



**Council on
Undergraduate Research**
Learning Through Research

Undergraduate Research Programs Conference 2019

"Building and Enhancing Undergraduate Research and Creative Inquiry Programs"

The Ohio State University, Columbus
June 27-29, 2019

Session 1: Friday, June 28th, 8:30–9:45 am

1. CUR 101: New Member Orientation

Friday, June 28th 8:30–9:45 am (Session 1)

Room: Schoenbaum 200

Robin Howard, Council on Undergraduate Research

Have you joined CUR but are not quite sure where to begin? In this session, learn about the member resources and benefits available with a myCUR login. There will be a short presentation followed by a Q&A session in a town-hall format. Bring a laptop or tablet to follow along in your myCUR account to customize your CUR experience.

Themes: Nuts and Bolts

2. Leveraging Campus Partnerships: A Collaborative Summer Program in Interdisciplinary Research

Friday, June 28th 8:30–9:45 am (Session 1)

Room: Schoenbaum 220

Luciana Aenasoaie, University of Michigan–Ann Arbor

Amanda Winters, University of Michigan–Ann Arbor

As today's problems are increasingly complex, requiring the expertise of multiple disciplinary approaches, researchers and scholars must navigate the unique challenges and benefits of interdisciplinary work. The Mcubed Scholars Program launched as a collaborative pilot initiative between the University of Michigan's Mcubed, Undergraduate Research Opportunity Program (UROP), and the Office of the Vice President for Research to address the unmet campus need of summer research internships for undergraduates interested in interdisciplinary work. This session will provide a glimpse into the program structure and lessons learned from this collaborative, cross-campus pilot initiative as well as a look into improvements for the 2019 program. Participants will engage in an interactive exercise to evaluate their own campus/unit gaps, identify partnership opportunities, and leverage resources to meet program goals.

Themes: Assessment, Nuts and Bolts, UR Collaborations

3. The Quick Pitch: An Undergraduate Model for Sharing Research and Creative Activity

Friday, June 28th 8:30–9:45 am (Session 1)

Room: Schoenbaum 230

David A. Salomon, Christopher Newport University

Karen Havholm, University of Wisconsin–Eau Claire

Dominique Galli, Indiana University

Several institutions now use short “quick pitch” or “TED Talk”-style presentation events or competitions to showcase and reward undergraduate research, creative activity, and entrepreneurship. These events give students the opportunity to share their work and ideas succinctly and persuasively with nonspecialists, thus dealing with one of the more significant issues we face: how to convey research, creative activity, and entrepreneurial ideas, and make them relevant to a broad audience. This session introduces the concept, describes the benefits and resource needs, provides examples and models in use at several institutions, and invites discussion of the potential to bring this model to NCUR and/or develop regional and national showcases or competitions.

Themes: Nuts and Bolts, UR Collaborations, Storytelling

4. Developing Your Plan to Build URSCA Mentoring into Faculty Workload, Tenure, Promotion, and Reward Structures

Friday, June 28th 8:30–9:45 am (Session 1)

Room: Schoenbaum 215

Janet Morrison, The College of New Jersey

Anne Boettcher, Embry-Riddle Aeronautical University

Karen Resendes, Westminster College (PA)

Juliane Soukup, Creighton University

The foundation of undergraduate research, scholarship, and creative activity (URSCA) is strong mentorship. To increase participation and effectiveness, and to ensure the sustainability of URSCA, faculty mentorship of undergraduate students needs to be a valued component of faculty workload, activity reports, and evaluation, including those that lead to tenure and promotion. However, the growth of URSCA nationwide has outpaced institutional efforts to value faculty mentorship. In this interactive session, the presenters will frame the challenges; provide best-practice guidelines based on their work with the CUR Faculty Workload, Evaluation, Promotion, and Tenure Task Force; and provide an opportunity for participants to begin developing a plan for their own packages, their departments, and their own institutions.

Themes: Assessment, Nuts and Bolts

5. Models for Augmenting Diversity and Inclusion in Undergraduate Research

Friday, June 28th 8:30–9:45 am (Session 1)

Room: Schoenbaum 205
Vanessa McRae, Franklin College
Prajukti Bhattacharyya, University of Wisconsin–Whitewater
Tracy Sikorski, University of Illinois at Chicago

This panel session will provide the audience with models aimed at augmenting diversity and inclusion in undergraduate research from the perspectives of three diverse institutions. The models will consist of (1) incorporating undergraduate research into international travel-study courses; (2) using external funding to employ different strategies for underserved populations to participate in undergraduate research, including summer research programs, course-embedded experiences, and mentored programs; and (3) introducing a successful model for engaging students from all classifications and disciplines in the research process through a structured zero-credit undergraduate research course. The panelists will provide program diagrams, discuss current data, and share success stories.

Themes: Diversity in Research, UR Collaborations

Session 2: Friday, June 28th, 10:15–11:30 am

6a. Using Esri ArcGIS Story Maps to Showcase Your Undergraduate Research Travel Grant Program

Friday, June 28th 10:15–10:30 am (Session 2)

Room: Schoenbaum 200

Susan A. Troop, University of Tennessee at Knoxville

The Esri ArcGIS Story Map platform can assist in showcasing a travel grant program on a website and in creating a historical record. The Esri Story Map application is visually pleasing, user friendly, and is easy to maintain with no coding required. It provides an easily navigable record of undergraduate research conferences attended by students and serves as proof of conference attendance for a travel grant program.

Themes: Assessment, Nuts and Bolts, UR Collaborations

6b. A Longitudinal Analysis of Self-Reported Student Gains and Project Outcomes to Assess Team-Based Research Projects

Friday, June 28th 10:30–10:45 am (Session 2)

Room: Schoenbaum 200

Cora Allard-Keese, Clemson University

Barbara Speziale, Clemson University

On the programmatic level, assessment strategies for large, multidisciplinary, team-based undergraduate research programs can be challenging. Clemson University's undergraduate research program, Creative Inquiry (CI), is a unique model of team-based research that is available in all

disciplines and to all undergraduate students. Since its inception in 2005, CI has supported more than 1,350 projects. More than 4,000 undergraduate students enroll in approximately 400 projects each year. Thirty percent of CI projects have been active for more than four years. This presentation will investigate whether analysis of self-reported student gains (in technical/scientific skills and soft skills) and overall project productivity is an effective strategy for longitudinal assessment of research projects and discuss how this metric can inform project funding.

Themes: Assessment, Nuts and Bolts

6c. Undergraduate Research and Classroom-Based Inquiry-Based Learning in Mathematics

Friday, June 28th 10:45–11:00 am (Session 2)

Room: Schoenbaum 200

Patrick X. Rault, University of Nebraska at Omaha

Inquiry-based learning (IBL) in college mathematics is a classroom technique that provides students with a taste of the research experience. The presentation will discuss how the outcomes of IBL mirror those of undergraduate research (UR), as well as how IBL can fit into a scaffolded UR experience in a mathematics major.

Themes: Diversity in Research, High-Impact Learning Strategies, STEM

6d. Utilizing Formative Assessment to Enhance Brain Cancer Cell Research

Friday, June 28th 11:00–11:15 am (Session 2)

Room: Schoenbaum 200

Amy Heston, Walsh University

Formative assessment of this honors research project, designed for nursing majors, proved to enhance student learning in chemistry, including tissue culture techniques. This project investigated the effects of thallium (I) ions and copper (II) ions on brain cancer cells (GBM). Sulforhodamine B (SRB) assays monitored overall cell death and the data support that both these ions possess anticancer properties. Formative feedback was provided throughout various stages of the project. Assessment data showed that this made a positive impact on student success and provided the opportunity for self-motivation, resulting in independent work. Ultimately, these actions proved to be critical to student success while enhancing the learning process and increasing self-efficacy in chemistry at Walsh University.

Themes: Assessment, High-Impact Learning Strategies, STEM

6e. Giving Feedback on Student Grant Proposals across Disciplines

Friday, June 28th 11:15–11:30 am (Session 2)

Room: Schoenbaum 200

Megan Wood, Northwestern University

Peter Civetta, Northwestern University

Undergraduate research proposals are a strong way to evaluate students' comprehension of research depth. Proposals give insight into the student's ability to (1) collect, summarize, interpret, and integrate sources for a literature review; (2) formulate an independent research question; (3) demonstrate a thorough development of methodological approaches; and (4) give insight into the student's plan for data evaluation/analysis. However, it can be challenging for mentors to provide clear feedback and strategies for students to improve a proposal when working with students outside of their discipline. This hands-on workshop will introduce a proposal structure that works across all research disciplines, provide more than 20 examples of annotated successfully funded proposals, and allow participants to practice giving feedback on draft-stage proposals.

Themes: Assessment, High-Impact Learning Strategies

7. Multiple Approaches: Using Financial Aid Awards to Support and/or Sustain Undergraduate Research

Friday, June 28th 10:15–11:30 am (Session 2)

Room: Schoenbaum 220

Jasmyne Rogers, George Mason University

Jaclyn Chastain, Florida Gulf Coast University

Kimberly Quedado, West Virginia University

Jennie Soberon, Florida Atlantic University

James McCargar, Baldwin Wallace University

This interactive session will explore models across several institutions that use financial aid funding, Federal Work Study, and Pell Grants to support undergraduate research. The panelists will describe their programs, answer questions, and participate in brainstorming of ways that programs could be implemented on their campuses. Attendees will hear about long-standing and new programs at several types of institutions and participate in discussions on ways to implement programs at their own institutions.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations, Funding

8a. Pitch It! A Shark-Tank Style Symposium to Promote the “Idea Phase” of Undergraduate Research

Friday, June 28th 10:15–10:30 am (Session 2)

Room: Schoenbaum 230

Amy Woodbury Tease, Norwich University

The Students to Scholars Symposium is an annual fall event at Norwich University that invites undergraduates to pitch a research idea in five minutes or less and receive immediate feedback to transform their idea into a focused research question or proposal. Piloted in fall 2012, this symposium has increased interest and diversified participation in undergraduate research campus-wide, providing a space for all students to “try out” ideas and network with an interdisciplinary audience of peers, faculty,

and community members. The event has become central to the campus undergraduate research program for its emphasis on process over finished products and created an inclusive and collaborative space for students and faculty to share resources and engage ideas from different disciplinary perspectives.

Themes: Diversity in Research, High-Impact Learning Strategies, UR Collaborations, Storytelling

8b. Reducing Barriers of Connecting through Outreach Initiatives

Friday, June 28th 10:30–10:45 am (Session 2)

Room: Schoenbaum 230

Andrea Thompson, Florida Atlantic University

Tracy N. Baker, Florida Atlantic University

The Office of Undergraduate Research and Inquiry (OURI) at Florida Atlantic University has developed a streamlined process of meeting with students interested in engaging in undergraduate research activities at the university. Topics of discussion will include the new Research Hub mobile and web app for the FAU Division of Research, Faculty Expert website, social media efforts, and tips on leading an advising session for students who wish to get started in research. These initiatives aim to simplify the process of connecting undergraduate students to potential research faculty mentors while making research opportunities more accessible to students.

Themes: Diversity in Research, UR Collaborations, Storytelling

8c. Cohesive Programming: One Campus's Attempt at Playing Nicely in the Sandbox

Friday, June 28th 10:45–11:00 am (Session 2)

Room: Schoenbaum 230

Wes Lewis, Embry-Riddle Aeronautical University

Does your campus have lots of programs but lack cohesive planning? The Embry-Riddle Office of Undergraduate Research—in partnership with the Honors Program, Center for Entrepreneurship, Center for Teaching and Learning, Hunt Library, and individual faculty—worked to highlight experiential learning and entrepreneurship on campus during a week in November. Each partner was responsible for hosting a particular program that fit within the general theme. The Office of Undergraduate Research hosted a Student Research Symposium with an academic fair to start the week; the TREP Expo showcased student business ideas and finished out the week. The partnership allowed for cross promotion and cohesive planning without competing for the same campus audience.

Themes: Nuts and Bolts, Storytelling

8d. FGCU Research Roadshow: Building Campus-Wide Collaborations to Create Community Outreach Events That Celebrate Undergraduate Research

Friday, June 28th 11:00–11:15 am (Session 2)

Room: Schoenbaum 230
Charles W. Gunnels, Florida Gulf Coast University

In the FGCU Research Roadshow, the president, foundation, marketing and communication office, and academic programs came together with FGCU Scholars to create a new community outreach program that celebrated faculty-mentored undergraduate research. Similar to TED talks (i.e., scripted presentations that incorporated multimedia elements), the roadshow was more expansive. All talks highlighted the educational opportunities that result from faculty-mentored research, shared researchers' motivations and processes, and focused on community interests and concerns. Three shows were produced this past year. Positive responses were overwhelming. For example, 99 percent of respondents said that they would encourage others to attend future roadshows. In addition, respondents described a deeper understanding about the institution, and new, unsolicited donations were received.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations, Storytelling

8e. Using Social Media to Broaden Undergraduate Research Engagement

Friday, June 28th 11:15–11:30 am (Session 2)

Room: Schoenbaum 230

Lizzy King, Michigan State University

Heather Dover, Michigan State University

In today's technology-driven world, it is important to embrace social media as a medium to engage with students by meeting them where they are while connecting with the broader campus community. This presentation will briefly discuss the results of implementing social media takeovers by undergraduate students at Michigan State University. The goal was to increase engagement across campus in content that relates to undergraduate research by allowing students to curate and share their experiences. Each student took a unique approach to sharing their story, ranging from photos of research experiences to "day in the life" live-video posts. By transferring control to students and partnering with other units, the audience was engaged more effectively, and the followers on each platform were increased.

Themes: Nuts and Bolts, Storytelling

9a. Graduates Linked with Undergraduates in Engineering (GLUE) Program

Friday, June 28th 10:15–10:30 am (Session 2)

Room: Schoenbaum 215

Ana Dison, University of Texas at Austin

Graduates Linked with Undergraduates in Engineering (GLUE) is a retention and career development program. GLUE is designed to address factors that cause undergraduate attrition and low rates of perseverance to graduate school. Through mentoring of mid-level undergraduates by engineering graduate students, GLUE aims to increase underrepresented students participating in undergraduate research as well as pursuing graduate degrees in engineering or in research careers. Undergraduate students earn credit for working on a research project, whereas graduate students gain valuable

experience in teaching and mentoring, learning delegation, project management, and communication skills necessary in a work environment composed of teams. Undergraduate students participate in a weekly seminar class. The GLUE program is conducted in both fall and spring semesters, with planning and execution activities happening year-round.

