Models for Institutional Collaboration in Research, Teaching, and Learning  

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Research-extensive universities have been criticized for promoting research at the expense of teaching. This perceived imbalance in the research/teaching equation has been addressed by federal funding agencies, in particular the National Science Foundation (NSF), by linking research funding to broad national impact. One of the principal strategies in support of NSF goals is to foster integration of research and education at academic institutions.

Simply stating that the proposed research has social relevance is not sufficient to satisfy the Broader Impacts criterion. Researchers must provide a specific plan that indicates how the project will: (1) promote teaching, training, and learning, (2) broaden the participation of underrepresented groups, (3) enhance the infrastructure for research and education, and (4) disseminate results to enhance scientific and technological understanding.

An excellent model for leveraging the Broader Impacts criterion has been developed by the Center for the Integration of Research, Teaching, and Learning (CIRTL www.cirtl.net). The CIRTL mission is to enhance excellence in undergraduate education through the development of a national faculty committed to implementing and advancing effective teaching practices for diverse learners as part of successful and varied professional careers. Nearly 4000 academic institutions in the U. S. offer STEM (Science, Technology, Engineering, and Mathematics) undergraduate education, and most of their faculty come from graduate programs at ~100 research universities. Training graduate and postdoctoral students at these universities in effective instructional practices thus offers a powerful leverage point for enhancing the quality of undergraduate STEM education.

CIRTL exists as a network of diverse research universities that recently expanded to 25 members including The University of Georgia. Each institution in the CIRTL Network develops, implements, and evaluates programs and learning communities for graduate-postdoctoral-faculty development in teaching and learning. In addition, the institutions contribute to a cross-network learning community and associated programs that allow members to draw on the diversity of the CIRLT Network.

Three pillars underlie all CIRTL activities: teaching-as-research, learning communities, and learning-through-diversity. CIRTL programs prepare faculty to apply systematic and reflective use of research methods to enhance learning outcomes. This preparation is done within a community of shared learning and discovery, and explicitly recognizes the rich array of experiences, backgrounds, and skills among students and instructors.

The CIRTL Learning Community at the University of Georgia will provide graduate students and postdoctoral associates with professional development opportunities that enhance their understanding and application of contemporary pedagogy, teaching-as-research, and learning-through-diversity in the STEM disciplines. Current UGA programs will be integrated with new initiatives that (1) introduce service learning strategies in STEM classrooms, (2)
provide professional development in teaching for postdoctoral associates, and (3) revise the course required of all Teaching Assistants. Future Faculty Learning Communities (F²LCs) that support specific interests and connect participants across campus and across the CIRTL Network will be offered. Participants can tailor their involvement in the CIRTL Learning Community to fit their interests, schedules, and career goals. Three levels of engagement will be offered.

§ At the **CIRTL Fellow** level, all incoming STEM graduate Teaching Assistants will take a 3-credit graduate course that integrates the CIRTL core ideas with discipline-specific training to prepare them to teach undergraduate STEM courses. Other opportunities include seminars, workshops, and newly created F²LCs. The F²LCs will bring together graduate students, postdocs, and interested faculty members on topics closely related to their interests and needs.

§ At the **CIRTL Practitioner** level, students may enroll in graduate courses that will be developed to introduce the pedagogy of service learning for STEM classrooms. A project-based graduate course about teaching-as-research will be created to provide students an opportunity to design their own TAR projects. Students also may enroll in pedagogically-related UGA graduate courses, such as *Course Design* or *Active Classrooms*, that will incorporate the core ideas of CIRTL and provide an understanding of teaching-as-research. Enrollment in courses offered via the CIRTL Network will be encouraged. The UGA Teaching Portfolio Program will provide participants a formal process to document and reflect on their teaching practices related to the CIRTL core values.

§ At the **CIRTL Scholar** level, participants will complete teaching-as-research projects. The capstone activity will be the Interdisciplinary Certificate in University Teaching, which will require completion of a teaching-as-research project, substantial teaching experience, completion of the Teaching Portfolio, and nine hours of coursework related to effective teaching practices. Scholars also may conduct their teaching-as-research project as a component of earning a certificate in a specific area of interest, such as Service Learning or Multicultural and Diversity Studies.