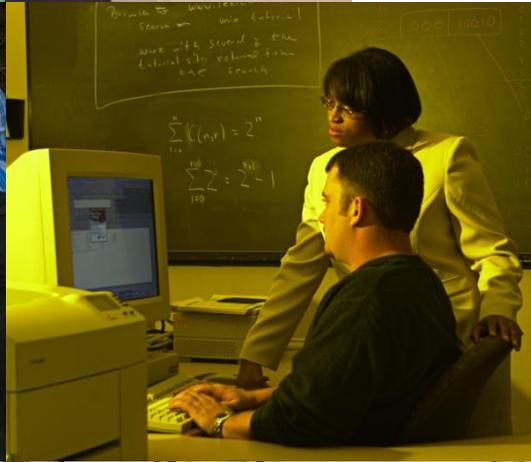


# A VISION FOR UNDERGRADUATE RESEARCH AT GEORGIA COLLEGE



## **BACKGROUND**

In August 2010, Georgia College was invited participate in an *Institutionalizing Undergraduate Research in STEM* project sponsored by the Council for Undergraduate Research (CUR) and funded by the National Science Foundation. To prepare for the intensive 3-day working conference in June 2011 with other COPLAC institutions, a team of faculty and staff met over the course of FY11 to initiate a self-study on the status of undergraduate research (UR) and associated practices at Georgia College. Although the COPLAC project is STEM-focused, the team directed its efforts on UR across *all disciplines* represented at Georgia College (Malachowski, 2011).

This white paper was crafted by the faculty/staff team in response to best practices learned at the CUR-COPLAC conference. It is presented to Dr. Sandra Jordan, Provost, as a recommendation for her consideration.

## **BENEFITS OF UNDERGRADUATE RESEARCH**

UR is quickly becoming a signature feature of the public liberal arts experience (Cech, 1999). Undergraduate students engaging in research acquire a spirit of inquiry and creativity, grow intellectually, develop leadership abilities, independence, initiative, sound judgment, persistence, alertness, and patience (Kuh, Kinzie, Schuh, and Whitt, 2010) – all of which are dispositions that lead to successful lives and high productivity (Kinkel and Henke, 2006). Moreover, strong positive correlations exist between this type of student engagement and increased student retention (Jones, Barlow, and Villarejo, 2010). UR allows faculty mentors to maintain enthusiasm, professional competence, and scholarly productivity. In several cases, the participating university gains regional, national, and international recognition and may become an institution of first choice for the best students. Collaborations beyond the campus involving current and future undergraduates have the potential of being transformational while at the same time, giving value to local communities.

## **MISSION STATEMENT OF SUCCESSFUL UNDERGRADUATE RESEARCH AT GEORGIA COLLEGE**

Georgia College aspires to graduate students with creative and problem-solving dispositions that prepare them to be the next leaders of the free world. As the state's designated public liberal arts university, Georgia College connects teaching excellence with learning beyond the classroom to provide unique UR experiences for students. A small student to faculty ratio coupled with student-centered faculty provides a platform for a faculty mentor to engage student-scholars in inquiry investigations that make an original intellectual or creative contribution to the discipline.

## **GEORGIA COLLEGE'S DEFINITION OF SUCCESSFUL UNDERGRADUATE SCHOLARLY ACTIVITIES**

1. **Mentorship:** collaborative; serious interactions; clear goals; focus on the student; focus on the student learning process; intellectual engagement of the student and disciplinary socialization (see attachment)
2. **Originality:** meaningful contribution by the student; should be entirely or partially novel; it is OK to reveal more questions than answers
3. **Acceptability:** employs techniques and methodologies that are both appropriate and recognized in the discipline; includes a reflective/ synthetic component that is appropriate to the discipline
4. **Dissemination:** ideally there needs to be a final, tangible product for which both the process and results are peer-reviewed, critiques, juries, judged, etc.; but we recognize that UR is a continuum between student (process centered) and outcome (product centered) activities and we value and recognize all student initiated participation in inquire in and outside of the classroom

## **UR AND GEORGIA COLLEGE'S STRATEGIC DIRECTIONS**

A review of Georgia College's new Strategic Directions (2011-2014) indicates that clear language exists for the university to engage in and promote superior UR experiences.

