



AUBURN
UNIVERSITY

OFFICE OF THE VICE PRESIDENT
FOR RESEARCH AND ECONOMIC
DEVELOPMENT

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**A Report of the
Associate Deans for Research
Strategic Planning Retreat
Conducted April 26-27, 2016**

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Executive Summary

A strategic research planning retreat was conducted on April 26-27, 2016. This retreat involved all the Associate Deans for Research, Deans, the Provost Office, University Business Office, University Senate leadership, representatives from Undergraduate Research, University Outreach, Alabama Agricultural Experiment Station, Alabama Cooperative Extension System, and many staff members from the Office of the Vice President for Research and Economic Development. This retreat was conducted to assess the progress since the first ADR retreat, to discuss effective means to bring Auburn's research to a new level, and to set a shared vision for Auburn research. Specifically, the retreat focused on five (5) topic areas: 1) Assessment of progress made since the first ADR retreat of 2014; 2) Tactics to be considered for growing Auburn's research; 3) proactive planning for transition into the strategic budget model for issues important for research; 4) Developing research metrics for enhanced research productivity; and 5) assessment of the cluster hires initiative. In preparation for this retreat, five discussion groups worked for several months prior to the retreat, and deliberations were made during the retreat. Through discussions before, during, and after the retreat, specific recommendations were made for each subject area, and 12 action items were recommended.

1. Background

This ADR retreat was conducted two years after the first ADR retreat conducted in April of 2014. The key finding of the 2014 ADR retreat was that the number of research-active/competitive faculty at Auburn University was low, presumably because our research is not well aligned with extramural funding trends. In addition, our lack of research expectations and relatively low standards for promotion and tenure may have contributed to the observed research productivity levels. Among the recommendations from the first ADR retreat, two key recommendations were: 1) Conduct cluster hires in strength areas at Auburn University to align Auburn's research with extramural funding trends and to enhance interdisciplinary collaborations; and 2) to increase research expectations. In 2015, the university adopted the key recommendation of cluster hiring, and initiated the very first round of cluster hires. Now that two years have passed since the first ADR retreat, it is time to determine what has worked and what has not, and what additional measures should be taken to enhance research at Auburn University.

In addition to all ADRs, a number of other senior-level administrators were involved for this strategic planning and goal-setting meeting (see below under "Participants"). For the sake of convenience, the term "ADR" will be used in this document to refer to all participants of the retreat.

In preparation for the day-and-a-half-long event, the ADRs met to establish primary goals, detailed below, and divided into five teams for in-depth discussion of each goal. An assigned chair for each team presented its findings and suggestions to the assembled group at the retreat,

as well as a summary of those presentations for Auburn's Provost and Deans at the concluding session.

2. Participants of the ADR Retreat

The participants included all ADRs, all Deans available on the morning of April 27, Honors College and Undergraduate Research leaders, the Office of University Outreach, the Provost Office, the Graduate School, FRC Chair and the University Senate leadership, leadership of Alabama Agricultural Experiment Station, and the Directors of Alabama Cooperative Extension System, as detailed in the table below.

NAME	Unit
Adhikari, Sushil	Faculty Research Committee
Aistrup, Joseph	Dean, College of Liberal Arts
Alavalapati, Janaki	Dean, School of Forestry and Wildlife Sciences
Bartol, Frank	College of Veterinary Medicine
Baumann, Melissa	Honors College, Provost Office
Bobrowski, Paula	College of Liberal Arts
Boosinger, Tim	Provost
Brown, Paul	Alabama Cooperative Extension System
Burgess, Ron	OVPR&ED Coordination Team
Clark, Drew	Research Assessment, Provost Office
Cook, Rick	University Outreach
Douglas, Amy	Business Office
Fasina, Oladiran	College of Agriculture
Evans, Lee	School of Pharmacy
Fillmer, Larry	OVPR&ED
Flowers, George	Dean, Graduate School
Giordano, Nicholas	COSAM
Greer, Rodney	College of Education
Hanna, Joe	College of Business
Hardgrave, Bill	College of Business
Henry, Ray	College of Sciences & Mathematics
Henton, June	College of Human Sciences
Huff, Julie	Provost Office
Johnson, Calvin	College of Veterinary Medicine
Johnson, Niki	OVPR&ED
Kerpelman, Jennifer	College of Human Sciences
Lemme, Gary	ACES
Liu, John	OVPR&ED
Lockaby, Graeme	School of Forestry and Wildlife Sciences