Themes: Diversity in Research, High-Impact Learning Strategies, Nuts and Bolts, Undergraduate-Graduate Collaborations

9b. The “Double Hoo” Award: Graduate and Undergraduate Partner Research Grant

Friday, June 28th 10:30–10:45 am (Session 2)

Room: Schoenbaum 215

Brian Cullaty, University of Virginia

Timothy Raines, University of Virginia

The Double Hoo Award at the University of Virginia provides a pathway for undergraduates into research through mentorship by a graduate student. This award is open to first-year, second-year, and transfer students, and encourages collaborative interactions between the undergraduate and graduate communities throughout the university. These collaborations provide undergraduates with opportunities for more advanced research. In addition to supporting undergraduate students, this award aims to support graduate student mentors in cultivating healthy and equitable relationships as mentors, colleagues, and educators. The Office of Undergraduate Research administers a mentor-mentee training for students receiving the award to promote a meaningful mentee-mentor relationship. This session will describe the program in further detail and share best practices of structuring graduate student mentorship in undergraduate research.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations, Undergraduate-Graduate Collaborations

9c. Undergraduate Research Collaboration: Student-Initiated and Faculty-Guided Interdisciplinary Research Connections

Friday, June 28th 10:45–11:00 am (Session 2)

Room: Schoenbaum 215

Doreen E. Sams, Georgia College and State University

Transformative Learning theory describes how critical self-reflection in examining one’s beliefs and experiences changes worldviews (Mezirow 1981). Opportunities for transformative learning are an integral part of a public liberal arts university. One valuable pathway is undergraduate research (UR). Data shows, however, a lack of exposure to UR during the early college years. Inspired at NCUR 2018 by the message of Ramu Damodaran on “Mentoring Unleashes Reasoned Actions through Collegial Engagement,” a student proposed a UR Mentoring Circle on return. This circle grew organically with a strong support of administrators and faculty for experienced student researchers to mentor novice

students across disciplines. The philosophy, processes, and outcomes of this circle inspired and driven by students will be shared.

Themes: High-Impact Learning Strategies, UR Collaborations

9d. Merging Systems Thinking with a Course-Based Research Experience in Organic Chemistry

Friday, June 28th 11:00–11:15 am (Session 2)

Room: Schoenbaum 215

Amy Deveau, University of New England

Integration of undergraduate research in curricula is a transformative practice in higher education. At the University of New England, a new organic chemistry sequence has been developed using a course-based undergraduate research experience (CURE) model. After three years, data from past student research projects are being infused into both the CURE and the traditional organic chemistry sequence. CURE students, including course alumni who are now serving as teaching assistants and research students, are front and center in this process. All students learn the value of sustainability principles, experience innovation as a direct result of applying knowledge that was generated in the CURE, and are stimulated to learn. Overall, the application of systems thinking has established a sustainable community of scholars in which CURE students can publish.

Themes: High-Impact Learning Strategies, UR Collaborations

9e. Jump-Starting Undergraduate Research: A Multimodal Approach to Getting Students Involved

Friday, June 28th 11:15–11:30 am (Session 2)

Room: Schoenbaum 215

Aubrey Kuperman, University of Central Florida

Tyler Campbell, University of Central Florida

Working on a large campus with a diverse student body has led the University of Central Florida (UCF) to develop a wide variety of venues where students can learn, regardless of major, about undergraduate research and scholarship as well as ways to get started. These include a three-day summer course, workshops, peer advising, a one-semester course, and noncredit online modules. This session will discuss the core content that is delivered in each of these modes, the resources necessary to facilitate each mode, and the evolution of UCF's offerings to reach new student populations. Session participants will work to develop or expand one pathway into research for their own campus and share their own efforts with attendees.

Themes: Nuts and Bolts

10. URSCA in the Humanities: What Works?

Friday, June 28th 10:15–11:30 am (Session 2)

Room: Schoenbaum 205
Aimee Knupsky, Allegheny College
M. Soledad Caballero, Allegheny College

This session will be led by the director of undergraduate research, scholarship, and creative activities (URSCA) and the co-principal investigator for the Andrew W. Mellon Collaborative Undergraduate Research in the Humanities grant at Allegheny College. Lessons learned will be shared about establishing vibrant, sustainable communities of student-faculty collaborations in the humanities. Discussed will be the materials, workshops, and data collected from across the five-year grant that informs a set of best practices for humanities-based undergraduate research experiences, which can be modified and leveraged for a variety of academic institutions. Specific examples, challenges, and possibilities will be offered concerning these partnerships and the ways they were fostered.

Themes: Diversity in Research, Nuts and Bolts, Humanities and Social Sciences

Session 3: Friday, June 28th, 1:30–2:45 pm

11. Fostering Faculty Buy-in for Meaningful and Measurable Assessment of UR and CUREs

Friday, June 28th 1:30–2:45 pm (Session 3)

Room: Schoenbaum 200

Heather Haeger, California State University–Monterey Bay
Corin V. White, California State University–Monterey Bay

This interactive session will provide examples and strategies for creating robust research and assessment plans for assessing the impact of research experiences both in and out of class. Examples from the Undergraduate Research Opportunities Center and course-based undergraduate research (CURE) Faculty Fellows program at California State University–Monterey Bay will be provided to demonstrate ways to engage an interdisciplinary team of faculty and staff to create assessment instruments and an assessment plan. Participants will learn how to identify meaningful and measurable outcomes for their course or program along with strategies for fostering faculty buy-in and creating a collaborative assessment instrument.

Themes: Assessment, High-Impact Learning Strategies

12a. Using Strategic Planning to Transform Undergraduate Research Infrastructure

Friday, June 28th 1:30–1:45 pm (Session 3)

Room: Schoenbaum 220

Shauna Reilly, Northern Kentucky University
Samantha Langley-Turnbaugh, Northern Kentucky University

The creation of institutes for student research requires a road map and significant resources. When developing a new institute, the presenters struggled to find a road map or even strategic plans for their development. Their experiences will be discussed regarding the development of a strategic plan in the creation of a new institute to guide the development, trajectory, and assessment of the institute. Their six-part plan addresses key issues in developing and maintaining an institute of student research: communication, data collection, funding, expansion of opportunities, dissemination, and assessment.

Themes: Assessment, Nuts and Bolts, Funding

12b. Utilizing a Cost-Share Model to Stimulate Undergraduate Research Initiatives and Stretch Limited Resources

Friday, June 28th 1:45–2:00 pm (Session 3)

Room: Schoenbaum 220

Emily Moerer, Temple University

Temple University, an R1 public university in Philadelphia, has used the cost-share model to effectively stimulate undergraduate research initiatives and stretch limited resources. In this budgeting model, half of the funding for student awards is paid by a central administrative unit (in this case, the undergraduate studies division of the provost's office), and half is paid by the dean's office of the student's home school/college. This short presentation will describe three undergraduate research programs that utilize the cost-share model, will explain the strategies behind the programs' development, and will share the specific benefits of utilizing this model within a large, decentralized research university, providing a useful model for undergraduate research administration and budgeting.

Themes: Nuts and Bolts, UR Collaborations, Funding

12c. Models for Fostering Research Collaborations between Faculty and Students

Friday, June 28th 2:00–2:15 pm (Session 3)

Room: Schoenbaum 220

Amy Woodbury Tease, Norwich University

This workshop will engage participants in a discussion about how to incentivize and institutionalize productive faculty-student research collaborations. The faculty development coordinator and undergraduate research program director at Norwich University collaborated on the design and implementation of the Apprentice Grant, a university-wide funding source to provide undergraduates with high-impact learning experiences and give faculty support for research projects and curriculum development initiatives. The goals of the Apprentice Grant are to increase faculty productivity and mentorship opportunities, and to introduce students to research and professional life by developing their communication, analytical, writing, and/or research skills. Using the Apprentice Grant as a model, workshop participants will be invited to share ideas for promoting and funding faculty-student collaborations and to produce plans for their institutions.

Themes: Diversity in Research, High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations

12d. CURCE's Strategic Alignment at University of Albany–SUNY to Provide Student Funding: Discussion of Year 1

Friday, June 28th 2:15–2:30 pm (Session 3)

Room: Schoenbaum 220

Casey Kohler, University at Albany–State University of New York

The Center for Undergraduate Research and Creative Engagement (CURCE) at the University at Albany–SUNY launched at the start of the 2018–2019 academic year, coinciding with the unveiling of the university's 2018–2023 Strategic Plan. The center's alliance with institutional priorities, specifically student success and research excellence, resulted in its receiving \$25,000 for spring 2019 as a Strategic Plan First-Year Accelerator initiative to provide financial support and grants to undergraduate students in their research, scholarly, and creative pursuits. The presenters will outline strategies for strategic alignment, grant program successes, areas for improvement, and goals for future institutional financial investment.

Themes: Assessment, Nuts and Bolts, Funding

12e. Collaborating across Campus to Develop a New Undergraduate Research Scholarship Program

Friday, June 28th 2:30–2:45 pm (Session 3)

Room: Schoenbaum 220

Amy Childress, Purdue University

JJ Sadler, Purdue University

The Purdue University Office of Undergraduate Research leveraged start-up funding with resources across academic units to develop a campus-wide scholarship. The OUR Scholarship recognizes undergraduate student engagement in original research, scholarship, or creative work under the guidance of a faculty or approved mentor. The annual scholarships in the amount of \$1,000 each are funded through an equal partnership agreement between the OUR and each of the participating units. The OUR benefits from the increased visibility across campus from both the marketing associated with the scholarship application process and the increased participation in affiliated OUR activities. OUR Scholars participate in research conferences and online classes, submit proposals for research and travel grants, attend research seminars, and submit manuscripts to the Journal of Purdue Undergraduate Research.

Themes: Nuts and Bolts, UR Collaborations

13a. Identifying Potential Research Mentors through the Scholarly Conversation

Friday, June 28th 1:30–1:45 pm (Session 3)

Room: Schoenbaum 230

Elizabeth Black, The Ohio State University

Finding potential faculty mentors can be a barrier for students seeking to become involved in undergraduate research, especially at large, research-intensive institutions. This session will discuss a workshop for first- and second-year students, designed collaboratively by a librarian and the Office of Undergraduate Research and Creative Inquiry at The Ohio State University that introduces the idea of a research conversation through publications. The approach includes teaching students to use a citation database to find potential faculty research mentors on campus who are active in research in their areas of interest.

Themes: UR Collaborations

13b. Meeting of the Minds: Connecting Faculty and Students through Networking Events

Friday, June 28th 1:45–2:00 pm (Session 3)

Room: Schoenbaum 230

Tracy N. Baker, Florida Atlantic University

Andrea Thompson, Florida Atlantic University

This brief presentation will discuss the research networking event “Meeting of the Minds” that engages students and faculty in a purposeful networking event. The Office of Undergraduate Research and Inquiry (OURI) at Florida Atlantic University leads a student organization of undergraduates who lead a panel presentation of faculty who are actively seeking undergraduates to join their research projects. Throughout the year, multiple meetings are hosted to target individual colleges at the institution, including a “Super Meeting of the Minds” that hosts multiple colleges to encourage the involvement in underrepresented research disciplines and interdisciplinary projects. Topics such as recruitment of faculty and students, panel questions, and organizational procedures of these events will be discussed.

Themes: UR Collaborations

13c. Scaling Up Undergraduate Research Participation

Friday, June 28th 11:15–11:30 am (Session 3)

Room: Schoenbaum 230

Chris Freire, Student Opportunity Center

The Student Opportunity Center (SOC) works with more than 150 college campuses nationwide, assisting them in increasing their undergraduate research and related participation by centralizing all available opportunity information as well as participation data. This centralization and consequent data analysis enable institutions to find the “experiential learning deserts” and undertake the necessary measures to address the needs of underrepresented student populations. The presentation will highlight several case studies on how some partner colleges and universities have adopted SOC’s Pathway to 100% initiative to reach previously underserved populations. The session will engage

participants in an interactive discussion on some best practices, as well as the role played by technology in expanding access.

Themes: Assessment, High-Impact Learning Strategies

13d. Why It's Important to Talk with Your Research Students About Employability Skills

Friday, June 28th 2:15–2:30 (Session 3)

Room: Schoenbaum 230

Andrea Karkowski, Capital University

AAC&U research indicates that only 34 percent of executives and 25 percent of hiring managers say that college graduates have the necessary skills and knowledge to advance in their careers. Research about undergraduate research has revealed that employability skills develop via undergraduate research, but there is always room for improvement. How can employability skills be made more salient to student researchers? Participants will learn about employability skills, how these are strengthened through research experiences, and how employability skills can be enhanced via undergraduate research.

Themes: Diversity in Research, High-Impact Learning Strategies

13e. Using a Mini-Conference to Promote Undergraduate Research

Friday, June 28th 2:30–2:45 pm (Session 3)

Room: Schoenbaum 230

Anna Carlin, Florida Gulf Coast University

Florida Gulf Coast University has started an annual event for students to present their research, which not only features students discussing their research but also highlights their experiences working with faculty, conducting research, producing scholarship, and presenting at conferences. The event is held at the beginning of the academic year and is a platform for promoting undergraduate research to other students. In addition to student presentations, faculty and staff provide professional development workshops. In this session, participants will learn about the implementation, challenges, and successes of this showcase of undergraduate research experiences (SURE), including the incorporation of humanities and the arts performances in the event.

Themes: UR Collaborations

14a. Leveraging Industry for Research Opportunities with Undergraduate Students in Engineering

Friday, June 28th 1:30–1:45 pm (Session 3)

Room: Houston–The Grove

Kuldeep Agarwal, Minnesota State University, Mankato

Louise Dickmeyer, Minnesota State University, Mankato

Undergraduate students in engineering have a unique opportunity of working in industry through internships and co-ops. However, the industry experience and collaborations also can be used by faculty to enhance undergraduate research experience for these students. Minnesota State University, Mankato works uniquely with several local and state-level industries through Minnesota Job Skills Partnership Grants. These grants provide funding for industry-university collaboration for workforce development. However, these trainings can be a seed location for undergraduate projects. This presentation will feature case studies that demonstrate how these trainings were used for research project identification and execution. Mentors from industry provided the resources for student success, and students were able to implement their research in real-world scenarios.

Themes: UR Collaborations, Industry

14b. A Different Model for Undergraduate Research: Co-Curricular Research

Friday, June 28th 1:45–2:00 pm (Session 3)

Room: Houston–The Grove

Kevin Kaufmann, Loyola University of Chicago

The predominant model of undergraduate research centers on a curricular approach. Each discipline fosters greater investigation of the subject at hand, from anthropology to zoology and everything in between. At some institutions, this has become a required part of the curriculum, not simply an elective, either through a dedicated research class or a capstone project. In some cases, both classes are required. Although this model is part of the Loyola curriculum as well, the greater amount of undergraduate research is done as a co-curricular activity. Students apply and, if accepted, are paid for their efforts. In addition, they have a research budget at their disposal to further and present their research. This presentation will outline this approach and share best practices.