**Strategic Direction One:** *Exemplary Undergraduate Learning Experience - Build excellence and distinction in the Georgia College undergraduate educational experience consistent with the university's educational values and its undergraduate public liberal arts mission*

A plethora of compelling evidence on the benefits of UR has been published by CUR since 1990. Likewise, research by non-CUR institutions demonstrates related benefits. Texas A&M–Kingsville (TAMUK), for example, showed a 96% six-year graduation rate for participants in a formal UR program in Natural Resources and Wildlife Science versus 60% for the control group (Kinkel and Henke, 2006). Participants possessed an average pre-junior year GPA of 2.586 while the control group started out slightly ahead with a 2.591 GPA. However, by graduation, UR participants ended with a GPA of 3.025 compared to a 2.632 GPA by the control group. TAMUK participants also reported being better prepared for

employment, better organized, and having more clarity on the applicability of their schoolwork to the world of work. Since increased retention rates, graduation rates, and a high quality of education are priorities at Georgia College, research suggests that institutionalized UR will have a positive impact on these areas.

**Strategic Direction Two: *Respected provider of Graduate Programs in the Middle Georgia Region - Strengthen the university's graduate mission, which is to deliver graduate programs responsive to regional workforce needs***

Participants in the TAMUK study also reported an increase in confidence in their abilities as potential graduate students. In addition, more participants applied to graduate programs, with three times as many applying within one year of graduation, compared to the control group. The matriculation of well-prepared students to other universities will enhance our overall academic reputation.

**Strategic Direction Three: *Acclaimed Academic Programs/Distinctive Colleges & Departments - Enhance the academic reputation of Georgia College based on recognition of exemplary academic programs and the distinctive qualities and achievements of its academic colleges and units***

Georgia College has the potential to be renowned for UR among USG institutions. However, since UR is not institutionalized, our academic programs fall short of their full capabilities. Scholarly achievements such as publications, creative work, and other activities will provide distinctive, promotional materials in Georgia College's continuous campaign for national recognition.

**Strategic Direction Four: *Strong Partner for Creating a Better Community and State - Strengthen community and regional ties through programs, partnerships, research, and service that enhances economic, educational, and cultural opportunities***

UR provides a platform for faculty and students to contribute to their disciplines while at the same time, engage in partnerships that provide diverse, enriching services and experiences that build capacity in our regional communities.

**Strategic Direction Five: *Talented, mission-invested faculty and staff - Recruit and retain highly qualified faculty and staff who are invested in the university's mission, its students, and its commitments to reason, respect, and responsibility***

UR is a form of research support that provides multiple benefits to the faculty, staff, and students at Georgia College. However, UR is a large, undervalued portion of faculty load. Institutionalizing UR will lead to recognition of faculty time, talent, and scholarly contributions which, in turn, will elevate the institution's reputation when recruiting faculty and staff.

**Strategic Direction Six: *Effective Fiscal and Operational Performance - Continue to seek operational performance improvement and effective fiscal strategies, including the diversification of funding support***

UR will lead to friend- and fund-raising, grant-writing, and grants for research and scholarship funding. From discussion with faculty about UR, we have highlighted fiscal and operational areas that would benefit from improvement.

## **STATUS OF UNDERGRADUATE RESEARCH AT GEORGIA COLLEGE**

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A preliminary inventory of UR at Georgia College revealed that several practices and policies *encourage or support* student participation in UR. These include (a) required capstone courses by all students; (b) the Experiential Transcript that provides an official record of student experiences beyond the classroom including UR; (c) the annual *Student Research Conference* to showcase research findings (16 years); (d) *The Corinthian*, the university's student research journal; (e) *The Peacock's Feet*, the university's undergraduate literary journal; (f) a faculty research grants program; (g) departmental initiatives, such as the *Chemistry Scholars Program*; (h) SGA-sponsored funding for travel to present UR; and (i) an annual *Excellence in Research and Publication Award* for faculty.

Elements at Georgia College that contribute to UR include (a) a fairly new liberal arts mission; (b) recognition of value-added by UR by administrators; (c) a faculty research grants program; (d) recognition of faculty receiving grants; (e) strong interdisciplinary and cross-disciplinary collaborations; (f) an Office of Grants and Sponsored Projects; (g) an Office of Institutional Assessment; (h) a Center for Program Assessment and Development; (i) a Science Education Center; (j) an Office of Academic Engagement; (k) the Honors Program; and (l) a new, flexible faculty evaluation process that can weigh mentorship.

