

**PROGRAM REVIEW IMPLEMENTATION PLAN
PROGRESS REPORT
Biosystems and Agricultural Engineering
2022-2023**

Recommendation 1. Develop a portfolio approach to balance the department's efforts across all missions – research, instruction, and extension.

Assessment method:

Determine the proper distribution of faculty members (area of specialization within the department and Regular versus Extension Title) through departmental faculty meetings to determine future faculty hiring.

Results:

We have advertised for two extension faculty positions. The urban water quality position was advertised at the Assistant/Associate level and an agricultural health and safety position at an open rank. This should help maintain the balance between extension and regular title faculty.

Analysis of results and reflection:

There have been considerable changes in our faculty the past year. Doug Overhults has been in a post-retirement position since 2015 and Sam McNeill entered post-retirement this year, both are likely to be fully retired within the next couple of years. Sam and Doug have been our faculty presence at the Princeton Education and Research Center for a long time. Their retirements will leave no BAE faculty in Princeton. Sue Nokes retired during the summer, although she has been in an administrative roll for the past 5 years and Don Colliver has entered phased-retirement. Don was heavily involved with ASHRAE, energy efficiency, renewable energy, and decarbonization. This is an area with considerable student and grant funding interest. It would be good to have faculty focused on decarbonization, but funding for that is unsure.

The two positions that have been posted are critical for the department. The water position will complement existing teaching and research efforts related to water quality. This is also a major interest of our undergraduate students and has good opportunities for grant funding. The second positions in agricultural health and safety is also very important. Two centers within the department related to agricultural health and safety are important to continue in the college. The Southeast Center for Agricultural Health and Injury Prevention – SCAHIP and the Central Appalachian Regional Education and Research Center - CARERC are significant sources of funding for graduate education.

Ongoing improvement actions:

With the budget cuts in 2020 and the change how faculty positions are reallocated in the college; it is unknown if we will have faculty in Princeton. Our faculty numbers have decreased since the last review, this has been very noticeable in the extension title series. This will be a major topic in faculty meetings over the next year.

Recommendation 2. Develop strategies to preserve the collaborative and cooperative culture of the department.

Assessment method:

Increase the impact and number of events been held to engage undergraduate students, graduate students, staff, and faculty. This will continue to maintain and expand the collaborative nature of the department.

Results:

This has been increasing since 2020. The BAE Graduate League of Students (BAEGLS) continues to be very active. This has been very helpful keeping graduate students engaged within the department. The group is working to integrate graduate students into professional careers, provide mentoring, and assist students transitioning into graduate school.

The BAE Academic Showcase was held on April 26, 2023. This event was well attended by faculty, staff, students, and alumni. Additional social events were held (welcome back picnic, Christmas breakfast, etc) and attendance has improved.

Analysis of results and reflection:

There is still hesitation by many people to meet in person, however this has improved. We need to continue to organize events.

Ongoing improvement actions:

Ongoing.

Recommendation 3. Evaluate staffing needs (technical, professional, and administrative) and ensure that assignment of personnel matches needs.

Assessment method:

The breakdown of staff duties based on MJR's was performed. These were discussed with staff members during their annual performance review.

Results:

MJR's were tabulated and provided to the faculty for review.

Analysis of results and reflection:

There continues to be substantial staff turnover. We have refilled a research facilities manager, IT position, and electronics engineer in the Barnhart building. In addition, an engineering aide position in the Agricultural Machinery Research Laboratory was filled. A committee has evaluated two open staff positions and have rewritten the MJRs. These should be posted early in 2024.

We continue to work on methods to improve information availability to the department through a sharepoint site. This provides a one stop location for department personnel to find information. It includes hiring, purchasing, travel, equipment scheduling, presentation templates, and numerous other items. This has helped during staff turnover. However, dedicating staff time to keep the site up to date has been difficult.

Ongoing improvement actions:

Ongoing.

Recommendation 4. Proactively develop and implement a departmental laboratory operations and maintenance plan for all labs.

Assessment method:

A committee has discussed issues and priorities to improve the laboratory wing.

Results:

We have made significant improvements on laboratory operation practices. This includes improved chemical ordering, inventory and storage. Sharepoint is utilized to provide guidance on hiring, training, equipment reservation, purchasing, and standard operating procedures. After online training is completed, lab managers review lab specific training for each new hire. When students finish, an exit interview with the lab managers is performed. This allows identification of samples, ensures proper labeling, and provides feedback on when/how samples are disposed.

Analysis of results and reflection:

The practices started about three years ago are continuing to be followed. There have been modifications, but overall, we have significantly improved lab safety and accountability. This was a major culture shift that has gone very well. With the construction of the Martin-Gatton Agricultural Sciences Building, we will have some changes in the Barnhart building, but it will be manageable. New faculty hiring will also cause further reorganization of lab space.