Themes: High-Impact Learning Strategies, Nuts and Bolts, Co-Curricular

14c. The Hunger Consortium: An Academic and Community Engagement Feeder for Scholarly Projects

Friday, June 28th 2:00–2:15 pm (Session 3)

Room: Houston–The Grove

Sumana Datta, Texas A&M University

Thirty-six percent of students are food insecure; they worry about having enough food, skip meals, or cut down on meals due to lack of funds. Food insecurity correlates with higher stress, worse sleep, and lower grades, and is most common among underrepresented, low income, and first-generation students, who represent 25 percent of TAMU students. Food insecurity is real on campus and resonates as an important issue with students, staff, and faculty. TAMU's LAUNCH: Undergraduate Research is organizing the Hunger Consortium as a highly visible way for organizations, faculty, students, and staff to find collaborators and study food insecurity through research, scholarship, service, and education capstones while helping to address a critical problem.

Themes: Diversity in Research, High-Impact Learning Strategies, UR Collaborations, Community

14d. Corporate Creative Inquiry at Clemson University

Friday, June 28th 2:15–2:30 pm (Session 3)

Room: Houston–The Grove

Barbara Speziale, Clemson University

Cora Allard-Keese, Clemson University

Corporate Creative Inquiry is a new program at Clemson University that invites companies to engage talented undergraduates in industry-relevant research projects during the academic year. Students appreciate the opportunities to tackle real-world research topics and to become more familiar with specific industries. Companies benefit through one-semester or one-year interactions with students, in a context different than that of a typical off-campus internship. All projects are housed within multisection academic courses. Corporate Creative Inquiry projects engage undergraduate students in open-ended research topics that can best be addressed through iterative exploration, design, implementation, and evaluation cycles over two or more semesters. This presentation will discuss the benefits of Corporate Creative Inquiry and the process for developing student research projects.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations, Industry

14e. Creating Strategic Partnerships to Implement a University-Wide, Co-Curricular Record at Michigan State University

Friday, June 28th 2:30–2:45 pm (Session 3)

Room: Houston–The Grove

Lizzy King, Michigan State University

Korine Wawrzynski, Michigan State University

Heather Dover, Michigan State University

Bill Heinrich, Michigan State University

Heather Shea, Michigan State University

Participants in this interactive session will explore how human-centered design principles and a strong partnership with the Undergraduate Research Office guided institutional efforts to develop a co-curricular record (CCR) to track student learning outside of the classroom and an undergraduate research tracking system at Michigan State University. Multiple attempts at creating a co-curricular transcript yielded little success in past years, even as co-curricular activities, including undergraduate research, became more prevalent. Better records were needed to help leaders make data driven decisions. The human-centered design process enabled us to engage faculty, staff, and students in conversations to define, envision, strategize, and develop a plan for establishing a sustainable CCR that would document and track individual undergraduate research experiences across the campus.

Themes: Assessment, Nuts and Bolts, UR Collaborations, Co-Curricular

15. Arts, Humanities, and Creative Arts Projects: From Proposal to Review

Friday, June 28th 1:30–2:45 pm (Session 3)

Room: Schoenbaum 205

Peter Civetta, Northwestern University

Megan Wood, Northwestern University

This will be an interactive discussion on how to develop and support more participation in undergraduate research from students in the arts and humanities, including creative projects. The session will focus on sharing resources, including guides and rubrics for proposal writing and review, video resources explaining research from different disciplines, and annotated sample proposals. We will also discuss advising strategies for helping students learn to develop ideas/passions into actionable, achievable projects. Finally, we will explore faculty review, both the criteria used for proposal evaluation and the mechanism for providing useful feedback to students. The goal of the session is to provide people, particularly those from outside the arts and humanities, with tools and means to successfully develop and encourage more participation from fields without lab infrastructures in place.

Themes: Assessment, High-Impact Learning Strategies, Humanities and Social Sciences

Session 4: Friday, June 28th, 3:00–4:15 pm

16a. Undergraduate Research Program Collaborations at Florida Atlantic University

Friday, June 28th 3:00–3:15 pm (Session 4)

Room: Schoenbaum 200

Tracy N. Baker, Florida Atlantic University

Jennie Soberon, Florida Atlantic University

At Florida Atlantic University (FAU), several undergraduate research and inquiry programs focus on continuing investment in research throughout their undergraduate and postgraduate activities. This presentation will discuss the development of the Peer Mentor Program (PMP) and Summer Undergraduate Research Fellowship (SURF) at FAU, which emphasize professional development of students by further advancing research and leadership skills through connections and collaborations. This presentation will share best practices for individuals interested in developing or improving similar programs on their campuses.

Themes: UR Collaborations, Summer Programs

16b. An Alternative to the Cohort-Based Model: Creating Flexible Summer Research Programming

Friday, June 28th 3:15–3:30 pm (Session 4)

Room: Schoenbaum 200

Tyler C. Campbell, University of Central Florida

Aubrey Kuperman, University of Central Florida

The University of Central Florida runs a Summer Undergraduate Research Fellowship (SURF) with two tracks (emerging and publishing). As the program has grown, the model has been updated to meet student needs. Emerging Fellows choose five from a series of 10 workshops to best meet their needs for presenting a poster at the end of the summer. Publishing Fellows participate in a highly structured writing group with a set schedule; their goal is to draft a manuscript over the summer. This poster demonstrates the value of a diversified SURF model and its ability to provide a personalized, impactful experience for students. Student evaluations showed that participants were satisfied with their experience.

Themes: Nuts and Bolts, Summer Programs

16c. Plan for Engaging Current and Visiting Research Students in the Summer Scholars Program

Friday, June 28th 3:30–3:45 pm (Session 4)

Room: Schoenbaum 200

Emily K. Mitchell, University of Tennessee at Knoxville

This presentation is a “how-to” for engaging summer research students on campus through cohesive programming. The Summer Scholars Program at the University of Tennessee at Knoxville is an umbrella program for all current and visiting undergraduates engaging in research on campus. Whether students are participating in REUs, research internships on campus, or internships at the nearby Oak Ridge National Lab, this program brings them together through shared housing, professional development seminars, student-driven social activities, and friendly competition known as the House Cup Challenge. Details about programming structure, faculty support, administrative processes, and pitfalls will be discussed.

Themes: Nuts and Bolts, UR Collaborations, Summer Programs

16d. Small Group Seminars for Large Summer Programs

Friday, June 28th 3:45–4:00 pm (Session 4)

Room: Schoenbaum 200

Linda Blockus, University of Missouri–Columbia

The University of Missouri’s summer program serves as an umbrella for about a dozen different programs, including various NSF-REU sites and departmental programs. In addition to evening seminars two times per week for 100 students, weekly group seminars/workshops are offered so that students

may have a small-group experience. Students select a seminar based on their interests. Options include professional development topics, targeted skills, and scientific topics. Seminars are led by volunteer faculty and postdoctoral scholars. Topics have included journal clubs, scientific communication, evolution and society, 3D printing, and NSF GRF proposal development. Groups bring together students across different disciplinary programs and are a popular part of the summer experience.

Themes: High-Impact Learning Strategies, Nuts and Bolts, Summer Programs

16e. Responsible Conduct of Research for Undergraduates: A Professional Development Opportunity

Friday, June 28th 4:00–4:15 pm (Session 4)

Room: Schoenbaum 200

Catherine Stecyk, Villanova University

Chelsea Benincasa, Villanova University

Resources for research ethics and the responsible conduct of research (RCR) are typically targeted to audiences consisting of experienced researchers such as graduate students and faculty. Many undergraduates at Villanova conduct innovative research, so an interactive and discussion-based RCR training was developed specifically for summer undergraduate researchers. Students are required to participate in an RCR Workshop followed by discipline-specific, faculty-led discussion groups. Via a partnership with the Center for Research and Fellowships, Office of Research Protections, university librarians, and other university officials, students discuss the importance of research ethics, institutional resources, and topics that may be encountered as researchers at the undergraduate level and in the future such as plagiarism, research misconduct, data management, and authorship.

Themes: High-Impact Learning Strategies, UR Collaborations

17a. Using Data Science to Scale and Sustain Undergraduate Research Initiatives

Friday, June 28th 3:00–3:15 pm (Session 4)

Room: Schoenbaum 220

Ian Page, University of Maryland–College Park

The University of Maryland–College Park initiated the First-Year Innovation & Research Experience (FIRE) to provide authentic faculty-led research experiences, mentorship, and accelerated opportunity for first-year students from a wide range of academic backgrounds. To provide hundreds of new FIRE students an authentic research experience that will prepare them to join any FIRE research group in their second semester, the FIRE program iteratively developed, refined, and assessed a novel alternative to more traditional Research Methods courses. The course learning outcomes empower students to find, read, and understand primary literature; perform literature reviews; define and execute a novel research project with a strong focus on data analytics and visualization; and collaborate within the framework of a role-based team to deliver meaningful results.

Themes: High-Impact Learning Strategies

17b. Scaling Up and Rolling Out Course-Based Undergraduate Research

Experiences: A Case Study

Friday, June 28th 3:15–3:30 pm (Session 4)

Room: Schoenbaum 220

Ginny Greenway, University of Florida

Anne Donnelly, University of Florida

Christine Miller, University of Florida

Starting in 2018, the University of Florida undertook a course-based undergraduate research experience (CURE) initiative, with \$200,000 financial and institutional support from the provost, to jump-start 15 CURE classes spanning the sciences and humanities. Although the benefits of CUREs are well documented, the uptake of CURE across institutions and disciplines has been limited by a range of barriers faced by prospective instructors when it comes to developing and implementing them. This initiative aimed to remove these barriers by combining institutional financial investment with a dedicated support network. A multidisciplinary cohort of faculty have developed new CURE courses over an intensive six-month period, providing more than 200 first-year students with authentic research experiences.

Themes: High-Impact Learning Strategies, Nuts and Bolts, Curriculum

17c. The Source Project: Developing a First-Year Research Curriculum in the Humanities and Social Sciences

Friday, June 28th 3:30–3:45 pm (Session 4)

Room: Schoenbaum 220

Valerie Imbruce, Binghamton University–SUNY

The Source Project is a new program at Binghamton University–SUNY that provides first-year students with the opportunity to dive into research and work with various sources in small, interactive seminars. There is a focus on developing course themes consequential to the human experience so that theories and methods from the humanities and social sciences may be placed in the forefront. Students are led from semi-structured projects in the fall to open-ended projects in the spring. They present their work outside of the classroom and have the opportunity to publish. To build a reliable and replicable program, a careful assessment is underway of student experiences and perspectives on how they come to know and participate in human-centered research processes. The preliminary results from the first year of observations will be shared.

Themes: Assessment, High-Impact Learning Strategies, Freshman

17d. Successes and Challenges to Launch a Campus-Wide, Pre-Research Course at Iowa State University

Friday, June 28th 3:45–4:00 pm (Session 4)
Room: Schoenbaum 220
Svitlana Zbarska, Iowa State University

At Iowa State University, the new, one-credit, pre-research course for undergraduate students Integrative Undergraduate Research: Methods, Applications, and Communication Strategies was successfully introduced. This course aims to inspire undergraduate students from all majors to engage in research experiences on campus and apply for summer research programs. This course provides structured opportunities for students to be introduced to the world of research while equipping them with the basic knowledge to be successful in future research experiences. Each year, all class participants are asked to complete the entry, exit, and follow-up surveys so that learning outcomes for the course can be tracked and assessed. This presentation will discuss the successes and challenges of developing, organizing, introducing and assessing a campus-wide pre-research course.

Themes: Assessment, High-Impact Learning Strategies, Curriculum

17e. The First-Year Research and Artistry Experience (FYRE): Findings Are Not the Point

Friday, June 28th 4:00–4:15 pm (Session 4)
Room: Schoenbaum 220
Nicole Henderson, Southern Connecticut State University
Brian Johnson, Southern Connecticut State University
Dyan Robinson, Southern Connecticut State University

Some faculty worry that first-semester students are not ready to produce quality research. Their research questions will likely be shaky, their methodologies flawed, and their findings weak. However, what if none of that matters, because the quality of their methodologies and findings are not the point? Southern Connecticut State University faculty, inspired by a CUR conference and an AAC&U value rubric, developed the First-Year Research and Artistry Experience (FYRE), which was implemented in all 72 sections of the first-year seminar. Through “playing with FYRE,” new students experience curiosity, pride, joy, and ultimately a sense of belonging to the academic mission of the university.

Themes: Assessment, High-Impact Learning Strategies, Freshman

18a. RAMP: The Framework for RAMPing Up Undergraduate Research Participation through a Peer Mentoring Program

Friday, June 28th 3:00–3:15 pm (Session 4)
Room: Schoenbaum 230
Tina Zecher, Northern Arizona University

Northern Arizona University offers a number of research opportunities for students across disciplines, but despite marketing efforts, students often do not learn about research until later in their academic career. To help lower division students identify research opportunities, build confidence in their ability

to do research, and improve communication skills in contacting potential faculty mentors, NAU's Student Undergraduate Research Club partnered with the Office of Undergraduate Research and Creative Activity in 2018 to launch a peer mentoring program. In this session, the presenters will review the structure of the low-cost program, provide resources for helping students develop a Research Action Plan, and discuss successes and challenges as the program continues to grow.

Themes: High-Impact Learning Strategies, UR Collaborations, Peers

18b. Undergraduate Research Leaders: Moving from a Student-Utilizing to a Student-Led Model of Organizing

Friday, June 28th 3:15–3:30 pm (Session 4)

Room: Schoenbaum 230

Emily Kashka, Drexel University

Jaya Mohan, Drexel University

Established in 2014, the Undergraduate Research Leaders (URLs) is a student ambassador group for the Office of Undergraduate Research (OUR). Created to address a need for student representatives at admissions and recruitment events, the program has evolved into a community that provides immense value not only to OUR but also to students. This presentation will provide a brief retrospective on the unique challenges encountered in the establishment and growth of the program over time, review the program as it stands, and propose areas of growth. It will focus on the importance of incorporating student input and feedback in establishing opportunities for ownership, leadership, and professional development within the URLs, as well as how it can be used as a tool for improving OUR programming.

