

## 2014-15 Annual Report Undergraduate and Creative Activities Program

### I. Narrative Description of the Status of the Discipline from a National Perspective (including emerging issues and trends)

Faculty-student collaboration in academic research and creative works is one of the most enriching and rewarding experiences on an undergraduate campus. In fact, this activity is so important that it is becoming one of the standards of excellence by which nationally pre-eminent undergraduate institutions are measured. According to George Kuh (2008, AAC&U), participation in a high impact practice such as faculty-student research at the undergraduate level, leads to deep learning that correlates with higher levels of student performance. Such engagement, argues Kuh, increases the frequency of meaningful interactions with faculty and peers. The net result is that students spend more time and effort in hands-on and collaborative forms of learning that contribute to the development of their analytical thinking skills. Interestingly, data suggest that a mentored research experience has benefits for all students, but particularly for students from underrepresented groups (e.g. Vieyra, Gilmore, Timmerman, 2011, CUR Quarterly) and in STEM disciplines.

More broadly, some institutions have begun to recognize that a well-conceived and managed undergraduate research program not only serves current students, but can also be an excellent tool for the recruitment of new students (e.g., Noji, 2011, CUR Quarterly). Showcasing faculty-student research is quickly becoming a primary public relations strategy that increases the visibility of academic programs and encourages students to become involved in research early in their academic careers.

At the College of Charleston, we believe that students who participate in faculty-mentored projects will gain a better appreciation for the nature of scholarly work. Faculty members who participate in these projects are expected to imprint understanding and love of scholarship on the students and to help the students develop skills appropriate to the discipline of the inquiry and also to develop improved communication skills. Furthermore, it is hoped that the faculty-student teams who work on collaborative projects will serve as ambassadors of excellence both on and beyond the College of Charleston campus.

### II. Program

- a. Mission statement: To provide grant funding that expands the opportunities for undergraduate students and faculty to work collaboratively on scholarly projects in the academic year and during the summer. In the context of this program, research and creative activities are defined as *“any intellectual, inquiry-based project undertaken by the undergraduate student that advances the knowledge of the student in an academic discipline, immerses the student in the culture of the discipline, and leads to new scholarly insights or the creation of new works that add to the wealth of the discipline.”*
- b. Program goals and their relationship to the College’s strategic plan:
  - i. Program Goal 1: To provide financial support for undergraduates at the College of Charleston to work on a research or creative project under the mentorship of a CofC faculty member.
  - ii. Program Goal 2: To provide sufficient financial support of faculty during summers so that they are encouraged to work collaboratively with students.
  - iii. Program Goal 3: To ensure access to research support for faculty-student teams across all disciplines represented at the College of Charleston.

- iv. Program Goal 4: To provide opportunity for students to pursue professional development within the context of their chosen discipline, particularly in terms of dissemination of the research results or creative products in appropriate academic or professional forums.
  - v. Program Goal 5: To provide training opportunities for students and faculty who are interested in learning more about faculty-student collaboration and strategies for successfully implementing collaborative projects.
  - vi. NEW Program Goal 6: To serve as a source of information regarding research opportunities locally, nationally and abroad for CofC students and to serve as an advocate for students and mentors participating in undergraduate research and creative inquiry.
- c. Strategies and tactics in the College’s strategic plan your department would place as highest priorities *(please consider this a preliminary and tentative list that would collectively provide a starting point for a workshop on strategic priorities this fall)*
- i. Strategy 1: Enhance the Undergraduate Academic Core
    - 1. Provide each student a personalized experience that integrates classroom learning with at least two the following: research and creative activities, civic engagement, study away, internships and peer education
  - ii. Strategy 2: Develop and Retain a Highly Qualified and Diverse Faculty and Staff
    - 1. Enhance resources for pedagogical innovation, faculty research, and creative activity through the re-establishment of a faculty development center. Incentivize faculty and staff to write and administer grants in all of these areas.
- d. Student Learning Outcomes of the program
- i. Learning Outcome #1: Student will be able to demonstrate knowledge and application of the “tools of the discipline” as a result of participation in a project funded by the URCA program.
  - ii. Learning Outcome #2: Student will demonstrate the professional skills of the discipline in the form of a poster or oral presentation at a professional conference and/or a publication in a professional journal.

