

OUTREACH TO PARTNERS

Community College Undergraduate Research Experience Summit



Undergraduate Research Experiences Boost STEM Workforce Skills

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 during facilitated working groups led to recommendations for building, implementing, and sustaining undergraduate research experiences (UREs) at community colleges.

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

“The big thing to learn from competitions was how to fix something when everything goes wrong ... I picked up a lot of skills I didn't know were going to help me.”

*Reginald King, Copiah-Lincoln Community College Graduate
Mississippi State University Graduate
Hol-Mac Corp. Design Engineer*

URE Partnerships Offer Win-Win for Employers & Students

There are big roles for partners in the creation and operation of Undergraduate Research Experiences (UREs). Collaborations between community colleges and partners—from industry, business, nonprofit organizations, government agencies and professional societies—provide an array of opportunities to enhance students' learning and deliver more highly skilled technicians to the workforce.

By working with community college faculty as they begin developing authentic research experiences such as internships, partners influence the skills that students learn. By mentoring students involved in STEM competitions or serving as competition judges, partners serve as career models for students and sources of wisdom for a new generation of STEM technical workers.

When hiring recent college graduates employers say they look for individuals who demonstrate the ability to apply learning in real-world settings and who have had significant applied learning experience. (Hart Research Associates, 2015).

The potential for UREs to impart the skills employers seek makes them a win-win for both students and partners.

Definition of UREs

Undergraduate Research Experiences 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

Community College Undergraduate Research Experience Summit Recommendations

Learning Outcomes Employers Rate as Most Important:

- ✓ Written and oral communication skills
- ✓ Teamwork skills
- ✓ Ethical decision-making
- ✓ Critical thinking
- ✓ Ability to apply knowledge in real-world settings

(Hart Research Associates, 2015)

Teachers Report UREs Cultivate These Skills:

- ✓ Team building
 - ✓ Critical thinking
 - ✓ Problem solving
- (MATE Inspiration for Innovation, 2019)

Students Report UREs Led to Gains in These Skills:

- ✓ Observation Skills
- ✓ Analysis of statistical data
- ✓ Time management
- ✓ Computer skills
- ✓ Report writing
- ✓ Instrument calibration skills
- ✓ Oral presentations

(Mann & Wang, 2019)

Recommendations for Partners

The 120 thought leaders who attended the Community College Undergraduate Research Experience Summit directed the following recommendations to partners whose assistance in creating and sustaining UREs helps students, adds value in workplaces, and enhances the community.

To scale and sustain UREs

COLLABORATE with faculty as they develop URE networks with stakeholder businesses, research institutions; government agencies; and non-governmental organizations such as professional societies;

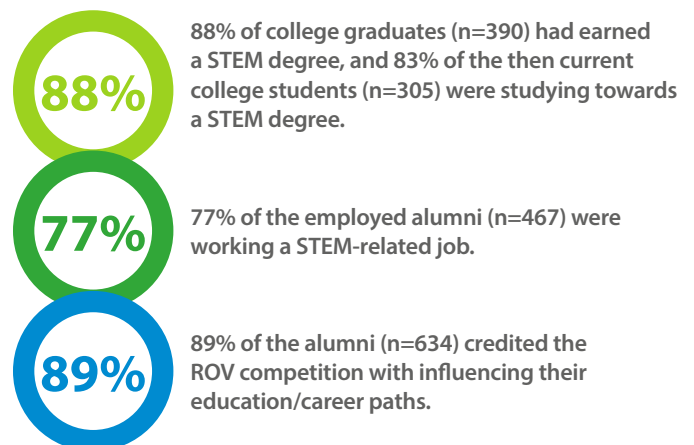
WORK with faculty as they tailor UREs to the job market and local employers' needs to prepare students for internships and apprenticeships; and

ASSIST with competitions.



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ROV Competitions Influence Students' Educational and Career Paths



Regional and international team ROV (Remotely Operated Vehicle) competitions are undergraduate research experiences 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.

(Mann & Wang, 2020)

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