Creating Collaborative Connections in & through Undergraduate Research

CUR Biennial Conference 2018

Hyatt Regency Crystal City
Arlington, VA
July 1–3, 2018

Program Guide
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Creating Collaborative Connections in & through Undergraduate Research

2018 Council on Undergraduate Research Conference

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Hyatt Regency Crystal City
Arlington, VA
July 1-3, 2018

CUR Conference Planning Committee

Larry Wimmers, Co-Chair
Professor, Department of Biology
Towson State University

Lynnette Young Overby, Co-Chair
Professor of Theatre and Deputy Director for the Community Engagement Initiative
University of Delaware

Scott Bates (Utah State University)
Cynthia DeVries (Juniata College)
Sibdas Ghosh (Iona College)
Bridget Gourley (DePauw University)
Jennifer Lanter (Moraine Park Technical College)
Ruth J. Palmer (The College of New Jersey)
Elizabeth Ambos, Executive Officer, CUR
Tavia Cummings, Manager, Institutes and Meeting Services, CUR
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Welcome from the CUR President and Immediate Past President

It is our pleasure to welcome you to the 2018 Council on Undergraduate Research (CUR) Biennial Conference. The conference focus this year, “Creating Collaborative Connections in and through Undergraduate Research,” features a program that embodies CUR’s commitment to its strategic pillars:

- Integrating and building undergraduate research into the curriculum
- Assessing the impact of undergraduate research
- Fostering diversity and inclusion in undergraduate research
- Promoting innovation and collaboration in undergraduate research
- Advancing internationalization of undergraduate research

Of course, such a large event requires long and careful planning. We would like to recognize the CUR Conference Planning Committee, co-chaired by Lynette Overby and Larry Wimmers, Executive Officer Elizabeth Ambos, Manager for Institutes and Meeting Services Tavia Cummings, and the entire National Office staff. Please join us in thanking them for all their hard work.

CUR is the leading voice of undergraduate research, and this meeting showcases the expertise of our 13,000+ individual and more than 700 institutional members. Over the next three days, you will discover a diverse menu of short presentations, panel discussions, workshops, performance displays, and poster sessions to enrich your understanding of the practice of undergraduate research and stimulate discussion and the exchange of ideas. It’s a wonderful opportunity to share, network, collaborate, and discover the rich and collegial community that has grown up around undergraduate research. In addition to the various sessions, we hope you will also enjoy thought-provoking and inspirational presentations by our plenary lecturers, José Antonio Bowen, Freeman A. Hrabowski III, David Lopatto, and Robin Wright.

Iain Crawford  
Faculty Director, Undergraduate Research Program, University of Delaware  
President, Council on Undergraduate Research

Anne A. Boettcher  
Director, Undergraduate Research Institute and Honors Program, Embry-Riddle Aeronautical University, Prescott  
Immediate Past-President, Council on Undergraduate Research
Welcome from the Program Planning Committee

We are delighted to welcome you to the 20th Biennial Conference of the Council on Undergraduate Research. We are fortunate to once again be in Crystal City, Va.—a city located near historic Washington, DC.

The CUR 2018 Biennial Conference Planning Committee has met regularly since last summer to organize this exciting program for you.

We are eager to share nearly two years of planning and preparation on behalf of you, the advocates everywhere for the practice of faculty-student collaborative scholarly and creative activity. In that spirit, we have chosen the theme: “Creating Collaborative Connections in & through Undergraduate Research.”

We hope this theme captures our vision for this conference – to provide a space for sharing and initiating scholarship that positively impacts our undergraduate students and contributes to knowledge making in our disciplines. We are also interested in ways our disciplines provide opportunities for connections and innovations that prepare our students for a world that does not yet exist – but will certainly look different than it does today. We encourage you to use the formal and informal networking opportunities that are available to you; in this way, you continue the collaborative tradition that is one of the hallmarks of the CUR biennial conferences.

In preparing for this conference, we have worked with an excellent team of colleagues who were instrumental in developing the program alongside the continuing support of the entire CUR National Office Staff.

