



Summit Promotes Research Experiences at Community Colleges

The American Association of Community Colleges (AACCC) convened the Community College Undergraduate Research Experience Summit on November 20 to 22, 2019, in Washington, D.C., with support from the National Science Foundation's Advanced Technological Education (ATE) program.

In collaboration with the Community College Undergraduate Research Initiative (CCURI) and the Council on Undergraduate Research (CUR), AACCC invited 120 thought leaders from community colleges, four-year colleges, business and industry, nonprofit organizations, and government agencies to the summit. Their discussions in facilitated working groups led to recommendations for building, implementing, and sustaining undergraduate research experiences (UREs) at community colleges.

Definition of UREs

UREs are 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

Recommendations for community college administrators are highlighted here. For the full report, executive summary, and specific recommendations for community college faculty, students, and partners, see www.aacc.nche.edu/URESummit.

UREs Help Community Colleges Attain Strategic Goals

Undergraduate research experiences (UREs) flourish at community colleges where administrators appreciate the potential for these active learning opportunities to help their institutions achieve positive student outcomes. Here are three examples of community colleges reaping the benefits of incorporating UREs into their strategic plans.

Community college students who participated in the City University of New York (CUNY) Research Scholars Program (CRSP)—a yearlong undergraduate science, technology, engineering and math (STEM) research experience—completed associate degrees at a significantly higher rate (59% vs. 50.2%) than their counterparts in the comparison group. CRSP students were more likely to earn associate degrees in STEM disciplines and persist in STEM bachelor's degree programs. (Nerio et. al., 2019).

Since 2009 Gaston College in North Carolina has built UREs into every associate of science (A.S.) degree program. A.S. enrollments have grown from 38 in 2010-2011 to 617 in 2017-2018. Passage rates in three gateway courses have also increased. (Gaston, 2019).

Pasadena City College's inquiry-based approach to active learning resulted in Hispanic students passing an introductory chemistry course and General Chemistry I and II at significantly higher rates than traditional lecture versions of the course sequence. For example, the overall success rate was 89.2% for the project-based learning classroom for General Chemistry II. (Burke et. al., 2020).

Administrator Support Critical to Expansion of UREs

Recognizing the critical role of campus leaders, the thought leaders who met at the Community College Undergraduate Research Experience Summit directed the following recommendations to administrators.

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; and

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.

Teachers See Improvements in Student Learning

98%

observed improvement in their students' STEM knowledge and skills.

(n=357)

97%

saw improvements in team building, critical thinking, and problem solving.

(n=361)

Almost all of the teachers whose students participated in the 2019 Remotely Operated Vehicle (ROV) Competition observed positive outcomes. Regional and international team ROV competitions are UREs organized by the Marine Advanced Technology Education (MATE) Center at Monterey Peninsula College and MATE Inspiration for Innovation, a nonprofit inspired and created by the principals of the MATE Center.

(MATE Inspiration for Innovation, 2019)

Employers say... "they are more likely to consider a job candidate who has participated in an internship, a senior project, a collaborative research project, a field-based project in a diverse community setting with people from different backgrounds, or a community-based project."

(Hart Research Associates, 2015)

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