Themes: Nuts and Bolts, Peers

18c. Engaging Undergraduate Research Leaders: The Florida Undergraduate Research Leadership Summit

Friday, June 28th 3:30–3:45 pm (Session 4)

Room: Schoenbaum 230

Sophia Anagnostis, University of Florida

Jasmine Boone, Florida State University

Jeremy Bower, Florida State University

Edward Thinger, Florida Gulf Coast University

Amrita Ghaness, Florida Atlantic University

The Florida Undergraduate Research Leadership Summit (FURLS) in January 2019 was conceived by students at the University of Florida and developed by an intercollegiate planning committee of 15 students from across the state. FURLS sought to improve undergraduate research by engaging 42 student representatives from 16 Florida institutions to discuss best practices in undergraduate research leadership and to create a network of communication between these student leaders, largely through roundtable discussions and participant-led workshops. This presentation will review the significant consequences of FURLS, which represents efforts by students to play an authoritative role in improving

the culture of undergraduate research. FURLS participants hope to inspire other states to adopt a similar collaborative model of student leadership by sharing this experience.

Themes: UR Collaborations, Peers

18d. Creating an Undergraduate Research Society to Support and Connect with Prospective and Current Researchers

Friday, June 28th 3:45–4:00 pm (Session 4)

Room: Schoenbaum 230

J. J. Sadler, Purdue University

Amy Childress, Purdue University

The student-led Undergraduate Research Society of Purdue University connects students, staff, and faculty across campus, creating a research community that fosters researcher development and networking. The society, advised by the Purdue University Office of Undergraduate Research (OUR), serves as a low-stakes entry point for prospective researchers, a mechanism for peer-to-peer student growth, and a connection for faculty/administrators and student researchers. The process to achieve buy-in among the various academic units required upfront discussions of how students would benefit from the organization and what makes this society different from other Purdue opportunities. This session will address what was learned when the Purdue OUR collaborated with students to create a campus-wide undergraduate research society and how individuals could start the discussion at their own institutions.

Themes: UR Collaborations, Peers

19. Assessment of Undergraduate Research: The EvaluateUR Approach

Friday, June 28th 3:00–4:15 pm (Session 4)

Room: Houston–The Grove

Jill Singer, State University of New York–Buffalo State

EvaluateUR is a strategy for obtaining an objective assessment of the value of undergraduate research by documenting student growth in knowledge and skills. EvaluateUR provides outcome data that can be used by program directors to demonstrate the value of UR experiences while supporting student metacognitive awareness. It does this by integrating assessments directly into the research process, using student-mentor conversations centered on an assessment protocol to provide students with detailed feedback and support their self-reflection. With funding from the NSF WIDER program, SUNY Buffalo State, CUR, and SERC at Carleton College are refining and scaling up EvaluateUR, making it available to institutions across the country. This session will introduce participants to EvaluateUR and resources to support its successful implementation.

Themes: Assessment, High-Impact Learning Strategies

20a. The Research-Aligned Mentorship Program: Cultivating Academic Success among Minority, Low-Income, and First-Generation Students

Friday, June 28th 3:00–3:15 pm (Session 4)

Room: Schoenbaum 205

Erwin Cabrera, Farmingdale State College–SUNY

Beverly L. Kahn, Farmingdale State College–SUNY

In 2016 Farmingdale State College–SUNY (FSC) launched its Research Aligned Mentorship Program designed to assure that BS students stay on track, succeed academically, and graduate in four years. This is a research project that is designed to meet WWC standards for statistical significance without reservation. Through randomized control trial, a treatment group of 250 incoming minority, low-income, and/or first-generation students is selected each fall along with a matched control group. This comprehensive program culminates in a serious mentored research experience. FSC's effort is the focus of ongoing assessment that involves both data analysis and qualitative evaluation. Through assessment, FSC strives to improve the experiences of its students. FSC also endeavors to identify effective practices that can be replicated at institutions across the nation.

Themes: Assessment, Diversity in Research, High-Impact Learning Strategies

20b. Diversity Scholars Workgroup

Friday, June 28th 3:15–3:30 pm (Session 4)

Room: Schoenbaum 205

Jonathan Gore, Eastern Kentucky University

The Diversity Scholars Workgroup at Eastern Kentucky University fosters student contributions to their field through their unique cultural perspectives. Students are encouraged to find their personal voice and to talk about their own experiences and views openly. Next, students are encouraged to find gaps in their areas of study where diverse input and/or representation would be needed. Students then propose an improvement using their scholarly voice, which is presented as a proposal at a formal event during Scholars Week on campus. These proposals are then developed into mentored research projects, including funding from the Undergraduate Research Office at a maximum of \$1,000 each.

Themes: Diversity in Research

20c. Development of Accessible, Inclusive, and Equitable Undergraduate Research Mentoring through a Faculty Work-Group Model

Friday, June 28th 3:30–3:45 pm (Session 4)

Room: Schoenbaum 205

Colleen Marlow, California Polytechnic State University, San Luis Obispo

Jane Lehr, California Polytechnic State University, San Luis Obispo

Faculty mentoring practices affect undergraduate success and disciplinary demographics. Yet most faculty are not supported to develop an intentional mentoring practice. Training programs to address

this gap are undermined by perceptions that they are too time-intensive, are too theoretical, and cannot convey universal best practices because of disciplinary differences. The presentation will describe the development and impact of a faculty work-group model designed to create more accessible, inclusive, and equitable undergraduate research mentoring. It was piloted in summer 2018 using the CIMER Physics Mentor Curricula as a resource and starting point. Outcomes include a new reflection and knowledge production process that makes visible, documents, and prepares faculty to proactively respond to “opportunities for inequities” connected to specific elements of undergraduate research mentoring (e.g., student conference participation) within disciplinary- and institution-specific contexts.

Themes: Diversity in Research, High-Impact Learning Strategies

20d. Diverse Students, Diverse Needs, and Diverse Strategies in Community College Research

Friday, June 28th 3:45–4:00 pm (Session 4)

Room: Schoenbaum 205

Lara Beaty, La Guardia Community College–CUNY

Community colleges bring increasingly diverse students into institutions of higher education. As such, these students bring an increasingly diverse set of academic and personal needs. To improve the different markers of student success, research programs may benefit from a different orientation—one that addresses the diversity. This presentation will discuss strategies and problems from the Student Experiences Research Group to explore the processes of undergraduate research. The program is structured to prepare community-college students for four-year institutions with the understanding that they will be required to take formal research-methods courses after they transfer. The roles of agency, authority, collaboration, exploration, identity, and social support will frame the discussion.

Themes: Diversity in Research, High-Impact Learning Strategies

20e. Undergraduate Research at a Minority-Serving, Master’s Comprehensive Institution

Friday, June 28th 4:00–4:15 pm (Session 4)

Room: Schoenbaum 205

Angela Locks, California State University–Long Beach

Melissa Mahoney, California State University–Long Beach

The Undergraduate Research Opportunity Program (UROP) is a program to improve the retention of first- and second-year California State University–Long Beach students through the creation of research partnerships. The UROP combines best practices for student success by facilitating faculty-student research partnerships; offering peer advising; and hosting research seminars, skill-building workshops, and an annual research symposium. This session will provide an overview of the program rationale and components as well as address how to adapt this program, used at small liberal arts colleges and research-intensive institutions, to minority-serving institution and master’s comprehensive campus

environments. Attendees will discuss in small groups how the program may be adapted for other campus environments.

Themes: Diversity in Research, Nuts and Bolts

Session 5: Saturday, June 29th, 8:30–9:45 am

21. Practical, Time-Saving Solutions to Overcome Faculty Mentoring Barriers with Undergraduate Researchers

Saturday, June 29th 8:30–9:45 am (Session 5)

Room: Schoenbaum 200

Mary Margaret Kerr, University of Pittsburgh

New researchers need time to learn skills and make a meaningful scholarly contribution, yet faculty mentors face challenges in supervision. Faculty may be unable to put publications on hold to mentor undergraduates or have sufficient time to assist students with graduate school applications; funding may be unavailable for undergraduate projects, causing recruitment and retention problems; student class schedules may not have blocks of time to learn research skills; and IRB clearance may take considerable time for student research projects. The presenters will discuss each barrier; explain potential approaches; and illustrate these through video, interactive activities, mobile apps, student worksheets, and infographics. Participants also gain access to another website that contains more tools and blogs.

Themes: High-Impact Learning Strategies, UR Collaborations

22. Strategies for Connecting with Your Financial Aid Office: Work Study, Partnerships, and Advocacy

Saturday, June 29th 8:30–9:45 am (Session 5)

Room: Busch–The Palette

Angela M. Locks, California State University–Long Beach

Melissa Mahoney, California State University–Long Beach

This interactive workshop will describe various strategies to developing a partnership with a campus financial aid office. The first half of the session will discuss accessing federal work-study funds to support undergraduate research, collaborating on financial literacy workshops and models for outreach with financial aid colleagues and professionals. The second half of the workshop will provide participants with an opportunity to develop a plan of action for a strategic partnership with their financial aid office. The session will conclude with an exchange of strategies and ideas among attendees.

Themes: Diversity in Research, Nuts and Bolts, UR Collaborations, Funding

23. Undergraduate Research Journey Mapping

Saturday, June 29th 8:30–9:45 am (Session 5)
Room: Houston–1874
Sukh Matonovich, Thompson Rivers University
Will Garrett-Petts, Thompson Rivers University

This interactive session will explore how techniques designed for mapping local communities can be adapted to mapping university research cultures, making visible the lived experience of undergraduates coming to terms with research as both a concept and a disciplinary practice. Participants will be invited to create their own research journey maps, with the aim of comparing their assumptions, expectations, and experiences with those of the students. Participants will explore how inclusion of student voices and viewpoints can contribute to and possibly change undergraduate research planning and gain an enhanced understanding of how expert and official institutional representations of the research journey differ from those produced by students.

Themes: High-Impact Learning Strategies

24. Implementing a Research Learning Community: A Three-Institution Consortium to Impact Stem Student Success

Saturday, June 29th 8:30–9:45 am (Session 5)
Room: Houston–The Grove
Donna Chamely-Wiik, Florida Atlantic University
Kimberly Schneider, University of Central Florida
William Kwochka, Western Carolina University

The LEARN (Learning Environment and Academic Research Network) Consortium is a three-institution, National Science Foundation-sponsored collaboration to study and create research learning communities so that STEM retention can be enhanced. Building on the successful first-year student model F-LEARN, the presenters have expanded and adapted the model to include students transferring from two-year colleges to four-year institutions (T-LEARN). The three central components of these communities include engagement in research, tiered mentoring, and community building. Since these student populations face different transitional challenges, the model's core components have been implemented in distinct ways. The presenters will describe details on the three components of the two models, share strategies and challenges for effective collaborations to meet the needs of each institution, and explore how these programs can be extended to other institutions.

Themes: High-Impact Learning Strategies, UR Collaborations

25. Creating Opportunities for Global Learning in an International Research Program

Saturday, June 29th 8:30–9:45 am (Session 5)
Room: Schoenbaum 205
Marisa Moazen, University of Tennessee at Knoxville
Elizabeth Erbeznik, International Studies Abroad

Usha Mohunlol, Leiden University

With an increased focus on undergraduate research, campuses search for ways to maximize their capacity to serve students. One exciting way to increase the number of opportunities is by combining a traditional study abroad experience with a research experience. This presentation will summarize why undergraduate students should be encouraged to pursue a research experience abroad and discuss how research offices can facilitate these international opportunities. The presentation also will discuss methods used by the University of Tennessee at Knoxville, EuroScholars, and International Studies Abroad (ISA) as global learning is integrated into research programs that do not have a focus on language learning or culture. Student outcomes and strategies will be shared that can be implemented within different program models.

Themes: High-Impact Learning Strategies, Internationalization, UR Collaborations

Session 6: Saturday, June 29th, 10:15–11:30 am

26a. Infusing Undergraduate Research into the Curriculum: Tools and Best Practices to Support Curricular Transformations

Saturday, June 29th 10:15–10:30 am (Session 6)

Room: Schoenbaum 200

Donna Chamely-Wiik, Florida Atlantic University

Bethany Usher, George Mason University

Anne Boettcher, Embry-Riddle Aeronautical University

Course-based undergraduate research experiences are rapidly growing in popularity as a way to expand student involvement in undergraduate research. Student engagement embedded within coursework encourages students to develop key intellectual skills such as critical thinking, communication, and ethics. Engaging faculty in the process of curricular reform, including assessment of student learning, is critical to implementing a sustainable institutional-level curricular initiative. Such methods should include strategies sensitive to the faculty experience. In this session, participants will explore several tools created to promote curricular design and assessment practices, focused on a model of continuous improvement for a curricular initiative. Best practices to support such institutional transformations also will be discussed, incorporating perspectives from Florida Atlantic University, George Mason University, and Embry-Riddle Aeronautical University.

Themes: High-Impact Learning Strategies, Nuts and Bolts, Curriculum

26b. Using Faculty Learning Communities to Integrate Undergraduate Research into the Curriculum

Saturday, June 29th 10:30–10:45 am (Session 6)

Room: Schoenbaum 200

Heike Hartmann, Slippery Rock University

Brad Wilson, Slippery Rock University

In fall 2017, six faculty learning communities (FLCs) were established at Slippery Rock University, seeking to promote the integration of high-impact practices (HIPs) into the curriculum. Each FLC is a small, cross-disciplinary group of faculty and staff that works collaboratively to improve teaching and learning. The first FLC on undergraduate research was formed in spring 2018 with the aim of offering more students a research experience during their studies. During the FLC, the members revised or developed an undergraduate-level course with research as a main component. Successfully modified courses received the HIP designation for undergraduate research. This designation can be seen in course schedules and on transcripts. A second FLC on undergraduate research was conducted in spring 2019.

Themes: Diversity in Research, High-Impact Learning Strategies, Curriculum

26c. Time for a Big Shift: Creating a Research Culture at a Community College

Saturday, June 29th 10:45–11:00 am (Session 6)

Room: Schoenbaum 200

Alex Barr, Howard Community College

The presenters will describe a new, structured undergraduate research program in the Science, Engineering, and Technology Division at Howard Community College. The program is built around four research courses of one credit each that are taken sequentially, and students engage in multisequence, faculty-mentored research in small teams. Students share their original work through oral and poster presentations, and also have an opportunity to publish their research in the college's new peer-reviewed undergraduate research journal. The presenters will describe the content and structure of the research courses, share assessment data and student research products, and describe additional program elements such as the external advisory board. Significant time will be devoted to audience discussions regarding barriers community colleges often face when implementing undergraduate research programs.