### **III. Narrative Summary and Analysis of Departmental or Program Accomplishments**

The Undergraduate Research and Creative Activities Program had a successful and exciting year of supporting the collaborative work of students and faculty across multiple disciplines at the College of Charleston.

#### **Faculty Participation in Administration of Program:**

Academic Year Grants: A group of 19 faculty members, representing 19 different programs/departments of the College served on the campus review committee for MAYS, AYRA, and RPG funding requests. At least one faculty member from each school served on the committee. Committee members participated in 2 rounds of proposal reviews: September and November. Reviewers read a subset of the proposals submitted in the round and completed an online evaluation of each proposal. These individual evaluations were compiled, and the review team met to discuss/resolve discrepancies and to determine a ranking of proposals. Building on the work of previous years, the evaluation rubric for the proposals was refined so that final decisions about funding were based on more standardized, and thus valid, assessments of project quality and effectiveness of the mentoring plan.

**Faculty on At Large Committee:**

School	Department	Name
SOA	Theatre	McCabe, Janine
SOB	Econ and Finance	Evan, Jocelyn
SOB	Marketing and Supply Chain	Blose, Julia
SEHHP	Health & Human Performance	Rozzi, Susan
SEHHP	Education	White, Kelley
SHSS	Philosophy	Nadelhoffer, Thomas
SHSS	English	Carens, Tim
SHSS	Political Science	Liu, Guoli
SHSS	Religious Studies	Siegler, Elijah
SHSS	Psychology	Widholm, John

School	Department	Name
LCWA	Hispanic Studies	Gomez, Michael
LCWA	French, Francophone and Italian Studies	Signori, Lisa
SSM	Physics	Carson, Joe
SSM	Chem & Biochem	Doig, Marion
SSM	Biology	Rutter, Matt
SSM	Computer Science	Anderson, Paul
SSM	Geo & Env. Geosci	Callahan, Tim
	Academic Affairs	Diamond, Bev
	Honors College	Meyer-Bernstein, Beth

SURF grants: For the SURF review process, 20 faculty members from 11 different departments/programs and at least one representative from each school served on the review panel. Reviewers were sorted into two levels. At the first level, 7 multi-disciplinary teams of 2-3 reviewers each were created. Each reviewed 6-8 proposals focused on similar research questions and methodologies. Each of these teams ranked their proposals, eliminating any proposals that were considered to be of a quality that did not merit funding. These groups of ranked proposals were submitted to a second level of reviewers, a team made up of one representative from each of the six schools. This team made final recommendations for funding. As with the academic year grant process, evaluation rubrics were refined to increase validity and reliability.

**SURF 1<sup>st</sup> Level Review Committee:**

Name	Department	School
Nadelhoffer, Thomas	Philosophy	SHSS
Covert, Lisa	History	SHSS
Carens, Timothy	English	SHSS
Wofford, Claire	Political Science	SHSS
Widholm, John	Psychology	SHSS
McCabe, Janine	Theatre	SOA
Jones, Linda	Physics & Astronomy	SSM
Bares, William	Computer Science	SSM
Anderson, Paul	Computer Science	SSM
Leclerc, Anthony	Computer Science	SSM
Harold, Antony	Biology	SSM
Geslain, Renaud	Biology	SSM
Dustan, Phillip	Biology	SSM
Rutter, Matthew	Biology	SSM
Cory, Wendy	Chemistry & Biochemistry	SSM

Doig, Marion	Chemistry & Biochemistry	SSM
Heldrich, Rick	Chemistry & Biochemistry	SSM
Lavrich, Richard	Chemistry & Biochemistry	SSM
Taylor, Dawne	Chemistry & Biochemistry	SSM
Harris, Scott	Geology & Environmental Geosciences	SSM