Malone, Amanda	Provost Office
Mason, John	OVPRED
Newschwander, Gregg	Dean, School of Nursing
Patterson, Paul	Dean, College of Agriculture
Ragland, Matthew	AUM
Relihan, Constance	Provost Office
Riese, David	School of Pharmacy
Roberts, Chris	College of Engineering
Robertson, Rodney	OVPRED
Rogers, Karen	College of Architecture, Design and Construction
Sanderson, Bonnie	School of Nursing
Shirley-Howell, Mary	OVPRED
Smith, Bret	College of Architecture, Design & Construction
Smith, Marcie	VP, Business & Finance
Taylor, Gene	OVPRED
Taylor, Martha	OVPRED
Teeter, Larry	University Senate
Trehub, Aaron	Library
Ventimiglia, Tony	OVPRED
Whitford, Betty Lou	Dean, College of Education
Winn, Emmett	Provost Office
Winslow, Scott	Educational Advisory Board
Wolf, Lorraine	Undergraduate Research
Zee, Ralph	College of Engineering

3. Discussion teams prior to the ADR retreat

Based on input collected from participants beforehand, five topics of discussion were established prior to the ADR retreat:

- 1) Evaluation of progress with recommendations from April 2014 ADR Retreat;
- 2) Recommendation of Tactics for Growing AU Research;
- 3) Smooth Transition into the Strategic Budget Model;
- 4) Developing Proper Research Metrics; and
- 5) Cluster Hires: Current Practices and Future Perspectives.

Discussion teams were established prior to the ADR retreat to discuss various issues related to the five topics above. The team members were much open for anyone to participate but were assigned a team leader for each of the five topics, as detailed below:

Committees	Tasks	Members and <u>chairs</u>
Topic 1 Committee	Evaluation of the success/failure of the recommendations that came out of the last ADR retreat	Bobrowski, Paula Hanna, Joe <u>Kerpelman, Jennifer</u> (committee chair) Lockaby, Graeme Sanderson, Bonnie
Topic 2 committee	Recommendation of tactics for growing AU research now	Adhikari, Sushil Brown, Paul Greer, Rodney Ragland, Matthew <u>Riese, David</u> (committee chair) Sanderson, Bonnie Shirley-Howell, Mary Teeter, Larry Trehub, Aaron
Topic 3 committee	Preparation for transition into the strategic budget model; proactive measures are needed to reduce potentially unintended adverse impact: <ul style="list-style-type: none"> o Graduate tuition waivers o Undergraduate research o IGP o Cost share o Startup o Interdisciplinary facilitation 	Baumann, Melissa Clark, Drew Fasina, Oladiran Flowers, George Greer, Rodney Hanna, Joe <u>Lockaby, Graeme</u> (committee chair) Rogers, Karen Wolf, Lorraine Zee, Ralph
Topic 4 committee	Developing proper research metrics	Adhikari, Sushil Bartol, Frank Bobrowski, Paula Fasina, Oladiran Greer, Rodney <u>Henry, Ray</u> (committee chair) Rogers, Karen Teeter, Larry
Topic 5 committee	Cluster hires: assessing and proposing for next round. Successes, best practices, problems, and solutions to the problems of the current round of cluster hires; what and when for the next round of the cluster hires	<u>Bartol, Frank</u> (committee chair) Henry, Ray Kerpelman, Jennifer Riese, David Trehub, Aaron Zee, Ralph

Each team was requested to prepare a set of findings and recommendations to be presented during the ADR retreat, which were used as a starting point for the deliberations of the retreat during April 26-27. After the discussions during the retreat, team leaders were requested to provide their respective group's findings and recommendations in summary fashion to the Provost and Deans during the concluding session of the retreat.

4. Major findings

Various issues related to research were discussed over a period of over five months, from October 2015 through April 2016. Through the course of these discussions, several thematic elements emerged, and some major findings were brought forth. These served as a framework from which recommendations and action items were developed.