We sincerely thank them for their service:

Scott Bates [Utah State University]
Cynthia DeVries [Juniata College]
Sibdas Ghosh [Iona College]
Bridget Gourley [DePauw University]
Jennifer Lanter (Moraine Park Technical College)
Ruth J. Palmer (The College of New Jersey)
Elizabeth Ambos, Executive Officer, CUR
Tavia Cummings, Manager, Institutes and Meeting Services, CUR

We are grateful to them.

Welcome to CUR 2018! Your participation and engagement will shape the expected outcomes of this event: new knowledge, valued and constructive networking, an expanded vision of our global agency, and renewed inspiration to instill positive change at your own institutions.

Co-Chairs

Larry E. Wimmers
Professor, Department of Biology
Towson State University

Lynnette Young Overby
Professor of Theatre and Deputy Director for the Community Engagement Initiative
University of Delaware
Welcome to the 2018 Biennial CUR Conference!

Welcome to the 2018 Biennial CUR Conference! On behalf of the CUR National Office staff, I want to express deep appreciation for the dynamic and hard-working conference organizing committee, led by Lynnette Overby of the University of Delaware and Larry Wimmers of Towson University, and for the effective and supportive leadership of Anne Boettcher, president of the 2017-18 CUR Executive Board, and the entire Executive Board and General Council in building a strong community of undergraduate researchers and scholars. Special thanks goes to my National Office staff colleagues, particularly Tavia Cummings, CUR’s manager for institutes and meeting services, who has coordinated much of the planning and logistics for this meeting.

CUR’s mission is to build and enhance high-quality undergraduate student-faculty collaborative research, scholarship, and creative inquiry. Our organization is still growing and diversifying rapidly, and over 730 institutions and more than 13,000 individuals now belong to CUR, including a growing number of non-U.S. members. Since the 2016 Biennial Conference, CUR has launched a new flagship, peer-reviewed journal, Scholarship and Practice of Undergraduate Research; moved to new office space with better capacity to serve our members, and grown and diversified membership engagement through social media outlets and our CUR Community discussion forum. We received our largest grant through the National Science Foundation, continue to expand resources for undergraduate research assessment and integration of research in the curriculum, and reap the many benefits of outstanding National Conferences on Undergraduate Research. Last but not least, we are currently undertaking an ambitious and comprehensive transition in our association management infrastructure, including a complete website redesign.

I encourage all CUR Conference attendees to stop by the conference registration desk to meet the CUR National Office staff, and to talk with Executive Board and General Council members about how you can become more engaged with CUR. If you are not yet a member of CUR, why not join us? We would like to hear from you as to how we can improve what we do to support undergraduate research in its manifold aspects and to broaden our contributions to your success.

Elizabeth L. Ambos, Executive Officer
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Updated 6/21/2018

*This schedule is subject to change.

CUR Biennial Conference 2018 – GENERAL INFORMATION

Address (Meeting Location):
HYATT REGENCY CRYSTAL CITY AT REAGAN NATIONAL AIRPORT
2799 Jefferson Davis Highway, Arlington, VA 22202 T +1 703 418 1234 / F +1 703 418 1289

Check-in Time: 3 pm / Check-out Time: 12 noon

Attire:
Business casual dress is appropriate for all events. Due to fluctuations in room temperature, CUR encourages you to bring a sweater or suit coat for your comfort.

Badges and Conference Registration (Ballroom Level):
All conference registrants will receive a personalized badge with their registration packet. This badge must be worn at all times and will be checked at all sessions, meal functions and events. If you misplace your badge, please come to the CUR registration desk for a replacement.
The Registration Desk will be located on the ballroom level near the escalators and elevators. Staff will be available to check in participants and guests, distribute conference materials and answer any questions that you may have. The hours of operation for the Registration Desk are as follows:

- Saturday, June 30: ............ 7:00 a.m. – 7:30 p.m.
- Sunday, July 1: ............ 7:00 a.m.– 7:00 p.m.
- Monday, July 2: .................. 7:00 a.m. – 7:00 p.m.
- Tuesday, July 3: ................... 7:30 a.m. – 12:30 p.m.

Luggage storage will not be available at the CUR registration desk. Please utilize the hotel luggage storage for your travel needs.