Themes: High-Impact Learning Strategies, Nuts and Bolts

26d. Responsible Conduct of Research in the Undergraduate Curriculum

Saturday, June 29th 11:00–11:15 am (Session 6)

Room: Schoenbaum 200

Michelle Leonard, University of Florida

Anne Donnelly, University of Florida

Although undergraduate research has grown, students may not undertake formal training on the responsible conduct of research (RCR). Although the National Science Foundation and the National Institutes of Health require training for all receiving research stipends, the overwhelming majority of University of Florida (UF) undergraduates do not receive funding and have no formal RCR requirement. UF is one of the few institutions to offer a one-credit honors course on fundamentals of RCR. The UF Center for Undergraduate Research and Libraries are collaborating to rework course content into a series of online modules for all undergraduate researchers. The first module focuses on research

misconduct and the avoidance of plagiarism, with modules 2 and 3 concentrating on fabrication of data and falsification of data respectively. Each module offers goals, student learning objectives, and an assessment of new knowledge gained.

Themes: Nuts and Bolts, UR Collaborations, Curriculum

26e. The Evolution of an Undergraduate Research Project at Green River College

Saturday, June 29th 11:15–11:30 am (Session 6)

Room: Schoenbaum 200

Chitra G. Solomonson, Green River College

Students at Green River College have been fabricating and characterizing organic photovoltaic cells. What began as a small-scale collaboration with an R1 university in which students fabricate and characterize organic photovoltaic cells as part of a physics class has led to undergraduate research forming part of the strategic plan for the college. The evolution of this project will be discussed, including the challenges and rewards of its implementation in a two-year college.

Themes: High-Impact Learning Strategies, UR Collaborations

27a. Sustained Attention versus Selective Attention: Enhancing Undergraduate Research Experiences via Multiple Programs

Saturday, June 29th 10:15–10:30 am (Session 6)

Room: Schoenbaum 220

Dacia Charlesworth, Butler University

This presentation will highlight the development and implementation of the CHASE Scholars Program at Butler University, which has completed its first year. Recognizing that undergraduate researchers have different preferences for approaching research, the CHASE Scholars Program was created to complement the Butler Summer Institute. The nine-month CHASE Scholars Program allows undergraduate researchers who prefer to select from many factors (e.g., undergraduate research, classes, extracurricular activities) to focus on only one factor at a time while meeting multiple demands. Conversely, the nine-week Butler Summer Institute allows undergraduate researchers to focus on one specific task (i.e., their research project) for a continuous amount of time without distractions. The director of both programs will share insights from administrative, faculty, and student perspectives.

Themes: High-Impact Learning Strategies

27b. Some Best Practices for Sustaining Undergraduate Research at Primarily Undergraduate Institutions

Saturday, June 29th 10:30–10:45 am (Session 6)

Room: Schoenbaum 220

George C. Shields, Furman University

This session will highlight some best practices for supporting and sustaining research at primarily undergraduate institutions. Practical and creative examples of how faculty and students from all disciplines have been supported at private liberal arts colleges (Lake Forest College, Hamilton College, Bucknell University, Furman University) and a regional comprehensive university (Armstrong State University, now part of Georgia Southern University) will be presented.

Themes: Nuts and Bolts

27c. Academy of Undergraduate Researchers across Texas: A Collaborative Project between Texas A&M and University of Texas at Austin

Saturday, June 29th 10:45–11:00 am (Session 6)

Room: Schoenbaum 220

Sarah M. Misemer, Texas A&M University

Robert Reichle, University of Texas at Austin

This presentation will explain the process of the undergraduate research offices at Texas A&M and the University of Texas at Austin in developing the Academy of Undergraduate Researchers across Texas (AURA Texas), a collaborative partnership that benefits an elite group of interdisciplinary undergraduate researchers at both institutions. The presentation will discuss the project's evolution and purpose; opportunities for professionalization and networking for students; and the mission to engage in outreach about the worth of investment in higher education and research at the local, state, and national levels. Suggestions for implementation at other institutions also will be provided.

Themes: UR Collaborations

27d. Supporting Undergraduate Research Transitioning to a Center for Undergraduate Research at Northeastern State University

Saturday, June 29th 11:00–11:15 am (Session 6)

Room: Schoenbaum 220

Jessica Martin, Northeastern State University

Northeastern State University (NSU) is a regional, primarily undergraduate institution in Oklahoma that operates three campuses in close proximity with approximately 8,500 students. One special feature of the programs in the natural sciences at NSU is the fact that nearly 100 percent of graduates complete a one-year research experience. To support a focus on undergraduate research experiences, a three-component program was implemented in 2014: reassigned time banking, funds for research supplies, and funds for faculty and students to travel to regional or national meetings to present results. A Center for Undergraduate Research and Creative Activities was begun in January 2019. This presentation will include an update on the initial support program and the transition to a center.

Themes: Nuts and Bolts

27e. Undergraduate Research at The Ohio State University

Saturday, June 29th 11:15–11:30 am (Session 6)
Room: Schoenbaum 220
Lorraine Wallace, The Ohio State University

As The Ohio State University (OSU) is hosting for the Council on Undergraduate Research's 2019 Undergraduate Research Programs Conference, a representative of OSU's Office of Undergraduate Research & Creative Inquiry (OUR&CI) will offer attendees an overview of the office, descriptions of office initiatives, insight on resources for students, and office accomplishments over the past several years. The office, established in 2006, strives to nurture and support mentored research and creative projects conducted by all undergraduate students, as such experiences will enrich students' academic experience.

Themes: High-Impact Learning Strategies, Nuts and Bolts

28. Who Is Research? Multimodal Storytelling as an Inclusive Pathway to Participation

Saturday, June 29th 10:15–11:30 am (Session 6)
Room: Houston–1874
Tim O'Neil, University of Colorado at Boulder
Joan Gabriele, University of Colorado at Boulder

To broaden participation among underrepresented students and fields of study in University of Colorado at Boulder's undergraduate research program, an integrated, multimodal approach to storytelling is being pursued with active, engaging events and innovative outreach that foregrounds the campus' community of artists and scholars in metacognitive narratives. These narratives feature individual students, faculty mentors, programs, and departments. This experiential session features novel event formats (Sidewalk Symposium, UROP Symposium, and Best Practices Colloquium); coordinated communications strategies (The Lightbulb Moment); and a unique funding model to cultivate cultures of undergraduate research, scholarly work, and creative work across campus (Department Development Grants). Participants will explore, through small-group discussion and creative practice, flexible and budget-friendly solutions to scaling up programming while advancing inclusion and diversity goals in any institutional context.

Themes: Diversity in Research, High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations

29a. A CURE Centered on the Host Response to Foreign Materials and Cell Culture Research

Saturday, June 29th 10:15–10:30 am (Session 6)
Room: Houston–The Grove
Jacqueline McLaughlin, The Pennsylvania State University

Often overlooked in laboratory courses, suspension cells represent an important aspect of cell biology and cell culture research. Indeed, cells such as hematopoietic cells, certain tumor cells, and cells of the

immune system are suspension cells (anchorage-independent; they grow and divide in solution). THP-1 cells are a commercially-available, immortalized monocyte-like cell line derived from the blood of a patient with acute monocytic leukemia. These cells are an excellent model for suspension cell culture and studies of the immune system. Using a proven THP-1 adhesion assay and a tested CURE four-step pedagogical framework, a unique course-based undergraduate research experience (CURE) was developed and assessed that allows students to participate in the scientific process by testing viable substances that may prevent the host inflammatory response to implantable devices and biomaterials.

Themes: Assessment, High-Impact Learning Strategies, UR Collaborations, STEM

29b. Applying Scientific Knowledge (ASK): A Transformative Approach to Integrating and Scaling Up Undergraduate Research

Saturday, June 29th 10:30–10:45 am (Session 6)

Room: Houston– The Grove

Jason Deibel, Wright State University–Main Campus

The Applying Scientific Knowledge (ASK) Program provides a unique experience to students who join a cohort of other science majors and work directly with faculty early in their academic career. Second-year students conduct research side-by-side with their regular classes, allowing them to start applying their coursework in a practical setting. Students earn credit toward their degrees and are able to contribute to the larger projects within the research laboratories on campus. By removing perceived barriers and helping promote research early in their degree programs, ASK's goal is to help retain students within STEM, garner enthusiasm, and help transition them into internships and other research once they complete the program. The ASK program helps students to gain vital critical thinking skills and persevere in their field.

Themes: Assessment, High-Impact Learning Strategies, Nuts and Bolts, STEM

29c. Characterization of Urban Soils and Their Microbial Communities as a Course-Based, Two-Semester, Undergraduate Research Experience

Saturday, June 29th 10:45–11:00 am (Session 6)

Room: Houston–The Grove

Joan Petersen, Queensborough Community College–CUNY

A serious challenge of course-based research is the limited time available to complete a meaningful research project. This presentation will focus on the development and implementation of a project that continues over two successive semesters within environmental science and general microbiology courses at Queensborough Community College in Bayside, NY. Students begin an in-depth study of urban soils in an environmental science course that includes isolating actinomycete strains and screening them for production of antibacterial compounds. Strains are further characterized by microscopy and metabolic testing in the second-semester microbiology course, and molecular analysis (16s rDNA sequencing) is used for identification. Linking the research component of both courses allows for a much more comprehensive experience for students.

Themes: Assessment, High-Impact Learning Strategies, UR Collaborations, STEM

29d. Building a Sustainable and Scalable Astronomy Research Program within a Dynamic Community of Practice

Saturday, June 29th 11:00–11:15 am (Session 6)

Room: Houston–The Grove

Rachel Freed, Institute for Student Astronomical Research

Providing undergraduate students a research experience as close to what they would encounter in a true scientific research setting is an important goal of the astronomy research seminar. With a focus on student-led projects, collaborative teamwork, and the process of writing for scientific publication, this program aims to help students undergo a transformation in their self-identity as scientists, increasing their propensity to pursue STEM career paths. The writing requirement has been motivational and rewarding for students and educators. Engaging the students within the community of practice is an important aspect of the seminar. As new resources are continually being developed in concert with the development of new tools and technologies for the research itself, students are often involved in the process.

Themes: Assessment, Diversity in Research, High-Impact Learning Strategies, Internationalization, UR Collaborations, STEM

30a. Advancing Faculty-Student Scholarly and Creative Activities in Schools of Education: A Case Study

Saturday, June 29th 10:15–10:30 am (Session 6)

Room: Schoenbaum 205

Ruth J. Palmer, The College of New Jersey

This interactive session shares work in progress related to advancing faculty-student scholarly and creative activities in one school of education at a primarily undergraduate state institution. It offers a concise narrative of the campus context and institutional commitment to signature experiences as priority activities for faculty and students, the role of CUR Institutes in facilitating faculty-led initiatives, the dean's 2018–2019 charge to a faculty/staff working group related to advancing faculty/student scholarly collaboration in the school's programs, the working group's sustainability plan, lessons learned, and future possibilities. This session seeks to engage participants in a guided discussion of the work and to initiate a network of faculty and administrators to support similar efforts.

Themes: Diversity in Research, High-Impact Learning Strategies, Humanities and Social Sciences

30b. Research Teams in the Humanities and Social Sciences

Saturday, June 29th 10:30–10:45 am (Session 6)

Room: Schoenbaum 205

Linda Blockus, University of Missouri–Columbia

For the past three years, the University of Missouri has supported four undergraduate research teams in the social sciences and humanities. Teams are composed of at least two faculty and 8–12 first-year to fourth-year students. Students work eight hours per week and receive a scholarship. The program goals include increasing the number of students and faculty conducting collaborative research in non-STEM disciplines, providing ongoing support for multiyear projects, and replicating a “research lab culture” that includes students in multiple majors. Project topics include linguistics of African languages, intersection of art and death on psychological responses, relationship psychology, and digital history of abolition. Structure, funding, and outcomes will be presented.

Themes: UR Collaborations, Humanities and Social Sciences

30c. Designing with Research in Mind: Implementing Diverse Methodologies in a Humanities Undergraduate Methods Course

Saturday, June 29th 10:45–11:00 am (Session 6)

Room: Schoenbaum 205

Evonne Halasek, The Ohio State University

This session describes the design, implementation, and assessment of research modules in an upper-division humanities methods course that engaged students in archival and empirical research methods in the rhetoric, writing, and literacy studies. In one module, students applied their skills in criticism and historiography to analyze primary-source artifacts. In a second, students applied their knowledge of writing studies and literacy studies to examine what writing is, how it works, and how it is studied. Panelists will introduce the course structure and project activities, describe the methods and processes engaged by the students, and provide assessments of the course. They will also engage audience members in brainstorming potential partners, technologies, and resources for promoting undergraduate research in the humanities on their campuses.

Themes: High-Impact Learning Strategies, UR Collaborations, Humanities and Social Sciences

Poster Session 1: Thursday, June 27th, 6:00–8:00 pm

31. DePaul University's Mitchem Fellows Program: Preparing Second-Year, Underrepresented Students for Research Careers

Thursday, June 27th 6:00–8:00 pm

Terry Vaughan, DePaul University

DePaul University's Mitchem Fellows Program offers second-year, underrepresented students an early research experience in preparation for research careers. During the program, which takes place throughout the academic year, students learn about the connection between research and identity through creating a literature review. This project requires students to engage in a series of activities and assignments to reflect on how their social, economic, and cultural background relates to a research topic within their field of interest. After completing their literature review, students exit the program with an improved understanding of how identity is central within the research process as they prepare for a research career.

Themes: Diversity in Research, High-Impact Learning Strategies

32. Assessment in Undergraduate Research: Finding a Common Rubric across Educational Disciplines

Thursday, June 27th 6:00–8:00 pm

Suzanne Lindt, Northwestern State University

Stacia Miller, Northwestern State University

Emily Rutherford, Northwestern State University

This project sought to create a tool to evaluate undergraduate research (UR) in education. Universities with undergraduate research programs in education were emailed a survey link and were asked to distribute it to their education faculty involved in UR. Participants analyzed an existing rubric used for assessing UR by reviewing each line of the rubric independently to indicate if it was a valid criteria for educational research. Participants were also asked for changes needed to the rubric to make the criterion more effective and/or appropriate to educational research. Findings suggest that most criteria are applicable to UR in education; however, quality suggestions may assist in creating a more valid assessment tool that is more applicable across various educational disciplines.

Themes: Assessment

33. A Strategy for Increasing Institutional Support for an Undergraduate Research Program

Thursday, June 27th 6:00–8:00 pm

Lorraine Wolf, Auburn University

This presentation describes strategies that resulted in (1) the number of undergraduate research fellowships more than tripling at Auburn University, (2) heightened interest of college administrators and faculty in the undergraduate research program, and (3) increased numbers of undergraduates engaging in research. To achieve these outcomes, the undergraduate research fellowship program was restructured to institute a 50-percent matching requirement by the units for funding each fellowship in exchange for allowing units to customize the amounts awarded, criteria for selection, and fellowship length. This restructuring not only increased the fellowship numbers but also resulted in much stronger support from the unit administrators and faculty. In addition, a faculty grant program was instituted to encourage course-based research that would serve groups of students.