## **INSTITUTIONAL CHANGE**

*Academically Adrift* (Arum and Roska, 2011) raises probing questions about the quality of the academic and social experiences of college students in the U.S. The authors suggest that the changing landscape of undergraduate education produces graduates without a range of requisite skills including critical thinking, complex reasoning, and writing. However, Lopatto and others (2009) provide compelling evidence that UR provides exactly the kind of high-impact learning experiences that engender such skill development in graduates. Further, according to NSSE, engaged forms of learning, such as UR, yield more educational effectiveness resulting in transformational student experiences.

## **RECOMMENDATIONS AND PROPOSED STRATEGIES FOR ADVANCING UR AT GEORGIA COLLEGE**

Towards advancing UR, we provide here a first set of recommendations for moving the program forward.

1. **Craft and assess UR learning outcomes** that are seamless, integral, and distinctive to the liberal arts education at Georgia College.
2. **Establish credit systems for faculty mentorship in departmental evaluation processes:** When asked to identify the top two barriers to conducting UR at Georgia College, 100% of STEM faculty respondents (38) pointed to teaching load/advising and administrative support. To mitigate this, we propose that departments investigate the following:
  - a. ***Flexible evaluation process for faculty to weigh mentorship***: develop a faculty load and evaluation process that recognizes UR
  - b. ***Flexible curricula within departments***: develop a process where UR and mentorship are counted as part of the curriculum
  - c. ***Digital Measures***: support a distinct input component dedicated to UR activities in the new instrument
3. **Establish a Center for Undergraduate Research:** Georgia College will profit from having an independent robust UR entity that facilitates infrastructure development including the following:
  - a. dissemination of research opportunities
  - b. assessment of UR activities' impact on retention, learning, skills, and dispositions
  - c. recruitment of students and faculty
  - d. collaborations with offices across campus to identify the maximum impact for potential student-scholars, funding sources, dissemination outlets, and capitalizing on intellectual property
  - e. faculty development coordination
  - f. student activity coordination including showcase opportunities
  - g. summer research opportunities
  - h. attracting external resources
4. **Provide funding for UR:** Georgia College will see a significant return on investment by annualizing funds for supporting/and advancing the research environment (that is, implementation and dissemination of UR).
  - a. fund student travel
  - b. fund student/faculty summer research
  - c. seed release time based on department engagement in UR

## **RECOMMENDATION SUMMARY**

Georgia College is already engaged in a number of successful UR practices. These practices provide a number of pathways for our institution to engage in strategic envisioning as a natural next step in advancing UR. We are optimistic that these recommendations, coupled with a carefully-crafted strategic plan, will allow the university to establish a coordinated and robust framework that seamlessly offers opportunities to any student and faculty interested in pursuing UR.

## ATTACHMENT

We recognize that mentorship as a relationship implies communication. Faculty might need to consider different strengths and weaknesses of students as a single mentoring approach/style will not fit all students. To this end, we present UR components of both the faculty and the potential undergraduate student perspective for consideration.

<b>Faculty perspective on UR as a process:</b>	<b>UR components</b>	<b>Student perspective on UR as a process:</b>
collaborative		collaborative
serious interactions		serious interactions with realized responsibilities
clear goals	<b>Mentorship as communication</b>	summary of clear goals as understood by the student
focus on the student		known learning habits
focus on the student learning process;		intellectual engagement of the student
intellectual engagement of the student		exciting and motivating
disciplinary socialization		time management
building community and long-term relationships		acknowledgement that work represents mentor, Department and University
meaningful contribution by the student	<b>Originality</b>	if you have an idea, discuss it with a professor
should be entirely or partially novel		all work should be entirely or partially novel (or at least have the potential based on significant literature search or discipline's body of work)
it is OK to reveal more questions than answers.		it is OK to reveal more questions than answers
introduces and teaches techniques and methodologies that are both appropriate and recognized in the discipline	<b>Acceptability</b>	employs and masters techniques and methodologies that are both appropriate and recognized in the discipline
at a reasonable time requires a reflective/ synthetic component that is appropriate to the discipline		includes a reflective/ synthetic component that is appropriate to the discipline
ideally there needs to be a final, tangible product for which both the process and results are peer-reviewed, critiques, juries, judged, etc	<b>Dissemination</b>	ideally there needs to be a final, tangible product for which both the process and results are peer-reviewed, critiques, juries, judged, etc
it is recognized that undergraduate research is a continuum between student (process centered) and outcome (product centered) activities		be prepared to discuss your research with different audience and recognize the level of details you need to cover in each (fellow student workers to national experts)
we value and recognize all student initiated participation in and outside of the classroom.		bring knowledge form the lab or field in the classroom

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