

# *Center for Advancing Undergraduate Science Education* (CAUSE)

## **Vision and Objectives**

The Center for Advancing Undergraduate Science Education (CAUSE) represents a college level commitment to advancing our educational mission. Central to the vision of CAUSE is the belief that education is a scientific endeavor; that it can be studied and improved through research. For educational research to be impactful in shaping undergraduate science and mathematics instruction, it must be informed by the disciplinary practices of the fields and sensitive to the contextual factors surrounding the classroom instruction. An educational center housed within the College of Science is uniquely positioned to attend to both the disciplines and the contexts in which we teach. But more than that, an educational center housed within the College of Science provides a mechanism to elevate, value, and engage each other in our work as educators. It signals that our educational mission is central to what we do as a college and will provide opportunities for professional development, growth, and advancement through engagement with that mission.

To carry out this vision, we see CAUSE as having a dual thrust: one that focuses on “research to practice” and one that focuses on “practice to research”. The objective of our “research to practice” thrust is to support faculty in designing and implementing research-based instructional practices and strategies. This could look like instructional innovation grants, workshops, and one-on-one support offered by center personnel. There would also be avenues for faculty lead communities of practice around specific research based instructional strategies and general themes to develop. The objective of our “practice to research” thrust is to provide a supportive mechanism for professional development around conducting educational research. Again, this objective would be advanced by workshops and support services offered by center personnel and also more social and community building avenues such as journal clubs and research expos. Both thrusts will be carried out in partnership with existing centers and supports already on campus. Through such partnerships we aim to contribute to the university’s educational goals through collaboration.

## **Faculty Involved and Clientele Served**

### Center Administration and Personnel

Administrator: Dean Kevin Pitts, College of Science. The Dean of the College of Science will assume responsibility for fiscal oversight and accountability at the operational level.

Director: Dr. Estrella Johnson, Associate Professor Mathematics, Assistant Dean of Inclusion and Diversity. Dr. Johnson will have day-to-day authority for the fiscal, administrative, fiduciary, and programmatic/scholarly functions of CAUSE. Dr. Johnson will report to the Dean of the College of Science for all fiscal and administrative matters.

Associate Director for Research: Reporting to the Director, this disciplinary-based educational research will be a tenured professor with a .5 FTE appointment with CAUSE and a .5 FTE appointment in their disciplinary department. They will be responsible for the research-related professional development activities offered through the center, including workshops and one-one-one coaching. Anticipated state date: Aug 10th, 2024.

Assistant Director for Instruction: Reporting to the Director, this AP Faculty member will have a full-time appointment with CAUSE. They will be responsible for the instruction-related professional development activities offered through the center, including workshops and one-one-one coaching. Anticipated state date: TBD

Administrative Assistant: This staff member will assist with advertising, scheduling, and planning CAUSE activities. They will also serve as the business manager for the center.

#### Faculty Engagement and Clientele Served

Science faculty, predominantly from the COS but also from CNRE and CALS, will be invited to engage with CAUSE. Several social and informational activities each year serve as entry points. For faculty who become regular attendees of these activities, and more targeted workshops and communities, a title of “Scholar” will be available as a signifier of their increased participation. For faculty who wish to move beyond participation and work with CAUSE personnel to facilitate and lead CAUSE activities a title of “Fellow” will be available, along with compensation that recognizes their time and efforts.

Both the instructional and research focused supports would be available and encouraged for all faculty regardless of rank or job title, however there are faculty populations for which these activities would align particularly well with their job duties. In the COS there are departments in which instructional faculty do the bulk of the department’s undergraduate (and especially first-year) instruction. We see CAUSE as a mechanism for professional identity, and community, development for these instructors. Additionally, with the introduction of the Collegiate Faculty position, the COS now has a number of faculty for which educational research could be both a relevant and meaningful avenue for scholarship.

#### **Proposed Administrative Category**

CAUSE would be a “College Center” housed within the College of Science.

#### **Anticipated Resource Needs and Expected Sources**

##### Anticipated Resource Needs

Space (estimate 3000 sq ft.): 3-5 offices, class/conference room, smaller breakout rooms, co-working and social space

Personnel Salary: Director .5 FTE, Associate Director .5 FTE, Assistant Director 1.0 FTE, Administrative Staff 1.0 FTE

Events and Activities: workshops, journal clubs, trainings, seminar series, consultants, scholars in residence, conference travel, fellow stipends, publication fees, instructional innovation grants, research seed grants (estimated annual budget \$75,00-\$100,000)

Materials: One-time start-up costs (e.g., furniture, space renovation, faculty start-up), Annual materials (e.g., educational research tools, computers)

#### Expected Sources

CAUSE will be funded through the College of Science. That funding will be augmented with returned indirect costs associated with externally funded research supported by the center (e.g., grants awarded through the National Science Foundation's directorate for STEM education). Other sources for augmented funding could include internal grants and awards and philanthropic support.

#### Relationships to University Entities

The university's Center for Excellence in Teaching and Learning (CETL) and Technology-enhanced Learning and Online Strategies (TLOS) are natural partners for CAUSE. We envision a collaborative relationship, where faculty are directed to existing programs offered to CETL and TLOS when appropriate and events/activities are co-developed/hosted when possible. Additional partners include the Office of Inclusion and Diversity and the Inclusive Excellence group led by Dr. Jill Sible, as inclusive pedagogy will be an emphasis of the work done by CAUSE. CAUSE will also be in regular conversations with related academic units on campus, including Engineering Education and the School of Education. Both a stakeholder and an advisory committee will be formed to maintain and strengthen these relationships.

Thank you for your consideration. We look forward to continued conversations as we develop and strengthen our vision for this center.