Birds of a Feather at Lunch (Sunday, July 1):
Birds of a Feather (BOF) sessions are an excellent opportunity to connect and interact with other attendees that you may not know with whom you share a mutual interest. The CUR Conference 2018 will feature BOF sessions about many CUR-related topics such as the CUR Transformations Project. If you are interested in leading a table discussion, please send an email to Tavia S. Cummings at tcummings@cur.org with your topic and full contact information.

Book Sales:
At the conference, CUR will sell a limited number of books from a selection of the speakers, as well as a selection of books related to the conference content. Leave some extra room in your suitcase and take your publications with you to save on shipping!

Cell Phones and Other Electronic Devices:
Please be courteous to presenters and fellow attendees by muting your cell phone or other electronic devices while attending educational sessions and meetings.

Guest Wi-Fi Access:
Instructions for logging on to Wi-Fi:
1. Please select Wi-Fi Internet Access: @Hyatt_Meeting
2. Once @Hyatt_Meeting is selected it will route you to the HYATT splash Page and will request your Access Code
3. Please Enter: CC2018 [Your Personal Access Code: this will allow you access to Wi-Fi throughout all Meeting Space **Case Sensitive **]
4. Then press enter
5. Afterwards you will notice the HYATT Crystal City Home Page, which indicates that you have gained access to the Wi-Fi.

**Lost and Found:**
Attendees are also reminded not to leave items of value, including laptops, purses and tablets, unattended at any time. Neither the hotel nor CUR is responsible for lost or stolen items. The hotel Security Department can be reached by dialing 24 from anywhere in the hotel. The security team shift consists of a console officer, roving officer, and patrol officer all equipped with two-way radios, and are on duty 24 hours a day.

Director of Security Marcellus Riley can be reached at extension 6770 or (703) 413-6770. The Security Office is located on the Lobby level pass the ATM machine next to the elevators and front desk.

**Meals Included**: The following meals are included in the full conference registration fee: Saturday, June 30 – Dinner Buffet – 5 p.m.  
(Location: Independence Center)  
Sunday, July 1 – Breakfast Buffet – 7 a.m.; Lunch Buffet – 12 noon; Dinner Buffet – 5 pm Monday, July 2 – Breakfast Buffet – 7 a.m.; Lunch Buffet – 12 noon, Dinner Buffet – 5 pm Tuesday, July 3 – Breakfast Buffet – 7:30 a.m.  
*Drink tickets will be provided for the bar serviced events. All meals will be served in the Regency Ballroom Foyer unless otherwise noted.*

**Medical Emergencies:**  
If you are outside the convention center or the Hyatt Regency Crystal City, dial 911. In the event of a medical emergency within the Hyatt Regency Crystal City, do not dial 911. Instead, contact the Convention Center Security Department by dialing extension 55 from any house phone. If the emergency is within the Hyatt, dial 55 from the nearest house phone and provide:

- Name and location
- Nature of emergency
- Please allow operator to hang up first.

Local EMS, Fire Department, Police and area hospitals are all within 5-8 miles. Average response time is 6-8 minutes.

**Parking and UBER/LYFT Discounts:**  
There is a parking lot very near the hotel that offers discounted parking. Their early-bird parking rate is $10 (in by 9am and out by closing). Visit the link below for details:

Valet parking is available at the hotel; there is no discount pricing for this option. UBER, Lyft (robin53645 for $5 off first ride)

**Photography Disclaimer:**
By attending the CUR Biennial Conference 2018, you acknowledge that photographs and/or videos of you may be taken by our conference staff and/or official photographers at any time. Furthermore, you grant the conference permission to use photographs and/or video of your likeness in any type of media, including websites and print publications, without compensation or reward.

**Session Formats:**  
Single-presenter presentations will typically summarize research in progress and/or study results, models, or other innovative programs and techniques. These presentations are relatively short with 20 minutes for presentation and limited discussion combined. It is recommended that presenters provide handouts and contact information for attendees who may be interested in continuing the discussion at a later time.
**Dual-presenter** presentations involve two people presenting jointly on a topic of common focus and allows more time (30 minutes) for presentation and discussion combined.