Ongoing improvement actions:

Ongoing.

Recommendation 5. Develop coursework and timeline to match PhD deliverables.

Assessment method:

Benchmark our program versus peer programs.

Results:

Benchmark data were obtained from our peer departments. There is still considerable discussion within the faculty.

Analysis of results and reflection:

Unless the bulletin is updated, we will continue to require the Graduate School minimum of 18 credits beyond an MS.

Ongoing improvement actions:

Ongoing.

Recommendation 6. Be proactive and build a strong relationship with the new Dean of the College of Engineering, and continue to collaborate at all levels to the benefit of both colleges.

Assessment method:

The department chair (or representative) will continue to attend the leadership meetings and events in both Colleges. The chair will meet with both deans once per semester to discuss issues and areas of strength.

Results:

The department is involved with events and meetings with both Colleges.

Analysis of results and reflection:

No additional changes are planned.

Ongoing improvement actions:

Continue to interact with both Colleges.

Recommendation 7. Recognize the importance of Extension with DOEs that promote faculty excellence in extension by allowing appropriate time on their major appointment.**Assessment method:**

Schedule a faculty meeting to revisit the BAE Statement of Evidences originally written in 2009 to insure they are still relevant. Vote on any changes within two years.

Results:

Initial discussions have been made. There is a new draft of Statement of Evidences. It is open for discussion and should be completed by May 2024.

Analysis of results and reflection:

There are new guidelines from the College on review processes for extension publications. It requires more work within the department. We hope to refill a staff position that would be able to help with the review process. The review process will also be helpful for evaluating the BAE Statement of Evidences related to scholarly activity. Evaluating peer reviewed journal articles is easy, there are impact factors and everyone understands the review process. With the wide range of outputs from extension faculty, it is difficult to evaluate relative to journal articles.

Ongoing improvement actions:

Ongoing.

Recommendation 8. BAE branding should focus on the unique systems approach and benefits for addressing complex challenges today in industry careers, research, and extension.**Assessment method:**

Two committees have partially overlapping tasks related to this item. The Student Recruitment and Outreach Committee (SROC) focuses on improving the number and quality of students entering the program their sophomore year. The Undergraduate Curriculum Committee (UGCC) manages student issues from sophomore year to graduation. Each committee is tasked with developing strategies to improve student recruitment and retention.

Results:

Both committees have been active. The SROC has focused on the FYE information sessions, student events, E-Day and other activities. We expect to update our website with Ag Communications. This will require new videos, photos, text, etc to keep the website attractive to potential students. Surveys of current students continue to indicate that a large number of students have made a decision to enroll in Biosystems Engineering in high school, primarily due to STEM activities, 4H, or FFA.

The ABET visit went very well. Since then, the UGCC has worked on curriculum changes. Senior exit interviews have indicated that CAD skills are lacking. We have removed two courses; CE 106 "Computer Graphics and Communications" and BAE 301 "Engineering Economics for Biosystems".

These credits will be split into two new courses in the department. The CAD course is BAE 205 that will replace CE 106. A sophomore engineering design course (BAE 206) will include one credit of engineering economics and focus on the building of projects and the tradeoffs in design and tolerances. This would allow an emphasis on the application of design, CAD, and engineering economics.

Analysis of results and reflection:

The work of the UGCC and SROC has considerable overlap. We need to survey existing students to see why they decided on Biosystems Engineering. This would help focus recruiting efforts.

Ongoing improvement actions:

We are continuing to discuss methods to recruit students.

Recommendation 9. Consider developing a marketing/communication plan to address the potential impacts of a bachelor's degree in Biomedical Engineering.

Assessment method:

Rejected, this is being addressed as part of recommendation 8.

Results:

Analysis of results and reflection:

Ongoing improvement actions:

Recommendation 10. Work with the college to increase BAE alumni relations and development funds.

Assessment method:

Track the growth in gifts/development funds to the department. Develop a list of funding priorities to provide to alumni

Results:

The BAE Academic Showcase is the primary method to engage undergraduate students, faculty, staff, graduate students, and alumni. This highlighted scholarships, senior design projects and awards to alumni, graduate students, undergraduate, faculty, and staff. We had to cancel the event in 2020 and 2021. However, we have offered the event again in 2022 and 2023. We plan to offer the event in 2024. The goal is to recognize all parties within the department and provide an opportunity for alumni to return to campus to visit the department.

Analysis of results and reflection:

Developing relationships with alumni is a long-term process. We have focused on events where students, faculty, and alumni interact. We will continue the Academic Showcase and will look for other opportunities to engage alumni.

Ongoing improvement actions:

Ongoing.