Themes: Nuts and Bolts

34. Mentorship for Developing CUREs: The CUR Mentorship for Integrating Research into the Classroom (MIRIC) Program

Thursday, June 27th 6:00–8:00 pm

Michael Wolyniak, Hampden-Sydney College

Lance Barton, Austin College

John McKillip, Ball State University

Karen Resendes, Westminster College

The CUR Biology Division has created the Mentorship for Integrating Research Into the Classroom (MIRIC) Program to provide a means for members with an interest in developing improved and sustainable active learning techniques to gain experience in this style of teaching through close, long-term interaction with a veteran teaching mentor. MIRIC focuses on the development of instructors who wish to develop a dynamic course-based undergraduate research experience (CURE). Current and future life science instructors pair with seasoned veterans of CURE development and work with them and their students over the course of a semester or longer to develop a CURE that will allow the mentee to bring authentic research into his or her classes. The operation of MIRIC works and the procedure to join the network will be discussed.

Themes: High-Impact Learning Strategies, UR Collaborations

35. Processes and Hurdles of a Successful and Growing Mentored Undergraduate Research and Creative Endeavors Program

Thursday, June 27th 6:00–8:00 pm

Doreen Sams, Georgia College and State University

Karen Berman, Georgia College and State University

Best practices lead to success when derived through continuing research and learning before strategically implementing and assessing. This poster will share the best practices from a program's steps and strategies for creating and growing an undergraduate research and creative endeavors program. The program began as a grassroots initiative and has continued its growth and success over

the years. The support of the administration is one significant key to success along with faculty and administrative champions who believe in the value added to students' transformative learning experiences. This poster provides details and examples of how one institution grew a value-added successful mentored undergraduate research and creative endeavors program aligned with the vision of the institution.

Themes: Nuts and Bolts

36. BioTrain Boot Camp: Building Skills and Peer Networks

Thursday, June 27th 6:00–8:00 pm

Michele Morris, HudsonAlpha Institute for Biotechnology (Educational Outreach)

Undergraduate researchers in HudsonAlpha Institute's BioTrain Internship program combine skills enhancement and team building during a one-week boot camp before taking their summer positions. This unique experience is popular with mentors and students for its ability to augment student lab proficiencies and form a peer network for the summer and beyond. BioTrain Boot Camp provides time to efficiently onboard all interns, easing administrative work and maximizing the experience for the student. Foundational bench techniques, scientific literature, data analysis, presentation skills, an introduction to computer programming, and team-building are included during this fast-paced inaugural week for these undergraduates, and mentors are assured of a consistent level of expected knowledge. Intern bonding occurs organically and leads to group lunches, self-organized group outings, and lasting friendships.

Themes: High-Impact Learning Strategies

37. Summer Research Program Infrastructure for Faculty Mentors and Undergraduate Student Researchers

Thursday, June 27th 6:00–8:00 pm

Jessie Chen, University of Hawaii at Manoa

Undergraduate summer research programs (e.g., NSF-REU site programs) typically provide student participants with organized professional development and social activities. Faculty that mentor summer student researchers outside of organized programs, however, typically do not have the resources to provide such opportunities. The University of Hawaii at Manoa (UHM) Undergraduate Research Opportunities Program is launching the Summer Undergraduate Research Experience (SURE) in 2019 to provide infrastructure for UHM faculty and their undergraduate student mentees. SURE is a free, nine-week program that benefits students with a cohort of peers, professional development modules, and provision of a sense of place. An outline of the proposed SURE program will be presented to solicit feedback on ways to better accommodate students from diverse disciplines, increase participation, and foster a sense of place.

Themes: High-Impact Learning Strategies

38. Creating and Sustaining a Statewide Undergraduate Research Conference

Thursday, June 27th 6:00–8:00 pm

Eric Freundt, University of Tampa

Kimberly Schneider, University of Central Florida

Jennie Soberon, Florida Atlantic University

The Florida Undergraduate Research Conference (FURC) is an annual multidisciplinary conference that enables student scholars to present their research, network with other students, and attend professional development seminars. FURC has been held since 2011 and has featured more than 2,100 student presentations with participation from a broad array of institutions within the state. Recently, the planning committee has reorganized its structure and intends to create a nonprofit organization to assist with FURC planning and expand support for undergraduate research across the state. Here, the history, structure, and outcomes of the conference and the structure and goals of the new organization are described.

Themes: Assessment, UR Collaborations

39. Resource Allocation Toward a Successful Model of Undergraduate Research

Thursday, June 27th 6:00–8:00 pm

Suzanne Sollars, University of Nebraska at Omaha

The campus-wide Fund for Undergraduate Scholarly Experiences (FUSE) was initiated at the University of Nebraska at Omaha in 2011, developed by students. Students from all disciplines are eligible. First, students identify a mentor, prepare a proposal, and submit it for review. If accepted for funding, the research is conducted from late spring through fall semester. Students are required to work 200 hours on their project and present at the Research and Creative Activity Fair the following March. Funds (\$2,500) are allocated from student fees. This poster will feature one laboratory's experience in mentoring students through the FUSE program, the program's history, and examples of its impact.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations

40. Assessment That Counts: Measuring Gains from Undergraduate Research Based on University Learning Outcomes

Thursday, June 27th 6:00–8:00 pm

Tina Zecher, Northern Arizona University

In 2016, the Undergraduate Research Advisory Council at Northern Arizona University developed an assessment for programs offered through the Office of Undergraduate Research and Creative Activity (OURCA). In 2017, the assessment was revised to align with NAU's University Learning Objectives. Self-assessment data (pre- and post-experience) were collected from 56 participants in the pilot and cross-referenced with faculty mentor feedback. Results were mixed, with concerns about participants providing inflated self-assessments when first starting research. In 2018, OURCA partnered with the Center for Science Teaching and Learning to convert to a retrospective assessment and validate the

revised assessment tool. The assessment will be shared across programs that support undergraduate researchers and used to demonstrate the impact of OURCA programs as they relate to university goals.

Themes: Assessment, Nuts and Bolts

41. Undergraduate Research Alumni Network: Engaging Alumni in Programs and Initiatives

Thursday, June 27th 6:00–8:00 pm

Jaya Mohan, Drexel University

Roxane Lovell, Drexel University

Emily Kashka, Drexel University

The Office of Undergraduate Research (OUR) programs have existed for more than 15 years and have served thousands of students. Previously, connections were made with alumni on an ad hoc basis, which allowed placement of undergraduates in research with alumni-turned-faculty at Drexel and other institutions. To engage alumni more broadly, a collaboration was established with Alumni Relations to create an affinity alumni group. This poster will detail how this network was established, provide reflections on first initiatives (recruiting alumni-turned-faculty as mentors, engaging alumni in application review for the summer research program, and hosting a networking event for alumni and undergraduates); and posit ways to continue to build the network to provide value to all stakeholders.

Themes: Nuts and Bolts, UR Collaborations

42. When Roots Take Hold: Sturdy Growth of Undergraduate Research at the American University in Cairo

Thursday, June 27th 6:00–8:00 pm

Amani Elshimi, The American University in Cairo

This poster presentation will highlight the consistent efforts and strategies adopted for embedding a culture of undergraduate research at the American University in Cairo. Initially faced with inertia, the Undergraduate Research Program gradually succeeded in instituting recognition for undergraduate research activities and expanding engagement at all levels—from students in pre-credit classes to graduating fourth-year students and from faculty advisers to the highest levels of administrators. The presentation will share challenges and achievements in securing budget allocation, articulating UR-related strategic goals at the university level, and engaging a wider base of faculty mentors and student scholars.

Themes: High-Impact Learning Strategies, Nuts and Bolts, UR Collaborations

43. Lessons Learned in Research-Intensive Course Designation

Thursday, June 27th 6:00–8:00 pm

Aubrey Kuperman, University of Central Florida

Kimberly Schneider, University of Central Florida

To grow and champion the integration of research into the curriculum, the University of Central Florida (UCF) spent 2017–2018 developing a rubric and process for getting a Research Intensive (RI) course designation. Two rounds of the designation process for courses has been completed. In spring 2019, 400 students enrolled in RI courses campus-wide. The poster will review the UCF definition of “research intensive,” the designation process, committee structure, and the lessons learned throughout the process of a slow and well planned campus-wide roll-out.

Themes: High-Impact Learning Strategies, Nuts and Bolts

44. UR-UPP: Active Facilitation of Student-Faculty Undergraduate Research Connections

Thursday, June 27th 6:00–8:00 pm

Teresa Long, University of Rochester

The University of Rochester’s Undergraduate Placement Program (UR-UPP) is a dual student advising and faculty support service housed in a small Office of Undergraduate Research in a mid-sized R1 institution. UR-UPP attempts to facilitate more equitable access to opportunities in basic, clinical, and cross-disciplinary research spaces, primarily in the medical center adjacent to campus. Lessons learned and ongoing challenges will be shared of this small program that prepares and pairs students for research experiences. The current iteration of UR-UPP can be previewed at <https://tinyurl.com/URUPPpreview>.

Themes: UR Collaborations

45. Using Student Takeovers on Social Media to Broaden Undergraduate Research Engagement

Thursday, June 27th 6:00–8:00 pm

Lizzy King, Michigan State University

Heather Dover, Michigan State University

Korine Wawrzynski, Michigan State University

In today’s technology-driven world, it is important to embrace social media as a medium to engage with students by meeting them where they are while connecting with staff, faculty, and alumni. This poster details the results of implementing social media takeovers by undergraduate students at Michigan State University. The goal was to increase engagement across campus in content that relates to undergraduate research by partnering with other units and allowing students to curate and share their experiences. Each student took a unique approach to sharing their story, ranging from photos of summer research experiences to “day in the life” live-video posts. By transferring control to students and partnering with other units, the audience was engaged more effectively, which expanded the following on each platform.

Themes: Diversity in Research, Nuts and Bolts

46. UGR at UOP: Building an Undergraduate Research Program at a Small, Private, Comprehensive University

Thursday, June 27th 6:00–8:00 pm

Lydia Fox, University of the Pacific

Although University of the Pacific has a long tradition of undergraduate research in STEM, it did not extend university-wide. Beginning with a primarily STEM poster session event in 2001, the undergraduate research program has grown to include an Office of Undergraduate Research that oversees research grants, conference travel grants, summer fellowships, and the university-wide Pacific Undergraduate Research & Creativity Conference (PURCC) that includes events over three weeks at the end of the spring semester. The office also provides faculty development workshops. The program was originally funded by the university annual fund and is now housed and funded by the Office of Research and Sponsored Programs. This presentation will cover how the program grew through building collaborations with faculty and administrators across the university.

Themes: Assessment, Nuts and Bolts

47. NSF-LEARN Consortium: Impact of STEM Student Participation on Critical Thinking, GPA, Earned Credits, and Retention

Thursday, June 27th 6:00–8:00 pm

Jordan Merritt, Florida Atlantic University

Donna Chamely-Wiik, Florida Atlantic University

Kimberly Schneider, University of Central Florida

Mary Tripp, University of Central Florida

William Kwochka, Western Carolina University

The University of Central Florida, Florida Atlantic University, and Western Carolina University developed an National Science Foundation-funded Learning Environment and Academic Research Network (LEARN) to impact retention of STEM students. The program targets first-year students (F-LEARN) and transfer students (T-LEARN) who have earned an associate's degree. The LEARN program consists of three main components: academics/research, mentoring, and community building. Ideally, the added support/requirements of the LEARN program should have only positive effects. Preliminary program assessment demonstrates that LEARN students show increases in critical thinking, course credits earned, and retention while maintaining comparable grade-point averages to non-LEARN students.

Themes: Assessment

48. Freshman Research Immersion (FRI): Student Perceptions of Gains across Three-Semester Sequence of CUREs

Thursday, June 27th 6:00–8:00 pm

Megan Fegley, Binghamton University–SUNY

The Freshman Research Immersion (FRI) program is a three-semester, course-based undergraduate research experience (CURE) for first-semester science and engineering students. FRI emphasizes authentic discovery via students starting their research track in the first CURE, students building professional-level collaborative skills, and multitiered mentoring across the CURE sequence. Each CURE in the sequence of FRI progressively emphasizes a subset of new outcomes while reinforcing previously achieved outcomes. Reflection essays and two surveys are administered at the end of each course: Laboratory Course Assessment Survey (LCAS, Corwin et al. 2015) and CURE Survey (Lopatto and Tobias 2010). Relative to a “model of change” for scientific maturation (Auchincloss et al. 2014), results were analyzed for nine research tracks in STEM.

Themes: Assessment, High-Impact Learning Strategies

49. Recruitment and Sustainability Plans for Starting a Student-Directed Undergraduate Research Journal

Thursday, June 27th 6:00–8:00 pm

Kevin Walden, West Virginia University

Michelle Richards-Babb, West Virginia University

West Virginia University’s institutional Office of Undergraduate Research is overseeing the relaunch of the student-driven research journal *Mountaineer Undergraduate Research Review* (MURR). MURR was published in four volumes of open access journals from 2009 to 2014 but lapsed without centralized administrative support. With the establishment of the Office of Undergraduate Research in 2015, WVU faculty seek to undergird high-impact learning by re-establishing this journal and providing necessary infrastructure to facilitate its implementation. Similarly executed journals have been shown to enhance student research engagement and their understanding of scholarly communication. Anticipated outcomes include enabling students to publish peer-reviewed papers and broaden the dissemination of student research in disciplines well-suited to a written format. Strategies for starting the journal, including undergraduate recruitment and reward mechanisms, will be addressed.

Themes: Diversity in Research, High-Impact Learning Strategies, UR Collaborations

50. What Faculty Want Students to Know as They Begin Their First Undergraduate Research Experience

Thursday, June 27th 6:00–8:00 pm

Meredith Allison, Elon University

Undergraduate research (UR) mentors in the United States and Canada completed an open-ended pilot survey in which they were asked what they wanted new-to-research students to know about UR. Mentors stated that students would be reading the primary literature and should know that research would take a lot of time. Regarding meetings, faculty indicated that they wanted students to come prepared and take the lead. They also stressed that students should be organized and take notes in meetings. Evaluation would be based on the whole package, including the quality of the work, effort, following directions, and time management. Students should expect to present their work at an in-

house symposium and off-campus presentations and publications are possibilities. Students also should act professionally. We will use these data to create a larger follow-up survey.