**Panel** presentations typically take the form of a series of related presentations on a shared topic by three to four (or more) presenters, including a moderator who should coordinate the session (60 minutes). Panel presenters have been encouraged to structure the time so the presenters interact with one another and the audience as they focus remarks around a series of questions. Presenters should represent a variety of perspectives on the panel topic.

**Posters** are intended to afford a more informal atmosphere in which participants can share their ideas with conference participants across a wide variety of disciplines and institutions. Posters share work done to develop or strengthen undergraduate research institutionally or share examples of student projects, highlighting the various disciplinary models of undergraduate research. Posters will be on display for an extended time during the conference. Presenters should be present during their designated poster session time (1.5 hours) to be available to discuss their work with attendees. Poster boards measuring 40”[width] by 30” [height] will be provided by CUR. Each board will be identified by a number corresponding to the number of the poster listed in the Program Book.

**Location and Hours**
All posters will be shown in the Independence Center on the Independence Level – Sunday, July 1 and Monday, July 2 - 6-7:30 p.m. (See program for more specific details.)

**Setup**
- If you are presenting a poster during poster session 1 on Sunday, July 1, we ask that you mount your poster between 7:30am and 2:45pm. If you are in poster session 2, Monday, July 2, we ask that you mount your poster between 7:30am and 3:00pm. The setup process should take about 15 minutes.
- If you need assistance with finding your poster location and/or mounting your poster, please come by the registration desk where staff will be able to assist you.
- Posters will be mounted on foam poster boards that will be on easels. Pins and binder clips will be provided to affix your poster to the foam boards.
- Posters should NOT be mounted on very heavy stock, as that may prove difficult to mount on the poster boards.
- Each presenter will have a poster board measuring 40”x30” or 30”x40”. The poster number of the paper will be affixed to the board and correspond with the number in the program book.

**Removal**
Please do not remove your poster before 7:30 pm on either Sunday or Monday. Posters left remaining at the session end time will be discarded.

**Workshops** (2 hours) are experiential participatory events on a topic or theme related to undergraduate research. After completing the workshop, participants should know or be able to do something new.

As a participant, check the CUR website for updates to the Conference Presentation Schedule for updates by visiting: https://bit.ly/2018CURBiennial.

**Restaurants:**
Visit the Hyatt’s website for a list of in-house eateries at https://crystalcity.regency.hyatt.com/en/hotel/dining.html or visit the conference registration desk for a list of local restaurants in the area.

**Hotel Shuttle - Airport and Metro (Complimentary):**
The hotel offers a complimentary shuttle to and from the Reagan National Airport leaving the lobby entrance every 20 minutes between 4:40am - 12:00am and picks up at the Airport out front of Terminal A, on the lower level at door 5 at Terminal B, and on the lower level at door 9 at Terminal C.
The hotel also offers a complimentary shuttle to and from the Crystal City Metro station leaving the lobby entrance every 15 minutes on the hour from 6:00am - 10:00pm Monday thru Friday, and 7:00am - 10:00pm Saturday and Sunday. For more details, please visit https://crystalcity.regency.hyatt.com/en/hotel/our-hotel/map-and-directions.html.

**Social Media at the CUR Biennial Conference:**
CUR encourages the use of social media and the CUR Community [https://community.cur.org](https://community.cur.org) before, during, and after the conference as a great way to share, review and discuss the conference, keynote addresses, parallel sessions and networking events. We include (where possible) this material within our archived conference reports – should you wish your blog post or similar to appear here, please let us know. We encourage all those participating in the conference to follow us on Twitter, like us on Facebook, and join our LinkedIn Group. The official meeting hashtag is #CURCONF2018. Be sure to add it to all of your social media posts.

The CUR Biennial Conference Committee would ask that attendees observe the following guidelines:

- Be polite and avoid personal attacks on speakers or fellow delegates. Keep criticism constructive.
- Refrain from using recording devices during sessions without the permission of the speaker.
- Where appropriate ensure you reference/attribute material to the speaker.
- Observe copyright regulations.
- Persons attending are requested to refrain from using perfume, cologne, and other fragrances for the comfort of other participants.