**SURF 2<sup>nd</sup> Level Review Committee:**

Name	Department	School
Signori, Lisa	French, Francophone & Italian Studies	LCWA
Delaurell, Roxane	Accounting and Legal Studies	SOB
Calvert, Charlie	Theatre and Dance	SOA
Rozzi, Susan	Health & Human Performance	SHHP
Wilhelm, Jennifer	Psychology	SHSS
Van Horn, Brooke	Chemistry & Biochemistry	SSM
Flenner, Angela	Library	

**Grant Application and Award Activity**

Academic Year Grants (MAYS, AYRA, RPG): In total, 92 applications were received during the academic year, representing a total request of \$128,111.04; a 28% increase over last year. Of these, 66 proposals were awarded funding support for a total award of \$48,586. Requests exceeded the total available budget by \$79,525.04. In order to distribute funding among a greater number of applicants, 58% of MAYS and 75% of RPG awards were not fully funded.

Breakout by Award Type:

<b>MAYS</b> 26 Applications	\$ 93,382.04	Amount Requested
15 Awarded	\$ 32,198	Amount Awarded
<b>AYRA</b> 5 Applications	\$ 1,494	Amount Requested
5 Awarded	\$ 1,000	Amount Awarded
<b>RPG</b> 61 Applications	\$ 33,235	Amount Requested
46 Awarded	\$ 15,388	Amount Awarded

One focus of our planning and outreach has been to increase the diversity of disciplines represented among applicants and awardees. We have struggled to achieve that goal, as evidenced by the data in the graph below. Despite efforts to publicize that the opportunities for funding are not limited to the sciences (and psychology), to reach out to department chairs in disciplines outside the sciences, and to highlight the work of faculty and students in diverse disciplines through links to video and testimony on our website, we continue to receive the majority of applications from science disciplines (including psychology). In their defense, these applications are of the highest quality and represent an impressive record of mentoring students well; it is often tempting to fund all of the proposals in the sciences to preserve the quality of experience that we expect students to have in the URCA program. However, the review committee has focused specifically on reflecting the same diversity of disciplines in funding decisions that exists in the application process. This is not only a challenge for CofC, but for many

undergraduate research programs nationwide. In the past, we began actively seeking applications from the humanities, an initiative that was led by a team of faculty who attended a CUR conference on undergraduate research in the humanities in spring 2012. This year, we are encouraged by the increase in academic year applications from EHHP and LWCA who have not submitted in recent years and will continue our diversification efforts this upcoming year.

	SSM	HUM	SS	SOA	EHHP	SOB	LWCA	Library	FYE
<b>2012-13</b>									
<b>Applied</b> <sup>1</sup>	84%	5%	21%	2%	0%	0%	0%	0%	0%
<b>Awarded</b> <sup>2</sup>	78%	8%	25%	3%	0%	0%	0%	0%	0%
<b>2013-14</b>									
<b>Applied</b>	62%	7%	20%	4%	0%	1%	3%	0%	1%
<b>Awarded</b>	67%	7%	19%	2%	0%	0%	3%	0%	2%
<b>2014-2015</b>									
<b>Applied</b>	70%	3%	13%	3%	2%	0%	8%	0%	1%
<b>Awarded</b>	75%	3%	12%	3%	2%	0%	5%	0%	0%

<sup>1</sup>Reflects the percentage of the total number of MAYS, AYRA and RPG applications from each school.

<sup>2</sup>Reflects the percentage of total number of grants that were awarded to each school

**SURF Grants:** In total, 43 applications for SURF grants were received, representing a total request of \$264,320. Of these, 34 applications were awarded funding support for a total award of \$199,924.