The findings are summarized below:

1) Assessment of progress made since the first ADR retreat of 2014

Much progress has been made in the last two years since the first ADR retreat, and the progress is reflected in:

a) Increased visibility and attitude of valuing research

A new Research Advisory Board Research Award was established, the first round of the Cluster Hire Initiative was launched, the guidelines for Creative Research and Scholarship Award were updated to recognize outstanding researchers in both the sciences areas but also humanities and creative scholarship areas. Auburn University Research Week has transitioned into the *This Is Research* student and faculty symposium, a change that not only reduced the cost but also increased participation. An Auburn University Creative Scholarship Showcase was included as a part of the *This Is Research* activities. The Undergraduate Research Fellowships program was significantly expanded through cost share of the colleges, and increased flexibilities. Colleges/Schools sponsor their showcasing of graduate student research. Cool Research presentations were adopted for University Research Council to increase research exposure to audiences outside of the colleges/schools. Colleges/schools have their college level awards to recognize research excellence.

b) Research support

Auburn University strategic priority 3 specifically calls for increased research activities. Among many forms of research support, the university committed over \$14 million (over \$4 continuing and almost \$10 million onetime funds) for the Cluster Hire Initiative; The Intramural Grants program (IGP) continues to fund 20-30 (or more) projects annually; The OVPRED established a new Office of Proposal Services and Faculty Support, and the services of Hanover Research are being used to assist grant preparations. The OVPRED set up a Collaboration Corner in Foy Hall.

The Scholarship Incentive Program continues to pay out over \$1 million to approximately 40 some faculty members annually; AU shuttle allowed many faculty members to meet with potential sponsors of their research; In addition, many forms of research support exist in the colleges and schools. Some examples include: AAES Hatch Grant program continue to provide support to productive faculty, with a new focus of supporting postdoctoral fellows; CHS established the Center for Health Ecology Research; CLA has various grant programs supporting faculty research; CADC established the Center for Construction Innovation Grants; COAG conducted grantsmanship workshops; COEDU has a new College of Education Fund for Excellence and Advancement in Scholarship; COB has implemented a Summer Research Grant Program; SGOE is establishing the McCrary Research Institute, and leads the Auburn Cyber Research Center and the MRI Research Center; CVM has formalized agreements with UAB and HudsonAlpha that will advance research supports and opportunities; HSOP is building a new research building and expanding its core facilities; SFWS promoted the recognition of climate change as a formal research initiative; COSAM heads the new Statistical Consulting Center and led the recent acquisition of the \$1M supercomputer.

c) Research expectations

Academic Analytics is now increasingly being used to assess research productivity. Quality/quantity of refereed journal articles and extramural sponsorship are increasingly being used as key metrics in many departments. Some units have recently updated their P & T guidelines which reflect clearer and higher, and increased expectations for research productivity; annual evaluations reflect these updated guidelines. Some units report expansion of efforts to assess research productivity and regularly monitor the metrics being used.

d) Promoting Research Collaborations

In addition to the existing structure/programs for interdisciplinary collaborations such as various Centers and Institutes supporting collaborations, CMB Peaks of Excellence program, Boshell Diabetes program, Huntsville Research Center, new programs were launched in the last a few years, including AURIC, CHER, RFID lab, *This Is Research* lightning sessions, ALIAS, and collaborating with VCOM. OVPRED supported 12 mini-grants (\$500) subsequent to the 2015 lightning sessions held during the *This is Research* faculty symposium in order to promote ongoing collaborations. Some of the good examples of enhanced collaborative research included Auburn being a part of the national advanced manufacturing center (led by Dr. Pradeep Lall), Auburn signing an MOU with the Korea Institute of Technology, and USDA funding of a team led by Dr. Sushil Adhikari to strengthen the forestry industry in Alabama.

e) Supporting research infrastructure

With limited resources, Auburn has provided a high level of support for the research infrastructure, including supporting the MRI Center, the Statistical Consulting Center, the second Supercomputer, ensuring each College/School having an official ADR position with specific attributes/requirements, newly designed webpage for OVPRED and research specific web-pages

now present for most schools/colleges, re-organization of OVPRED with an Office of Proposal Services and Faculty Support, updated AU shuttle program with flexibility to fly over a 650-mile radius, upgrade of the state-of-the-art optical imaging core facility (ALIAS project). Finally, but significantly, almost \$10 million was committed to the startup packages for the Cluster Hire Initiative, which will significantly contribute to the research infrastructure at Auburn University.

