



Community College Undergraduate Research Experience Summit

Summit Report Executive Summary

NOVEMBER 20-22, 2019 | WASHINGTON, D.C.

At the Community College Undergraduate Research Experience Summit, 120 thought leaders met in Washington, D.C., to discuss the role of community colleges in building, implementing, and sustaining undergraduate research experiences (UREs) in science, technology, engineering, and math (STEM) education and for career preparation.

The [American Association of Community Colleges \(AACC\)](#) convened the Community College URE Summit at the request of and with the support of the [National Science Foundation's Advanced Technological Education \(NSF ATE\)](#) program.*

The summit steering committee defined UREs as activities that use the scientific method and/or the engineering design process to promote student learning by investigating a problem where the solution is unknown to students or faculty.

Examples of UREs currently offered by two-year colleges include:

- Course-based research
- Internships
- Independent studies
- Honors projects
- STEM design challenges from real-world scenarios
- Competitions that blend academic and technical skills
- Mentored research that is part of a larger project

The summit used a think-tank approach to gather insights from community college and university educators, community college students and alumni, government officials, and representatives of business, industry, and nonprofit organizations.

Summit participants agreed that UREs are particularly effective for helping students gain knowledge as they take on the role of inquirers of scientific questions or

engineering design processes. These explorations often propel students to take “ownership” of their learning.

In addition, participants identified the top factors in the success of all types of UREs: their alignment with the college’s strategic plan and the support they receive from college administrators such as department chair, dean, vice president, president, and by college trustees.

The following recommendations were identified during the discussions of strategic working groups, which each considered specific topics. The key points made by the groups were collated and then shared on poster papers that were hung around the large meeting room for summit participants to read and prioritize during a gallery walk. To view the complete report, please see www.aacc.nche.edu/URESummit.

To scale and sustain UREs

- **DEVELOP** inclusive cultures that engage the community in discussions and plans for UREs, which should align with the priorities in institutions’ missions, vision statements, and strategic plans;
- **INCENTIVIZE** URE stakeholders—faculty, students, administrators, staff, industry partners, and others—with awards and public recognition;
- **COMPENSATE** faculty for time spent mentoring students doing research and providing opportunities for more students to participate in UREs as part of their teaching loads;
- **EXPAND** and sustain funding for UREs at community colleges;
- **DEMONSTRATE** the benefits of UREs by sharing quantitative data from program assessments and student outcomes, as well as qualitative data from student success stories and alumni testimonials;
- **DEVELOP** collaborations with student organizations; with faculty in and across departments and disciplines; among vocational and academic programs; between institutions; with stakeholder

*The NSF’s ATE program awards competitive grants to test innovative ideas for improving technician education in the advanced technology fields that are important to the nation’s economic health and security. Two-year college faculty members have leadership roles in most ATE initiatives, which are carried out in partnership with industry and other education sectors.

businesses; at research institutions; with government agencies; and with non-governmental organizations such as professional societies; and

- **TAILOR** UREs to the job market and local employers' needs and their willingness to offer internships, apprenticeships, and participation in competitions.

To sustain partnerships for UREs

- **ENGAGE** partners intentionally with frequent communication and public recognition;
- **FACILITATE** efforts to build and nurture relationships with partners;
- **DEVELOP** connections with local four-year colleges and industry to establish pathways for students as they move beyond UREs;
- **ESTABLISH** a URE partnership coordinator position;
- **DESIGNATE** URE support staff among grant writers, financial office staff, marketing team, and institutional planners;
- **GIVE** faculty release time to implement and manage UREs; and
- **BUILD** staff capacity and plan for leadership transitions within the URE program and the coalition that supports it.

To ensure equitable access to UREs in STEM

- **EDUCATE** faculty broadly about Universal Design for Learning concepts, cultural awareness, and disabilities that are visible and hidden;
- **EDUCATE** faculty and student mentors about implicit biases and other diversity and inclusion issues;
- **OFFER** UREs that are community-based or otherwise relevant to students to pique their curiosity and encourage them to persist;
- **PROVIDE** faculty with professional development about the various types of UREs to encourage more instructors to incorporate research questions in their courses, or to offer other types of UREs to reach more students;

- **EXPOSE** all students to research in the first semester (e.g., a library research project on a topic the student chooses);
- **RECRUIT** diverse faculty, alumni, and community groups to work with students in UREs;
- **FACILITATE** a sense of community among students that helps them persist when challenges occur;
- **OFFER** support services to meet non-academic needs and to eliminate obstacles that impede some students from participating in UREs;
- **BUILD** UREs into career pathways that are explained to students; and
- **ASSESS** needs, desires, and strengths of students using an equity/opportunity gap analysis that checks whether UREs are reaching students and if students are succeeding.

To measure the impact of UREs

- **DEFINE** student learning outcomes and URE goals up front;
- **PROVIDE** students with opportunities to showcase their UREs to the community via poster sessions, question-and-answer sessions, video vignettes, infographics, and other campus events;
- **DESIGN** assessment tool(s) to identify not only what people and initiatives are doing well, but what they could do better;
- **USE** multiple measures such as retention, completion, pre- and post-course assessments, student stories, and gap analysis;
- **HAVE** a feedback loop within the assessment process that is transparent to students;
- **COLLECT** stories and other metrics that augment institutional data;
- **WORK** with four-year institutions to obtain data about URE students' academic performance after they transfer;

- **CREATE** a standard set of assessment tools from which instructors can pick and choose;
- **PROVIDE** professional development workshops for two-year college instructors to learn how to use URE assessment tools and interpret results;
- **FIND** creative ways to track the longer-term effects after students have left college; and
- **TRACK** and emphasize how retention and graduation rates are affected by UREs.

Next Steps

The summit was convened to assist community colleges, NSF, federal agencies, and other stakeholders in accelerating the value and impact of community colleges in STEM workforce development. By examining and promoting UREs at the summit, the steering committee hoped to contribute to a community of practice that will advance student learning, success, persistence, and STEM program completion.

The information shared at the summit provided evidence of the enormous potential among community college faculty and administrators to shape UREs that

address students' educational needs and fit STEM curricula. Given the energetic support of UREs at community colleges that have scaled them, adoption of UREs by more two-year colleges could help accelerate the value and impact of community colleges in STEM workforce development.

The summit proceedings report aims to raise awareness of innovative UREs at community colleges and to highlight how UREs build STEM career skills, improve student retention and completion, and help students succeed in their careers. The report also is intended to stimulate URE-related proposals to the NSF's ATE program. On March 6, 2020, NSF issued a "Dear Colleague Letter" to ATE grantees inviting them to request supplemental funds for development and implementation of UREs in STEM that support workforce preparation of students at two-year institutions.

PDFs of the posters displayed at the URE Summit, detailed discussion notes, and videos of UREs shown at the event may be viewed at www.aacc.nche.edu/URESummit.



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