Themes: Assessment, High-Impact Learning Strategies

51. Promoting Self-Reflection by Faculty in an Undergraduate Research

Program: Mentor and Student Outcomes

Thursday, June 27th 6:00–8:00 pm

Melissa Hey, University of Virginia

Timothy Raines, University of Virginia

Brian Cullaty, University of Virginia

Self-reflection is commonly used to promote development in student research programs; however, most efforts focus on student-based reflection to improve learning. The presenters are interested in exploring whether reflection by faculty mentors midway through a research program can lead to changes in mentoring style and student outcomes later on. The presenters will do this by surveying mentors and students during and after an undergraduate research program at the University of Virginia and evaluating response data. The presenters predict that, by including faculty in standard administrative surveys mid-program, their awareness of their roles as mentors can be heightened, leading to an increase in both self-reported quality of mentoring and student outcomes (such as perceived quality of research experience and relationship with mentors).

Themes: Assessment

52. Missouri's Visual Art and Design Showcase

Thursday, June 27th 6:00–8:00 pm

Linda Blockus, University of Missouri–Columbia

The University of Missouri has held an Undergraduate Visual Art and Design Showcase for the past four years. This one-week event involves students and faculty from 10 majors in 4 departments, including theater, fashion design, floral design, documentary films, architecture, and art. In addition to displaying juried student work in the main administrative building, 3–4 art and design professionals are brought to campus to provide expert feedback to students, select projects for prizes, give lectures, and visit classes. Steps in planning, budget, events, and logistics will be shared.

Themes: Nuts and Bolts

53. Dissemination and Impact of the Astronomy Research Seminar: Ten Years of Development and Student Publications

Thursday, June 27th 6:00–8:00 pm

Rachel Freed, Institute for Student Astronomical Research

Student astronomical research and publication within a community of practice has been transformative for self-identification as scientists as well as for educational and career paths. For most students, the Astronomy Research Seminar provided their first exposure to the scientific research process, including scientific writing and presentation. For many, it paved the way for success in future courses and careers. Numerous students have been interviewed and completed surveys looking at potential impacts of their experience in the seminar. The most clear evidence of the power of involving students early in a true research experience is shown by the number of students who went on to start their own seminars or began mentoring other students in astronomical research.

Themes: Assessment, Diversity in Research, High-Impact Learning Strategies, Internationalization, UR Collaborations

54. Council on Undergraduate Research Professional Development Workshops/Student Events: A Resource for the UR Community

Thursday, June 27th 6:00–8:00 pm

Tavia Cummings, Council on Undergraduate Research

The Council on Undergraduate Research offers faculty, administrators, and students a variety of professional development opportunities, including conferences, workshops, specialized consultancies and program reviews, and mentoring networks. For faculty and administrators, these offerings assist individuals and teams to engage in undergraduate research expansion and in creating institutional cultures, curricula, and infrastructure to support faculty-student engaged research, scholarship, and creative activities. For students, these conferences offer an opportunity for undergraduate scholars to celebrate and promote their exemplary research and scholarship while receiving professional development. In addition to these formal programs, CUR provides customized institutes, program review, and speaker recommendations. Information about upcoming events and the process for hosting a workshop will be provided.

Themes: Assessment, Diversity in Research, High-Impact Learning Strategies, Internationalization, Nuts and Bolts, UR Collaborations

55. Programmatic Undergraduate Research across the National Mathematics Community

Thursday, June 27th 6:00–8:00 pm

Patrick X. Rault, University of Nebraska at Omaha

A variety of successful regional and national programs and workshops exist to support undergraduate research in mathematics. This poster will present a sampling of these programs and their impacts on both national and departmental cultures with regards to the use of undergraduate research. Program directors are encouraged to join us for suggestions and tools for increasing involvement in undergraduate research in mathematics at your campus. This poster is co-sponsored by the Division of Mathematics and Computer Science and the Mathematical Association of America's Special Interest Group of Undergraduate Research.

Themes: High-Impact Learning Strategies, Nuts and Bolts

56. From Teaching Undergraduate Research to Mentoring Undergraduate Researchers

Thursday, June 27th 6:00–8:00 pm

Ruth J. Palmer, The College of New Jersey

From skilled vocations such as carpentry and welding to professional vocations such as teaching and engineering, mentoring plays a key role in determining whether those who are mentored enter the field with confidence in their abilities to be successful. The same is true of creating a diverse field of undergraduate researchers. To diversify the field of undergraduate researchers, we must move from teaching undergraduate research to mentoring undergraduate researchers. This poster will present ways in which effective mentoring leads to deep thinking and significant learning; ways that context and relationships influence the effectiveness of the mentoring experience; and how creating effective and conceptually grounded mentoring programs provides the environment for producing a more diverse field of undergraduate researchers.

Themes: Diversity in Research, UR Collaborations

57. Engaging Students in International Undergraduate Research Experiences in Curricular and Co-Curricular Settings: Challenges and Successes

Thursday, June 27th 6:00–8:00 pm

Michael Springer, University of Central Oklahoma

John Barthell, University of Central Oklahoma

Charlotte Simmons, University of Central Oklahoma

Dana Jackson-Hardwick, University of Central Oklahoma

Undergraduate research experiences abroad are transformative for students, engaging them in several high-impact teaching practices, including global learning, undergraduate research, collaboration, and big questions that go beyond the classroom. Like many institutions, the University of Central Oklahoma (UCO) promotes international undergraduate research experiences because of the benefits for students and the university. Many challenges exist, however, that can make it difficult to establish and maintain research experiences abroad. This presentation will discuss some of the barriers and successful solutions implemented at UCO to broaden international undergraduate research experiences. Perspectives will be offered from administrators, faculty, staff, and students.

Themes: High-Impact Learning Strategies, Internationalization, Nuts and Bolts, UR Collaborations

Poster Session 2: Friday, June 28th, 4:30–6:30 pm

59. Exploring Signature Pedagogies That Maximize the Significant Learning Outcomes of Mentored Undergraduate Research Experiences

Friday, June 28th 4:30–6:30 pm

Ruth J. Palmer, The College of New Jersey

The influence of mentored undergraduate research is not only academic but also affective, social/relational, future-oriented, and compensatory. With the adoption of high-impact practices such as undergraduate research, colleges and universities now provide support for faculty to augment student learning outcomes through the adoption of signature pedagogies within strong instructional designs and the practice of professional socialization. Together, these components ensure that students develop (inter)-disciplinary ways of knowing, habits of mind and values shared in their field. They also require faculty to adopt a whole-person approach to learning and teaching. This presentation, grounded in contemporary learning theories, provides the basis of an exploratory conversation about signature pedagogies and related instructional approaches that can maximize the influence of mentored undergraduate research.

Themes: High-Impact Learning Strategies, UR Collaborations

60. Developing and Growing a Regional or Statewide Undergraduate Research Collective

Friday, June 28th 4:30–6:30 pm

Kymerly Harris, Georgia Southern University

Anastasia Lin, University of North Georgia

Doreen Sams, Georgia College and State University

This poster provides a road map for other institutions of higher learning that may be considering creating a state or region-wide undergraduate research council. This poster will draw on experiences to provide an overview of the advantages uniting under a common and shared vision for promoting undergraduate research across public and private institutions of higher learning throughout the state bring to the collective and undergraduate researchers. Steps taken and accomplishments of six institutions of higher learning will be discussed, including the expansion in four short years to a collective of 13 institutions.

Themes: Diversity in Research, UR Collaborations

61. How Did You Hear About Us? Using Student Feedback to Evaluate Communication Strategies

Friday, June 28th 4:30–6:30 pm

Jaya Mohan, Drexel University

Emily Kashka, Drexel University

Roxane Lovell, Drexel University

A persistent challenge in managing programs that support students engaging in undergraduate research is advertising these opportunities to appropriate, interested students. Students are asked to report how they heard about the opportunities to which they applied or the events they have attended; this self-reported data is now being compared to the processes in place. This poster will parse the responses to these questions, specifically in regard to Drexel’s competitive and popular early undergraduate summer research program, and compare the responses to current communication strategies. The hope is to identify ways of optimizing time, effort, and resources in communicating and advertising programs and initiatives to students.

Themes: Nuts and Bolts

62. Establishing an Institutional Office of Undergraduate Research for Broadened Participation

Friday, June 28th 4:30–6:30 pm

Michelle Richards-Babb, West Virginia University

Kevin Walden, West Virginia University

Providing opportunities for students to engage in scholarly activities aligns with institutional goals of enhanced student recruitment, diversity, and persistence. Institutional efforts to promote scholarly activities through NSF and state-funded summer research were initiated by STEM faculty members. Scholarly opportunities for students in human engagement (arts/humanities) were limited. Consequently, West Virginia University established a centralized Office of Undergraduate Research to coordinate scholarly activities. Centralization has increased the number of students who participate, expanded the disciplines served, and diversified the students who engage in scholarly activities. In addition, opportunities for students to communicate scholarly activity results have increased and moved beyond communication via poster—a STEM-centric presentation mode. Best practices for engaging diverse undergraduates and faculty members in scholarly activities will be discussed.

Themes: Diversity in Research

63. “Collaborate to Innovate”: Critical Reflections on Experiences Developing an Office of Undergraduate Research

Friday, June 28th 4:30–6:30 pm

Louise Owusu-Kwarteng, University of Greenwich

This poster presentation offers reflections on the experience of a director of the Office of Undergraduate Research (OUR) in the Faculty of Liberal Arts and Sciences at the University of Greenwich in London. The internationalized nature of this role will be highlighted, specifically establishing links with Offices of Undergraduate Research in North American universities, so as to exchange ideas and best practice. A further aspect involves facilitating staff-student research collaborations, which is of great importance as it promotes the "students as researchers" pedagogy (Healey and Flint 2014) and enhances students' graduate employability. Examples will be provided of innovative staff student collaborations that are in progress and of work with students to develop an online exhibition to display these projects.

Themes: Internationalization, UR Collaborations

64. Practicing CURE: Course-Based Research in Different Disciplines

Friday, June 28th 4:30–6:30 pm

Prajukti Bhattacharyya, University of Wisconsin–Whitewater

Catherine Chan, University of Wisconsin–Whitewater

To broaden engagement in faculty-student collaborative research beyond the traditional co-curricular model, a community of practitioners was created, composed of faculty/staff interested in implementing/expanding course-embedded research. The Research across Curriculum (RAC) community included faculty/staff from two-year and four-year campuses, spanning a wide range of disciplines, and teaching a variety of courses. The participants shared experience and ideas, focusing on new implementation ideas/strategies, and modifying existing research activities and assessment techniques. Several members, some forming interdisciplinary teams, are pursuing funding opportunities to better support their work. This poster will share select examples of course-based research implemented by RAC participants. The aim is to generate discussion on ways that research activities can be infused in a variety of courses, logistical challenges, and tangible and intangible benefits.

Themes: Assessment, Diversity in Research, High-Impact Learning Strategies, UR Collaborations

65. Using Data to Promote Awareness of and Participation in Undergraduate Research and Creative Works

Friday, June 28th 4:30–6:30 pm

Seung Yang, University of Hawaii at Manoa

Jessie Chen, University of Hawaii at Manoa

Utilizing data is essential to strategically promote undergraduate research and creative work opportunities. The Undergraduate Research Opportunities Program (UROP) at the University of Hawaii at Manoa recently increased awareness of and participation in funded opportunities on campus. Since 2011, UROP has funded approximately 1,000 students. Data collection and analysis of these funded students allowed UROP to identify underrepresentation of students in individual units (i.e., students in that unit received a disproportionately low percentage of funding based on student enrollment). UROP then targeted advertisement to faculty and students in these units, thereby increasing the proportion of

funded students. This approach demonstrates that strategic planning and a robust database management system can be used to identify and solve funding disparities across disciplines efficiently.

Themes: Assessment, Diversity in Research, Nuts and Bolts

66. Developing and Instituting Protein-Centric, Course-Based Undergraduate Research Experiences at Diverse Institutions

Friday, June 28th 4:30–6:30 pm

Jessica Bell, University of San Diego

Michael Wolyniak, Hampden-Sydney College

The Malate Dehydrogenase CUREs Community supports faculty at diverse institutions (research-intensive, comprehensive, PUI, community college and minority-serving institutions) in adopting protein-centric, course-based undergraduate research experiences (CUREs) by providing teaching resources, biological materials, and faculty training and development. The community is also studying two pedagogical research questions (duration and the impact of collaboration) to establish evidence-based best practices in CUREs. This poster will provide key differences among CURE activities, mentored research, and guided inquiry laboratories; explore ways of adopting a consortium-based, protein-centric CURE in diverse institution types; and (4) detail opportunities to participate in future pedagogical research activities of the consortium.

Themes: Assessment, High-Impact Learning Strategies, UR Collaborations

67. Measuring the Impact of Undergraduate Research on College Graduation: A Multi-Institution, Quasi-Experimental Study

Friday, June 28th 4:30–6:30 pm

Heather Haeger, California State University–Monterey Bay

This study tests the impact of undergraduate research on graduation rates using propensity score matching to generate a comparison group of like peers for regression analyses on graduation in four-years and six-years (N = 48,992). When compared to like-peers (controlling for background characteristics and prior academic performance), undergraduate researchers were 2.5 times more likely to graduate in four years and 12 times more likely to graduate in six years. Results from this multi-institution comparison between undergraduate researchers and like peers suggest that the higher rates of academic success for undergraduate researchers can be generalized beyond a single program or institution; are not solely due to self-selection bias; and are evident in a more objective measure of success, namely graduating college.

Themes: Assessment

68. Increasing the Professionalism of an Undergraduate Research Journal through Collaboration

Friday, June 28th 4:30–6:30 pm

Anne Donnelly, University of Florida
Michelle Leonard, University of Florida

The University of Florida made upgrades to the *UF Journal of Undergraduate Research* (UFJUR), improving its value as a learning tool and decreasing possible implicit bias. An associate librarian was hired who had editing experience, and she moved UFJUR to an open journal system. This systematized the review process, allowing students to access reviewer comments, learn how to improve their writing, and revise and resubmit. Second, a collaboration was established with the UF Graduate Student Council, with students recruited as subject-area peer reviewers. These students received training in the peer review process and were recognized as reviewers. To remove the possibility of implicit bias, a double-blind review process was used. This collaboration among the library, the Graduate Student Council, and UFCUR significantly improved UFJUR.