<b>SURF</b> 43 Applications	\$264,320	Amount Requested
34 Awarded	\$199,924	Amount Awarded

Diversity with regard to Discipline:

	SSM	HUM	SS	SOA	EHHP	SOB	LWCA	Library	FYE
<b>Applied</b> <sup>1</sup>	70%	0%	14%	7%	7%	0%	2%	0%	0%
<b>Awarded</b> <sup>2</sup>	71%	0%	15%	6%	6%	0%	3%	0%	0%

<sup>1</sup>Reflects the percentage of the total number of SURF applications from each school

<sup>2</sup>Reflects the percentage of total number grants that were awarded to each school

**Dissemination of Results:** Although tracking of this outcome is ongoing, we have some insight regarding the dissemination of results through our RPG funding opportunity. Of the 46 students who received RPG funding to attend a regional or national conference during the 2014-15 academic year, 19 were also recipients of research support in the form of MAYS, SURF, AYRA, or other RPG funding at some point in their undergraduate career.

We recently surveyed faculty who had received SURF awards over the past 5 summers (2010-2014) and received information on 94 graduates. Of these, 30 students (32%) have completed formal dissemination. The majority of these were in the form of a peer reviewed manuscript, but we also included creative project dissemination in the form of software or set design. An additional 10 students (11%) of the students have a paper or creative project in final preparation for public dissemination.

**Documentation of Student Success:** We have recently initiated assessment on student outcomes for SURF grant recipients as noted above. Of the 94 graduates we have information on, an impressive 68% are enrolled or have completed post-graduate education. An additional 18% are currently applying or plan on applying for a graduate program. If those students are successful, that would translate to 86% of the prior SURF students that will be pursuing graduate work.

	Masters	MD	Pharmacy	PhD	PA <sup>1</sup>	Dental	Law	Total
<b>Enrolled or completed</b>	20% (19)	11.7% (11)	1.1% (1)	30.9% (29)	2.1% (2)	2.1% (2)		68% (64)
<b>Applying or intending to apply</b>	3.2% (3)	4.3% (4)		6.4% (6)	3.2% (3)		1%(1)	18% (17)

The percentage (number of students) pursuing post-graduate education programs. These data are based on data from 94 graduates who have received SURF funding over the past 5 years.

<sup>1</sup>Physician Assistant Program

**Celebration of Scholars Event:** At the end of each summer, the URCA program holds a poster session to showcase the faculty-student research that has occurred during the summer months. All faculty-student teams who receive SURF funding are required to present at this session. The event also includes submissions from faculty and students outside of the SURF program. In total, 92 faculty-student teams presented posters that displayed the results of their collaborations on Convocation Day 2014. This was the largest contingency since the inception of Celebration of Scholars which has seen a 22% increase in the number of student presenters over the past 5 years. The event was held in Stern Student Center and was coordinated with the Convocation schedule to encourage attendance.

### **Training and Outreach**

Campuswide Information Sessions: In an effort to better inform faculty and students about the opportunities offered through the URCA program and to provide guidance regarding the application process, two information sessions were held, one in the fall and one in the spring. In addition, Beth Meyer-Bernstein presented an overview of the program at New Faculty Orientation.

### **Faculty Development**

Enhanced Institutional Membership in the Council on Undergraduate Research: For 2011-12, the College of Charleston moved to an Enhanced Institutional Membership in CUR. With this membership, all faculty and students on campus are eligible to be members of CUR and to receive their publications and other electronic communications. As a result, the College currently has 122 faculty (48) and students (74) registered as members in CUR. If these same persons had joined as individual members, the cost to the College of Charleston would have been approximately \$6700 (vs \$3000 for the Enhanced Institutional Membership). Associate Professor Chris Korey was elected as a CUR Biology Councilor. His position in conjunction with our strong membership numbers made possible with the Enhanced Institutional Membership will serve to increase our national visibility in undergraduate research. Recently, a publication co-authored by Dr. Sorin Oprisan, Physics, his student, Steven Dix and a colleague from MUSC was featured in the Spring 2015 edition of CUR Undergraduate Research Highlights. Steven's work was funded in part by a SURF grant from URCA.

### **2014-2015 Goals and Accomplishments**

Over the past five years, we have worked to refine the review process, to increase diversity in the program, and to provide opportunities for faculty and student development beyond simply funding grants. We will continue to

work toward improvement in these areas for 2015-16. Last year, we focused our efforts on four particular areas for advancement. We will continue to develop these areas over the upcoming year.