f) Develop a culture of compliance

A culture of compliance is evolving. In addition to various training programs, additional programs/activities were adopted to enhance interactions with and support for faculty. For instance, PSFS hosts monthly lunches with new hires across different departments/colleges and introduces faculty to resources and programs for funding and compliance; IACUC and Biosafety/Risk Management are having interactions with units that are generally supportive; IRB is working with researchers to find viable solutions to challenges; CGA is permitting each investigator on an extramurally funded project to have a separate budget and account; expanding the scope of VWR contract pricing has reduced administrative burdens in purchasing; HR has shown improvements in supporting the needs of some units.

g) Insufficiencies and deficiencies

In spite of the progress presented above (a through f), there are many areas of insufficiencies and deficiencies: These included, but are not limited to,

- Lack of central support for core facilities makes AU less agile in responding to opportunities, although it has forced colleges/schools/users to be more accountable.
- Communications need to be enhanced between the faculty and the supporting offices to have a better understanding of the jobs they are doing. Auburn is extremely risk-averse such that it poses a research obstacle.
- The Scholarship Incentive Program (SIP) did not achieve its intended goal, although it was useful in a few cases in recruitment, retention, and rewarding productive faculty. In particular, it created some unfair situations between faculty with 12-month and 9-month appointments, and added unnecessary burdens to faculty to have salary savings.
- Low graduate student stipends and poor benefits packages reduce our competitiveness.
- Faculty are overburdened by teaching loads, prohibiting them from doing more research.
- Inconsistent credit to Co-PIs on projects and variability of ICRE policies across campus caused concerns for interdisciplinary teams.
- The 501c (3) could have been better utilized to help streamline some of the bureaucracy that is faced in a university environment, e.g., intellectual property issues, indemnification issues, etc.

Recommendations

1. Continue support for the Cluster Hire Initiative.
2. Hire and retain competitive research faculty.

3. Provide competitive startup packages.
4. Overhaul the P&T practices to advance/sustain competitiveness.
5. Support and reward research productivity and set appropriate metrics for success.
6. Ensure state-of-the-art research infrastructure.
7. Minimize barriers to research.
8. Allocate funds to OVPRED annually to maintain and upgrade core research equipment and facilities.
9. Reconsider SIP program, and perhaps replace it with some direct incentives, to reduce complications.

2). Tactics for growing AU research

In order to make recommendations of tactics that will further enhance AU research, factors affecting research were first analyzed. These included: Faculty hiring, support for faculty scholarly activity, support for applications for extramural grants and contracts, faculty retention, support for graduate education, and cultural and operational issues. 35 tactics were discussed and ranked. The following are tactics ranked the highest:

1. Enhance P&T standards and research expectations. It was believed that five years of service should be the norm for consideration of promotion and tenure rather than the current four years. This would lead to a total of six years before being tenured and a total of 12 years before being promoted to full professor. This extension would allow a better determination of the candidate's quality and quantity of scholarly output. That recommended, however, flexibility should be available for early promotion of the most productive faculty.
2. Funds or mechanisms should be made available to provide competitive startup packages. The budget of OVPRED should allow strategic acquisition of major research equipment.
3. Make AU competitive in faculty salaries.
4. Develop a culture of service and problem-solving.
5. Faculty mentoring: Each department/unit should consider assigning a mentor (preferably research-active faculty) to all new and mid-career faculty.
6. Auburn University should consider development of more effective spousal hiring strategies.
7. OVPRED should provide support to interdisciplinary work to foster teams for extramural sponsorship.
8. Re-design the incentive program to provide direct incentives without complicated criteria such as salary savings, perhaps allow a proportion of indirect directly go to the generating faculty for unrestricted use including for onetime annual payment.
9. Review and evaluate all centers and institutes at Auburn University.
10. Develop unit-specific research metrics, and link performance with pay raises.
11. Enhance equipment-sharing and establish databases for research equipment.
12. Enhance communication of funding opportunities.

