M.S. graduates have also been successful in pursuing PhD programs. Our endowment funding continues to grow with an additional major donor contributing to the department in 2017. There are currently two endowed chairs in the department providing strength in agricultural policy and economic development. With the university’s continued goal of reaching the “top 25”, AREC, as a department, has achieved the top 25 status, based on its 24th ranking nationally regarding research publications (see Section 1.h.). While there are other factors which contribute to the “top 25”, AREC is very competitive in other categories, including undergraduate retention.

B. Weaknesses
One of the department’s challenges has been the relatively low number of undergraduates. In the fall of 2017, there were 99 undergraduates in the department, which represented the highest total in ten years. As a percent, AREC undergraduates have increased at one of the highest rates on campus over the past five years. However, the departmental goal continues to be an increase up to 120 or more. Through generous gifts, AREC can now offer scholarships to all incoming freshmen who are admitted to the department. These scholarships, along with additional recruiting have likely been the reason for the increase. Job placement for graduates has also supported student growth. A challenge to growing the number of students are the number of other public universities in Tennessee, including UT Martin, Middle Tennessee State University, and Tennessee Tech, all of which have undergraduate programs in ag business. It is often difficult to compete geographically with those schools.

C. Speculations
The biggest opportunity for positive change is adding a PhD program. A PhD program would increase research productivity and increase AREC’s standing both regionally and nationally in the profession. It would also increase our standing within UT and align more closely with UTK’s strategic priorities. Regarding efficiency and effectiveness, AREC suffered a significant reduction in teaching FTE in 2013/2014 with the unexpected loss of three full professors within a six month time period. At the time the institute was unable to replace them due to budget shortfalls. A departmental strategic planning retreat in the summer of 2014 yielded a plan to redesign curriculum and develop an undergraduate scholarship program. Since 2014 additional FTE have been added to AREC, although teaching FTE are still well below the 2013 levels. The proposed curriculum changes have been implemented and undergraduate numbers have increased by planning and utilizing a very efficient and
effective teaching program. AREC currently has three faculty searches being conducted, which will grow our faculty numbers and provide support in all three mission areas.

D. Special Concerns/Information
Since 2013, AREC has made positive strides in undergraduate recruitment and student credit hour production. The research and Extension educational programs have been very productive and have both received regional and national recognition. One of the challenges for AREC is the space allocated to the department. The third floor of Morgan Hall is beset with moisture problems coming from the HVAC unit and the North wall, where water has damaged the interior work space. One faculty office and one staff space is unusable, and others are in poor repair due to the moisture problems. AREC has a small room where undergraduates can meet in between classes to study and use two computers provided by the department. It is challenging to see other UTIA departments with modern offices and undergraduate lounges, and to see plans for a new campus building being designed for other departments. To add to the challenge, the main classroom for our department in Morgan Hall, where we teach, conduct faculty seminars, support undergraduate departmental club activities, and use for departmental socials, was renovated in the summer of 2018 without our knowledge or input. Twenty-five percent of the classroom/meeting space was removed and made into an office and closet. When asked, there were no plans for utilizing the office/closet – only that the construction was to comply with the fire marshal. The department was told that there was no alternative to losing the classroom space, even though we were never consulted or given the opportunity to offer alternatives to the construction, either to facility services or the fire marshal. Along with the moisture challenges of the past and present, this recent classroom renovation has eliminated the department’s trust and confidence in facility services’ decision-making and leadership.