- 1) **Update application process.** A primary goal this past year was to review and refine the grant application process. Because the new URCA Director wasn't hired until June, the academic year award application process (MAYS, AYRA, RPG) remained the same from previous years. However, a new SURF application was launched December 2014 for the 2015 summer grant cycle. The new application consists of a short (Part I) hard copy application that includes signatures and waivers. However, the bulk of the application (Part II) is now submitted electronically. Guidelines for the applications have been revised and are now published in a handbook that is available online. Faculty submitting grants had positive reviews of this new application process. Over the last few months, substantial efforts have been made to revamp the URCA submission process for all grant types. All URCA submissions will now use one grant application that has been modeled after the recently revamped SURF application. The travel grants (RPG) are unique and will still require their own application. The new forms will be launched by the end of May 2015.
- 2) **Assessment of Impact** – During the summer of 2014, an Associate Dean was hired who serves as the URCA Director. Assessment tools have been created and include student tracking and surveys for both students and mentors. We have begun collecting data this summer from those who have received URCA funding over the past 5 years, specifically SURF awards (included in report). We have also begun tracking current students and will continue to generate data that will contribute to our ability to assess the impact of the URCA program. We will also create a rubric to be used by faculty mentors that helps us to determine in a more standardized manner the extent to which students learn the tools of their discipline through the projects that URCA funds. Many of these assessment tools will be implemented this summer.
- 3) **Heightened Awareness of the Faculty-Student Research being Conducted at CofC** – This year, we launched an URCA Facebook page and updated the URCA website to include the Facebook feed. Facebook posts highlighting awards, presentations and publications by CofC students and faculty were posted regularly.

Starting in summer 2012, the Celebration of Scholars event was better integrated with the Convocation Day activities. We continued this initiative in 2013 and 2014. As we indicated in our report last year, the integration with Convocation Day was significant in increasing the visibility for the poster session. Due to the unavailability of Physician's Promenade, we held the poster session on the first and second floors of Stern Center. This venue worked very well and we received positive feedback from the attendees. We have worked more closely to integrate this even further with Convocation this upcoming year to further highlight this event.

- 4) **Increased Publicity of Research Opportunities** – Over the past few years, we made a concerted effort to spread the word about grant opportunities by updating website information, sending emails, providing workshops and strategically-placing posters/flyers around campus. This has resulted in a 20% increase in the total number of applications over the past 2 years. These efforts will continue this upcoming year paying special attention to ways in which we can utilize social media.

In addition to advertising URCA Opportunities, we made it a priority to encourage students to take advantage of other research opportunities that may be available to them. We identified nearly 30 national and international competitive summer research opportunities for undergraduates across a variety of disciplines. These were vetted for active programs and websites and organized by application date. A social media calendar was created and weekly posts were made on the URCA Facebook page. Currently, we have 123 followers of the URCA Facebook page and we hope to get up to 400 by the end of 2016. This upcoming year, we will be working to utilize social media in more strategic ways.

- 5) **Summer Programming for Research Students in the Humanities and Social Sciences** – In the summer of 2005, a Biomedical Skills course was initiated through funding from the National Institutes of Health SC-INBRE grant. The course was designed to augment summer research for science students receiving funding through INBRE and has continued with funding from the Howard Hughes Medical Institute Education Grant. Each summer, 15-30 students conducting research primarily in SSM attend a weekly seminar that covers topics including lab safety, scientific writing and research ethics. This course has been invaluable to undergraduate research students as an opportunity to work on skills outside of the laboratory. Using the Biomedical Skills course as a model, one goal this past year was to develop a discipline appropriate summer course for students in the humanities and social sciences. While there is still much work to be done on this, efforts are starting to provide programming to SURF students that have not been historically included in the Biomedical Skills course. This summer, SURF students from the social sciences will be invited to attend certain classes that would be applicable to their discipline. The URCA Director, in consultation with SURF faculty, plans to introduce professional development workshops for some of the SURF students this summer. We will continue to develop this in the upcoming year.