3). Proactive planning for transition into the strategic budget model for issues important for research

It is not clear how some programs/activities important for research will be affected by the implementation of the strategic budget model. In order to be proactively preparing for smooth transition into the strategic budget model, several issues were discussed. It was the committee's recommendation that ADRs make annual assessment of these and other issues important for research. Specific recommendations are as follows:

1. Graduate tuition waivers: It was recommended that the Deans continue the current practices of graduate tuition waivers, especially for Ph.D. students.
2. Support for the Undergraduate Research Program should be continued, although the budget should be allocated through the Provost Office.
3. The OVPRED should be allocated funds for grant applications, with a mandatory cost-share requirement.
4. Startup package should be competitive.
5. Standardize the policy on graduate tuition distribution.
6. Onetime bonuses should not be capped, but related to the indirect costs generated by the faculty.
7. Institution-wide programs, such as the *This Is Research* symposia and IGP, should be maintained.

4). Developing research metrics to enhance research productivity

Metrics and research expectations already exist in departmental P&T policies, but implementation varies greatly among units. Most often, such variations are reflected at the level of both quantity and quality. For STEM areas in colleges such as Agriculture, Engineering, Forestry and Wildlife Sciences, Human Sciences, Pharmacy, Sciences and Mathematics, Veterinary Medicine, commonly used metrics include grants/contracts, publications, patents, number of graduate students (especially Ph.D. students), and citations and other impact such as economic, social, environmental impact, among others. For social sciences, humanities, and creative research areas, books, national exhibitions and creative products may be more important, although the metrics for STEM areas can also reflect the scholarship. While quantity is important, quality is very important. Some departments, e.g., several departments in the College of Business, require publication of at least two papers a year in tier-one journals (top-tier journals in the field).

It was recognized that continued research productivity after P&T is crucially important for Auburn's success. Metrics must be properly used in various disciplines, and linked to tenure and promotion, as well as after P&T. Specifically, the following recommendations were made:

1. Promote a culture of excellence. Each department should establish a set of metrics appropriate for the field, reflective of both quantity and quality.

2. Identify and group disciplines that use common metrics, and identify standards and expectations by which metrics are applied.
3. Compare self-established departmental standards with measured metrics.
4. Recognize successful departments.
5. Identify and mentor departments that are not meeting their own expectations/standards.
6. Departments are responsible for implementation of high standards. Comparison with peer institutions should be reviewed annually, and change departmental leadership if necessary.
7. Overhaul of the P&T processes to ensure enhanced productivity and research output.

5) Assessment of the Cluster Hire Initiative (CHI)

From over 50 flash presentations, and a series of selection processes, five research clusters were selected for funding under the first round of cluster hires. A total of 42 positions are under search. While the assessment of long-term impact will be made over time, it is useful to assess the progress to date, the strengths and weaknesses of the process, and opportunities for improvement. There is overwhelming support for the CHI. Overall, the CHI was considered a positive and substantive effort aimed at advancing a culture of research at Auburn University. It engaged faculty, departments, colleges, schools and administration, broadened campus discussions related to the research enterprise, reinforced a culture of collaboration, identified strengths and opportunities for growth consistent with such strengths, defined institutional commitments to grow research/scholarship, and had a positive impact on the quality of applicant pools. Recommendations for improvements included the following:

1. The CHI program should continue, with the next round starting in 2017-2018.
 - a. Generally, the process followed for CHI round one can work for future rounds.
 - b. Broad participation should be encouraged, particularly by those working in productive and potentially competitive domains with less historical visibility.
2. Develop, recognize and reward practices that encourage integration of research clusters and related expertise into existing research efforts as appropriate to leverage these investments and improve overall competitiveness.
3. Encourage, recognize and reward strategic efforts to develop competitive inter- and trans-disciplinary research programs.
4. Secure a transformative level of support (through development and otherwise) in order to provide for a nationally competitive CHI program and growth of research infrastructure.
5. Be realistic and flexible with the CHI hiring timeframe.
6. Recognize that advancement of and investment in a culture of research constitutes an investment in the regional, national and global reputation of Auburn University as an institution of higher education.

5. Vision Going Forward

To conclude the 2016 ADR Retreat, Dr. John Liu, Associate Provost and Associate Vice President for Research, gave a presentation on the “Vision Going Forward for Auburn University

Research,” which highlighted several key areas in which incremental progress would enhance the university’s research enterprise. The near-term goal is to achieve R1 research university status under the Carnegie classification. To this end, goals should include:

- 1) Increase Ph.D. production, especially in social sciences and humanities areas;
- 2) Increase research expenditures;
- 3) Increase doctoral level, non-tenure track researchers such as research professors, research fellows, postdocs, and research associates.