**Special Needs:**
Attendees with special dietary or accessibility needs should notify Tavia Cummings at (202) 783-4810, ext. 204, or email tcummings@cur.org immediately, if you have not previously stated. Attendees will be contacted directly if there are any questions related to your request.

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**Welcome to the CUR Biennial Conference 2018!**

**Did you know?**

The Council on Undergraduate Research has a Job and Opportunity Board available to members.

Visit: community.cur.org
Meeting Program

Saturday, June 30

1:00 p.m.-4:00 p.m.
180-min workshop

Room Assignment: Tidewater II

Math-Computer Science Division Workshop
Facilitator: Kathryn Leonard
Professor and Director of the Center for Undergraduate Research in Mathematics, Occidental College

A Research Lab Model for Student Research in Mathematics. This workshop will demonstrate a model in which multiple students work together on projects over multiple years, allowing for senior students to mentor students just embarking on research. Techniques will be discussed for reformulating single-student research projects as collaborative ones, developing healthy collaborative relationships among students, promoting meaningful contributions by each student, and organizing the logistics of a larger group.

5:00 p.m.–6:30 p.m.—Welcome Dinner and Divisional Mix and Mingle to follow—Room Assignment: Independence Ballroom. See separate handout for division room assignments.

Sunday, July 1

7:00 a.m.–8:30 a.m.—Breakfast—Room Assignment: Regency Ballroom

8:30 a.m.-9:45 a.m.—Open Plenary—Room Assignment: Regency
Speaker: Freeman A. Hrabowski, III
President, University of Maryland, Baltimore County
“Undergraduate Research: A Right, Not a Privilege”
Introduction by: Lynnette Overby, University of Delaware
Keynote will be followed by a book signing.

Concurrent Session 1

9:45 a.m.–10:05 a.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

MoBi4all – Live from the Lab and Back
Dorothea Kaufmann
Ruprecht-Karls-University Heidelberg

With “MoBi4all,” students get the chance to learn about research in molecular biotechnology from the very beginning of their studies. Starting with seminars and a mentoring program, they develop personal and scientific skills to start their own research project in their fifth semester of studies. Furthermore, they get the chance to discuss the results of their work with fellow students, academic staff, and alumni.
Creating Collaborative Connections in & through Undergraduate Research

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Research-Based Learning in Project Laboratories Supported by Digital Tools as Motivating and Effective Teaching Method
Franz-Josef Schmitt | Zuleya Yenice Campbell | Christian Schroeder | Thomas Friedrich
TU Berlin | TU Berlin | TU Berlin | TU Berlin

Research-based learning (RBL) and project-based learning motivate students to identify with different subjects. The broad range of laboratories offered in the one-year orientation study program MINTgrün (“STEM” green) at Technische Universität Berlin follows the concepts of RBL with a transdisciplinary approach and allows for a free choice of a project drafted by the students themselves. We observed high motivation and a strong tendency to get involved in sustainability research under students participating in our lab, the online project laboratory in chemistry.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Quantitative Analysis of an Urban Community College S-STEM Program
Amanda Chapman
Phoenix College

The NSF-funded UC S-STEM program was designed to comprehensively support academically talented, low-income students from diverse backgrounds. A retrospective, quasi-experimental comparison study of program data collected over a three-year period was performed. Analysis revealed statistically significantly higher rates in student success, progress, and cumulative GPA in the group of students who participated in the program and a matched comparison group of students, who did not receive the intervention; a within-subjects t-test comparison on progress-rate evidenced statistically significantly higher rates in students after the intervention than before.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

Five Practices for Addressing Equity Gaps in UR, as Stated by Students from Underrepresented Groups
Jenny Olin Shanahan
Bridgewater State University

Undergraduate research opportunities continue to be disproportionally available to students from socioeconomically advantaged backgrounds. To address equity gaps, a focus on recruitment and mentoring practices is needed. This research has identified five themes from interviews and surveys of 200+ students in 15 different programs at Bridgewater State University (Massachusetts), where two-thirds of students are from underrepresented groups, and students at other institutions as reported in the literature. Students described particular recruitment efforts and forms of social-emotional support of mentors they saw as critical to diverse, equitable, and inclusive UR programs.
9:45 a.m.–10:15 a.m.
30-min dual-presenter presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Washington Room A