Themes: Diversity in Research, UR Collaborations

69. CUR Transformations: Integrating and Scaffolding Research into Undergraduate STEM Curricula and Faculty Culture

Friday, June 28th 4:30–6:30 pm

Elizabeth Ambos, Council on Undergraduate Research

A five-year grant (EHR DUE 16-25354) to the Council on Undergraduate Research partners 24 academic departments at 12 diverse institutions in biology, chemistry, physics, or psychology. The partnership is conducting fundamental research on student, faculty and disciplinary influences on the process of integrating and scaffolding undergraduate research (UR) throughout four-year STEM degree curricula and culture. An anticipated broader impact is development of questions relating to UR on Indiana University's Center for Postsecondary Research's National Survey of Student Engagement (NSSE) and the Faculty Survey of Student Engagement (FSSE). The poster presentation will illumine progress made thus far with respect to transformations of departmental curricula and culture, and the insights emerging on faculty and student participation in the change process.

Themes: Assessment, High-Impact Learning Strategies, UR Collaborations

70. Research Connections: A Collaborative Event to Build Curiosity About Research

Friday, June 28th 4:30–6:30 pm

Caroline McGuire, University of Connecticut Storrs

At the University of Connecticut, piquing undergraduate students' curiosity about what it means to attend an R1 university is a multidepartmental effort. Recognizing that students have myriad options to gain research experience yet may be unaware of these opportunities or uncertain how to access them, the Office of First-Year Programs & Learning Communities and the Office of Undergraduate Research collaborate to offer students "Research Connections." This networking event for early career students aims to build undergraduate' awareness of and excitement about possible avenues to a research

experience. This poster will discuss the nuts and bolts of how this collaborative event has grown and improved via relationship-building with academic departments and student services units across campus.

Themes: Diversity in Research, Nuts and Bolts, UR Collaborations

71. Immersive Learning in Understanding Impacts of Poverty: Examination of “Poverty Simulation” in Teaching

Friday, June 28th 4:30–6:30 pm

Rose Lange, Saginaw Valley State University

Poverty and its effects on an individual’s overall health have been documented scientifically. However, few undergraduate programs currently provide hands-on experiential learning of topics to help students become more deeply aware of the impacts of poverty on physical and emotional well-being. The Community Action Poverty Simulation has been used as an immersive learning experience in multi-discipline classroom settings at Saginaw Valley State University over the course of six years. This presentation focuses on the qualitative impact of these experiences on various student groups with special emphasis on students pursuing careers in nursing, occupational therapy, social work, and health sciences, and on practicing K–12 educators.

Themes: Diversity in Research, High-Impact Learning Strategies

72. Research Collaborations with Municipal Water Facilities

Friday, June 28th 4:30–6:30 pm

Christine Saber, Gannon University
ity

The municipal facility Erie Water Works (EWW) in Erie, PA, approached Gannon University (GU), as it was in search of a simple, sensitive, and economical method to determine and quantify the cyanobacterial toxin microcystin in water supplied by Lake Erie. GU’s Department of Chemistry and Biochemistry houses instrumentation that is cost-effective, requires short sampling times, and has high sensitivity. This GU-EWW collaboration could decrease the need for testing in out-of-state laboratories that is expensive and has a long turnaround time. This partnership enhances undergraduate research and education by allowing students opportunities to employ their chemical knowledge in addressing and resolving pertinent global issues. Additionally, publications and presentations can educate the public about cyanotoxins, their risks, and ways to monitor their presence and mitigate their effects.

Themes: UR Collaborations

73. Preparing Students to Work in Diverse Settings and across Distance: Inter-University, Interdisciplinary Capstone Teams

Friday, June 28th 4:30–6:30 pm

Catherine Bowman, Arizona State University Main

NASA's Psyche Mission is engaged with a growing number of capstone teams pursuing topics relevant to the mission, including partnering with four universities to trial cross-university teaming (<https://psyche.asu.edu/get-involved/capstone-projects/>). Creating interdisciplinary capstone teams with students from different institutions provides an opportunity to prepare students to engage with a diversity of disciplines and collaborate in remote teams in the workplace. Additionally, through such capstones, universities may gain access to nonlocal, specialized technical mentors and to disciplines not offered at their institutions. An added benefit is providing greater fidelity to NASA space missions, which involve teams working together at a distance. Early lessons learned will be shared from the first three inter-university, interdisciplinary capstone teams participating in the Psyche mission, and plans for improvement and future expansion will be discussed.

Themes: UR Collaborations

74. Astrometric Research of Multiple Star Systems in Collaboration with InStAR

Friday, June 28th 4:30–6:30 pm

Shannon Pangalos-Scott, Institute for Student Astronomical Research / The Evergreen State College

Working with the Institute for Student Astronomical Research (InStAR) and participating in ongoing, advanced astrometric research in support of STEAM education and research through communities of practice, undergraduate and high school students formed research teams during the 2017–2018 and 2018–2019 academic years. This research gave students the opportunity to plan their own project, submit a proposal, communicate with various outside resources (Las Cumbres Observatory, United States Naval Observatory, etc.), gather and analyze data, present results comparing the current separation and position angle to historical records in a published paper, and give public presentations. Four separate systems were investigated: a quadruple in Hercules with three gravitationally bound pairs and a fourth visual binary; and three physical binaries in Fornax, Coma Berenices, and Cygnus.

Themes: Diversity in Research, High-Impact Learning Strategies, UR Collaborations

75. Berkeley Undergraduate Research Evaluation Tools (BURET) Study: Overview and Findings

Friday, June 28th 4:30–6:30 pm

Elisa Stone, Berkeley Science & Math Initiative/CalTeach

The BURET study has focused on developing and testing a series of assessment instruments to measure undergraduate students' ability to integrate their understanding of the scientific practices and content knowledge of their research project as they engage in undergraduate research. The assessment tools include rubrics for evaluating poster presentations and responses to a series of open-ended prompts on experimentation. In parallel, faculty were interviewed about their goals and mentoring approaches for undergraduate researchers in their labs, and a workshop series was developed and piloted as an intervention to support graduate students and postdoctoral researchers who directly mentor these undergraduates. BURET tools and preliminary findings from this work will be presented and discussed.

Themes: Assessment, High-Impact Learning Strategies

76. Internationalizing CURE: Connecting the Classroom with the Outside World

Friday, June 28th 4:30–6:30 pm

Ginny Greenway, University of Florida

Conducting science is a global pursuit, frequently involving international travel, fieldwork, and collaboration. However, this aspect of working across international borders, and the benefits and challenges that come with it, is rarely reflected in undergraduate research experience. Although study abroad programs and research internships offer a handful of students a valuable international perspective, curriculum internationalization may have potential to achieve this on a much greater scale. Ways will be outlined in which course-based undergraduate research experiences (CUREs), as well as more traditional courses, can be expanded to incorporate international perspectives, expanding student horizons and helping them develop intercultural competency. A particular focus is on virtual exchange techniques coupled with the systemic infusion of global context throughout a CURE curriculum based on insect research.

Themes: Diversity in Research, Internationalization

77. Student Research Using a Multi-Mentor Model: University of Central Oklahoma and the London Dutch Church Book Provenance Project

Friday, June 28th 4:30–6:30 pm

Michael Springer, University of Central Oklahoma

The benefits of multi-mentor undergraduate research experiences in the STEM fields is well documented, but this mentoring model can have similar benefits in the humanities as well. This poster will present one example of a multi-mentor experience in history, the Dutch Church Book Provenance Project, which is an international collaboration among the British Library, Lambeth Palace Library, Dutch Church in London, and the University of Central Oklahoma. The goals and aims of the project, as well as the organization and execution, will be discussed. Also presented are the benefits for history students of the multi-mentored undergraduate research experience.

Themes: High-Impact Learning Strategies, Internationalization, UR Collaborations

78. Approaches to Undergraduate Research through Work-Study Funding

Friday, June 28th 4:30–6:30 pm

Lizzy King, Michigan State University

Heather Dover, Michigan State University

Korine Wawrzynski, Michigan State University

During the 2018–2019 academic year, the Undergraduate Research Office at Michigan State University (MSU) launched the Emerging Scholars program. The aim of the program was to engage incoming first-

year students who demonstrated high financial need in an undergraduate research experience. The primary goal of the program was for each of the 3 partner units to hire 10–15 undergraduate students with eligibility for Federal Work Study funds. Participating students could then complete up to 150 paid research hours in a mentored experience during the semester. Each pilot partner managed the recruitment, selection, and placement process differently. This poster presentation will provide details about the different approaches taken by each partner unit and discuss next steps for engaging students in research experiences through work-study funding at MSU.

Themes: Diversity in Research, Nuts and Bolts, UR Collaborations

79. FGCUScholars Ambassadors: Promoting Student-to-Student Professional Development through Peer Mentoring

Friday, June 28th 4:30–6:30 pm

Edward Thinger, Florida Gulf Coast University

The FGCUScholars Ambassadors Program was established under the university's Quality and Enhancement Plan to enhance student critical thinking, information literacy, and written communication, along with student scholarship, through the promotion of undergraduate research. Ambassadors create, develop, and execute events and workshops that encourage the scholarly development of their peers. In doing so, Scholars Ambassadors act as resources for students to connect them with different faculty mentors while encouraging faculty to work with students in a collaborative manner. Scholars Ambassadors have also begun peer mentoring, in which they work with other undergraduates one-on-one and connect them with opportunities across campus to engage in scholarly activities that pertain to their interests.

Themes: High-Impact Learning Strategies

80. Impact of STEM Early Undergraduate Research Program at the University of Southern Indiana

Friday, June 28th 4:30–6:30 pm

Shelly Blunt, University of Southern Indiana

William Elliott, University of Southern Indiana

The recruitment and retention of STEM majors is vital to meeting future demands of the STEM workforce. Studies demonstrate that engaging students with hands-on research translates to increased retention and completion rates of STEM majors, as well as non-STEM majors. Participation in early undergraduate research programs provide additional benefits to faculty. Faculty benefit from the longer-term engagement of undergraduate students with their research, translating to increased productivity and attainment of their research goals. This poster summarizes the results of an early undergraduate research program at the University of Southern Indiana on the retention and graduation rates of STEM majors, highlight the benefit of this research program to the professional development of

faculty members, and identify best practices for establishing a team-oriented approach to teaching and learning in STEM.

Themes: Nuts and Bolts, UR Collaborations

81. Summer Writing: An Intensive Writing Module for Undergraduate Researchers

Friday, June 28th 4:30–6:30 pm

Jennifer Gilmour, California State University–Monterey Bay

Undergraduate Research Opportunity Center (UROC) at CSU–Monterey Bay, a four-year public university, has developed a summer writing intensive module for fourth-year undergraduate researchers as part of their eight-week summer research program to advance their writing skills in manuscript and graduate school personal statement writing. Adapted from a four-part framework in writing studies (Brooks 1994) featuring time, ownership, response, and exposure, this series encourages students to create manageable writing goals as part of an individualized timeline, and explore writing and response feedback models as interactive and iterative processes. After two years of offering the module, this poster presentation will highlight the development of moving from a three-week to a six-week module as well as undergraduate experiences in this highly structured approach.

Themes: High-Impact Learning Strategies, Nuts and Bolts

82. Scaling Up Undergraduate Research Participation

Friday, June 28th 6:00–8:00 pm

Chris Freire, Student Opportunity Center

The Student Opportunity Center (SOC) works with more than 150 college campuses nationwide in helping them increase their undergraduate research and related participation by centralizing all available opportunity information as well as the participation data. This centralization and consequent data analysis enable institutions to find the “experiential learning deserts” and take the necessary measures to address the needs of underrepresented student populations. The presentation will highlight several case studies on how some of the SOC partner colleges and universities have adopted SOC’s Pathway to 100% initiative to reach previously underserved populations. The SOC maintains that expanding access and increasing undergraduate research participation is a methodical, step-by-step process.

Themes: Assessment, Nuts and Bolts

83. First-Year Honors Mentor Program: Assessment of Undergraduate Participation in Research

Friday, June 28th 4:30–6:30 pm

Svitlana Zbarska, Iowa State University

The First-Year Honors Mentor Program (FHMP) at Iowa State University is the unique, successful program that offers research experience with faculty members for about 400 honors first-year students from all majors each year. The main objectives of the FHMP are to involve honors students in faculty-mentored research and to develop their interests in research involvement on campus and nationally. To track and assess program outcomes, all student FHMP participants were asked to complete the entry and exit surveys. This project sought to assess how the FHMP impacts honors students' interests to continue research involvement during the subsequent academic years. Also, the demographic data of the FHMP participants was assessed and compared with all first-year honors students.

Themes: Assessment, High-Impact Learning Strategies

84. Strategic Partnerships of the University with the Community for Undergraduate Research and Mentorship

Friday, June 28th 4:30–6:30 pm

Niharika Nath, New York Institute of Technology–Old Westbury

The university can play a big role in engaging the community in undergraduate research. Supporting research in biosciences, chemistry, biotechnology, and health professions, the faculty and students of Life Sciences Department at the New York Institute of Technology–Old Westbury partnered with middle and high schools over a four-year period. The activities included university student- and faculty-led mentoring of middle school students for communications components of research such as abstracts and posters; faculty-led high school student summer research; and computational workshops for structural chemistry research, including remotely accessed scanning electron microscopy. A strategic program awarded funds to competing high school research proposals for project implementation, followed by their research presentations at the university. Such support has fostered research relations with the university and the school community, and raised research activity within those schools.

Themes: Nuts and Bolts, UR Collaborations

85. Suggestions and Resources for Incorporating Internationalization Engagement

Friday, June 28th 4:30–6:30 pm

Kimberly Reiter, Stetson University

Carlos Escoto, Eastern Connecticut State University

Michael Reiter, Bethune Cookman University

The CUR Internationalization Task Force (ITF) invites input from participants interested in internationalizing undergraduate research. This poster seeks to give an overview of the ITF and CUR Internationalization efforts, and to highlight linkages to Spring 2019 international undergraduate research conferences. The World Congress will be given special attention here, with data concerning its mission, the next World Congress, and resources for traveling to the World Congress. This poster will also acquaint interested URPD professionals and faculty with the resources and relevant publications

that the ITF can offer. Finally, the ITF seeks input on how the task force may help strengthen CUR's footprint in promoting and facilitating an international component to undergraduate research.

Themes: Internationalization, UR Collaborations

86. Tracking the Effectiveness of Undergraduate Research Advising

Appointments

Friday, June 28th 4:30–6:30 pm

Mikafui Dzotsi, The Ohio State University

Kayla Daniel, The Ohio State University

Undergraduate research advising appointments are offered at many undergraduate institutions; nevertheless, there is little data proving their effectiveness. In addition, the outcome of many advising appointments is underutilized in terms of tracking undergraduate trajectories and tracking methods for the improvement of undergraduate research programs. Baseline data regarding the departments where students tend to find more research opportunities or the types of funding received by students for their undergraduate research can help improve the types of resources offered by undergraduate research departments to students.

Themes: Assessment, Nuts and Bolts