Metric Area Needing Improvement	Suggested Goal and Timeframe
Social science Ph.D.s graduated	Increase to 30 per year within 5 years
Humanities Ph.D.s graduated	Increase to 30 per year within 5 years
Science & engineering research expenditures	Increase to \$150 million within 5 years
Non-science & engineering research expenditures	Increase to \$30 million within 5 years
Research expenditures total	Increase to \$180 million within 5 years
Doctoral-level research staff (head count)	Increase to 100 within 5 years
Research-active faculty (head count), defined as those who submit an average of at least 2 extramural funding proposals per year and obtain at least \$100,000 funding in STEM areas, or at least \$30,000 in non-STEM areas	Increase by 2 or more such faculty per department on average within 5 years

6. Key Action Items

From the recommendations, action items were selected based on feasibility and probable impact.

1. Review and revise promotion and tenure (P&T) practices in order to institutionalize a culture of scholarship and expectations of sustained scholarly productivity that will advance the reputation of the university, and contribute to sustained competitiveness.
2. Consider five years of service as the norm for starting consideration of P&T rather than the current four years. This would lead to a total of six years before tenure, and a total of 12 years before promotion to the rank of professor. Extension of the P&T calendar will provide more time for the candidate to establish programs and document achievements appropriate to their appointment, and will provide additional information required to assess performance metrics affecting P&T decisions. However, flexibility should be available for early promotion of exceptionally productive faculty.

3. Research expectations and metrics consistent with the discipline should be reviewed annually after P&T, and merit-based raises should be linked to such performance assessments.
4. Secure a transformative level of support (through development and otherwise) in order to provide for nationally competitive growth of research infrastructure and the research enterprise.
5. Continue cluster hires, with the second round starting 2017-2018. Before moving to the next cluster hire effort, the processes and initial success of the first round of cluster hires should be assessed. There are likely important lessons learned that will enhance the second round.
6. Provide competitive startup packages. A strong startup package, along with the level of starting salary, is the single most important factor for recruiting top talent.
7. Re-design the incentive program to provide direct incentives without complicated criteria such as salary savings, 12-month vs. 9-month appointment etc. (The current Scholarship Incentive Program allows up to 20% extra pay, but the criteria and the process are complex, and it is hardly viewed as an incentive program). One approach is to allocate 25% of indirect-cost recovery directly to the generating faculty member for unrestricted use, including program development and a one-time annual supplementary payment (up to 20% of salary).
8. Review and evaluate merits of all centers and institutes at Auburn University in a manner consistent with existing policies. Centers/institutes determined to be inactive will be sunsetted.
9. Continue graduate tuition waivers, especially for Ph.D. students and master's students, particularly where a master's degree is the terminal degree. The number of graduate students in each college will be used as a benchmark to measure growth of graduate programs.
10. The Intramural Grants Program (IGP) should be maintained, but its focus should be re-directed toward leverage, growing the research enterprise, and achieving the goal of R1 Research University status. Funds for the IGP will be allocated by the Office of the Provost.
11. The Undergraduate Research Program should be enhanced, with funding being budgeted from the Office of the Provost.
12. Department heads/chairs should be responsible for developing research-active faculty through strategic hiring, as well as by development and implementation of active mentoring and retention programs designed for existing faculty. Departments are responsible for defining performance standards and expectations. Centrally, departmental level comparisons with peer institutions should be reviewed annually. This information should be provided to heads/chairs of all academic departments, and remediation plans should be provided by

departmental leadership to the dean when trends in departmental performance relative to peers are sub-standard. Overall departmental performance should be used as a metric in assessment of department heads/chairs.

13. Determine if research metrics used by Carnegie Research Classification are fully reported by Auburn, such as Ph.D. production in various areas, STEM and non-STEM research expenditures, doctoral level research staff, etc.
14. The academic and financial sides of campus need to work together more closely in order to address the AU mission more effectively and efficiently. This will require development of practices designed to improve understanding of all non-academic, supporting units regarding the nature, purpose and goals inherent to the AU mission. Such practices should be designed to establish a culture of service that is supportive of the AU mission as realized through the leading efforts of the faculty, as well as their students, and academic staff working in support of complementary research, teaching and outreach activities. Representatives from supporting units should meet with the leadership of academic units periodically to discuss needs and procedures.