Undergraduate Research in Creative Works Fields: Developing an Inclusive Model on a STEM Campus
Sarah M. Misemer
Texas A & M University

We will discuss our year-long process to develop a definition of and template for undergraduate research in the creative works fields on a campus with a strong tradition of STEM research. Through this initiative, we seized the opportunity to educate students, faculty, staff, and administrators on different research models, open new research venues for underserved students, and engage students and faculty in transformational learning through undergraduate research in creative works. This information will be used to stimulate discussion about what creative works research looks like on different types of campuses.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Washington Room B

An Interdisciplinary Model for Incorporating Research into Undergraduate Coursework
Amy Adkins | Marcie Walsh
Virginia Commonwealth University | Virginia Commonwealth University

This presentation details three successful efforts to incorporate research into interdisciplinary undergraduate coursework: a curricular research class centered around the “Spit for Science” project, a 3-credit course teaching the science behind well-being and related evidence-based practices, and a short course focused on applying research knowledge to evaluate aspects of pop culture. Attendees will learn details behind these efforts (including lessons learned), get feedback (if interested in creating a similar model), and engage in a broader discussion of how to design coursework to promote scientific thinking as a lifelong skill.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Potomac Room I

Multiple Access Points for Research Engagement Encourages Student Success
Lance Barton | Jessica Healy
Austin College | Austin College

In order to provide early and equitable access to undergraduate research opportunities, Austin College has created a number of programs that are developmental in nature. The ENSURE, ACCESS, and summer program in the sciences encourages early engagement with research, a developmental focus for student outcomes, and community support for all students.

Internationalization and Undergraduate Research

Room Assignment: Potomac Room III

Using Partnerships to Easily Build an International Research Opportunities Program
Marisa Moazen | M.T. te Booij
University of Tennessee at Knoxville | Leiden University

For small UR offices, the thought of providing international research experiences for students can be overwhelming. This session will describe how the University of Tennessee created an International Research Opportunities Program (IROP) using partnerships both internal and external to the institution. One of those partners, EuroScholars, will provide information on how other universities can participate in this unique partnership to increase international opportunities for undergraduate research.
9:45 a.m.–10:45 a.m.
60-min panel presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

Sharing and Reflecting on the Institutional Models That Support UR
Patrick X. Rault | Michael Dorff | Patricia A. Morreale | Michael Jackson | John F. Barthell
University of Arizona | Brigham Young University | Kean University | Millersville University | University of Central Oklahoma

Many institutional models for supporting undergraduate research (UR) were created with lab sciences in mind. The panelists will use their own experiences as practitioners and administrators to describe the similarities and differences between UR in theoretical and experimental disciplines. Participants will see examples of best practices (and pitfalls) for engaging students and administrators in UR. Presented models will identify different entry points, from first steps for just-starting UR researchers/administrators to enhancements for established programs seeking to include additional UR areas and topics.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

Connecting Research across the Disciplines: Creating an Undergraduate Research Club for All
Alison Rios Millett McCartney | Bethany Pace | Rhiannon Napoli | Lauren Oebker Cahalan
Towson University | Towson University | Towson University | Towson University

We brought together faculty, administrators, staff, and students to create an undergraduate research club to answer questions about and promote undergraduate research within and across the disciplines and connect student researchers across disciplines. The club is also a vehicle for disseminating information on expected outcomes of research, such as conference applications and attendance, and planning for it in students’ undergraduate careers and beyond. Finally, this club serves as a means for faculty mentoring of students and peer-to-peer mentoring. Panelists include faculty, an administrator, a staff member, and the student club president.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

LEARNing to Lead: Peer Mentors of First-Year Research Communities
Colleen M. Smith | Jodiene Johnson | Kloo C. Hansen | Michael Aldarondo-Jeffries
University of Central Florida | Florida Atlantic University | Western Carolina University | University of Central Florida

The L.E.A.R.N. Consortium comprises three institutions that study models that support and retain STEM students through developing undergraduate research communities. A core element of this program is to incorporate peer mentors who coach participants throughout the year. Effectively training upperclassmen peer mentors in STEM disciplines can be challenging. Participation in trainings on digital leadership, growth mind-set principles, student development theories, and assessment of student work help to develop peer mentors professionally. In this session, we will review practices in developing these trainings.
Assessment of Impact of Undergraduate Research

Room Assignment: Kennedy Room

**Progress in Scaling Up an Innovative Evaluation Method: Perspectives from Pilot Implementation Sites and Next Steps**

Jill Singer | Karen G. Havholm | Jennifer Harris

State University of New York - Buffalo State | University of Wisconsin - Eau Claire | University of Washington

Development and pilot testing of an evaluation method for summer research programs is discussed. The method involves multiple assessments of student knowledge and skills for 11 outcome categories each defined by multiple components. Mentors assess students, students self-assess, and mentor-student pairs experience repeated structured interactions to help students reflect and identify content knowledge and skills they desire to improve. A “dashboard” facilitates tracking. Panelists represent institutions that pilot tested the method. Discussion includes refinement of the method, the next round of pilot testing, and plans for eventual broader distribution.

**9:45 a.m.–11:45 a.m.**

**120-min workshops**

Diversity and Inclusion in Undergraduate Research

Room Assignment: Arlington Room

**More Buzzwords in Higher Education? Diversity and Inclusion in Undergraduate Research**

Vanessa McRae | Jacob A. English

Lincoln University | Georgia State University

In this session, we will attempt to define diversity and inclusion, discuss their benefit to undergraduate research, and present models for diversifying undergraduate research programs in an effort to reenergize the terms and lead a discussion about its place in higher education. Diversity and inclusion cannot become buzzwords as the future of our disciplines depend on the depth and variety of perspectives of emerging scholars.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Tidewater II

**Starting an Undergraduate Research Lab Outside the Laboratory Sciences**

Megan L. Becker

University of Southern California

Looking to increase the impact of your involvement with undergraduate research, but concerned about balancing the needs of your students with your other professional obligations? Why not start a research lab? Learn how to use the laboratory model to organize collaborative undergraduate research experiences, even if you are in a field that doesn’t traditionally have labs. We will cover the why, what, and how of starting your own research lab.
Creating Collaborative Connections in & through Undergraduate Research

Other

High Stakes, High Impact: Models of Support for High-Stakes Writing in Undergraduate Research
Natasha D. Oehlman | Heather Haeger
California State University - Monterey Bay | California State University - Monterey Bay

In this hands-on workshop, participants will learn about STEM undergraduate researchers’ experiences writing for competitive fellowships and scholarships and the context of the feedback support mechanisms that make the application process a transformative experience regardless of whether the student receives the award. Students stressed that the process of writing, reflection, and peer, professional, and mentor feedback is what provided the impetus for transformation. Presenters will share strategies for effective feedback approaches grounded in constructivist methodologies when working with undergraduate researchers writing high-stakes products. Session attendees will participate in activities (i.e., norming to calibrate a group of writers using a standard rubric, Socratic dialogue, and constructivist approaches) that facilitate transformative reflection and writing when working with undergraduate researchers.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Fairfax Room

Modules for Testing the Effects of Temperature on Respiratory Rate and Metabolism in Goldfish
Susan E. Safford
Lincoln University

This workshop provides the participant with exposure to a living vertebrate physiology model – goldfish – that can be used to create authentic research experiences in respiratory and metabolic physiology at multiple levels of difficulty. Basic chemical and physical principles that affect solubility of gases in water can also be added. Thus, the participant gets hands-on experience with this goldfish model and the opportunity to create or modify modules for use in their own classes.

10:10 a.m.–10:30 a.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

Using Yeast to Reduce Intractable Research: A Model for Course-Based Undergraduate Research
Brett J. Schofield
Doane University

The presenter will discuss a novel, course-based research program for upper-division undergraduate students taking molecular biology. The program utilizes yeast genetics to screen mammalian proteins for insulator activity. The presenter also will describe the design considerations that shaped the project and how similar programs could be developed for other biology courses.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Assessment of Undergraduate Research Learning Outcomes: Poster Presentations as Artifacts
Rachel Hayes-Harb
University of Utah

At the University of Utah, we have recently launched a discipline-general undergraduate research assessment project. We have elaborated a set of undergraduate research learning outcomes; developed a poster presentation evaluation rubric that aligns with these outcomes; and deployed graduate student, postdoctoral, and faculty attendees of our campus-wide Undergraduate Research Symposium as ad hoc raters. In this talk we will present initial results from this direct assessment project and discuss its challenges, especially as they may relate to the implementation of similar efforts at other institutions.
Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

**Designing Interdisciplinary Undergraduate Research Experiences to Increase Diversity in STEM**
Solomon Bililign
North Carolina A&T State University

The recruitment of undergraduate students, especially minorities, into STEM career paths continues to be a challenge. One approach for addressing this issue provides an interdisciplinary research opportunity that has societal relevance and involves year-round research combined with summer or short visits to major university, national lab, or private research facilities. Other program components include (1) cohort-building activities and effective mentoring, (2) short-course professional development modules focused on research ethics, literature survey, writing, and data management; and (3) student engagement in the creation of personalized professional development plans.

10:20 a.m.–10:50 a.m.
20-min dual-presenter presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Washington Room A

**The Advantages and Pitfalls: Running an Undergraduate Research Program at an Urban University**
Salina Blea | Sheryl Zajdowicz
Metropolitan State University of Denver | Metropolitan State University of Denver

Based at an urban, nonresidential university that has a diverse and nontraditional student population of approximately 20,000 students, MSU Denver's undergraduate research program faces a unique set of pitfalls and advantages for its program. This presentation will touch on the numerous setbacks and the innovative steps that we take to keep this program running strong.

Other

Room Assignment: Potomac Room III

**Funding Opportunities for Undergraduate Research and Education in STEM**
Eileen M. Spain | Sunghee Lee
Occidental College | Iona College

Securing funding to launch, establish, and sustain productive and impactful undergraduate research and educational programs in STEM fields at primarily undergraduate institutions is a clear challenge. This interactive panel discussion will explore how junior, mid-career, and senior faculty can navigate various funding sources at the federal, state, and local levels as well as at private foundations. The panel will share various strategies and experiences to help participants better position themselves for success in their grant-writing endeavors.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Washington Room B

**Using Undergraduate Research as a Tool to Help Recruitment and Retention at Siena College**
Daniel F. Moriarty | Jodi O’Donnell
Siena College | Siena College

Undergraduate research has been incorporated into multiple classes in the School of Science at Siena College, including opportunities with nonprofit community partners. This has been designed to engage students at multiple points, helping to increase recruitment and retention.
Diversity and Inclusion in Undergraduate Research

Room Assignment: Potomac Room I

**Voices on the Verge—Mentoring through Transitions**
Mary L. Crowe | Bessie M. Guerrant
Florida Southern College | University of Kentucky

This session will highlight the authentic voices of individuals creating inclusive environments. Attendees will hear individual narratives about mentoring and climate. After each set of narratives, attendees will reflect on what was heard and how to use that information to inform their own programs.

**10:35 a.m.–10:55 a.m.**
**20-min single-presenter presentations**

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Teaching Skills in Scientific Literacy and Data Analysis at the Introductory and Advanced Levels: Building Research Skills Beyond the Bench**
Karen K. Resendes
Westminster College

Undergraduate research in biology is built upon many skills that extend beyond benchwork or fieldwork. This presentation will describe the undertaking and assessment of recent changes made in an introductory course and an advanced special topics course at Westminster College performed in order to develop research support skills at a level appropriate to student development across their undergraduate career.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**Ten Years of Ideas for Marketing Undergraduate Research Engagement to Potential Employers**
Jeanetta D. Sims
University of Central Oklahoma

Undergraduate research students and faculty mentors are challenged constantly with translating the impact of students’ university research experiences into evidence of workforce readiness. Drawing from 10 years of student examples from Diverse Student Scholars, an interdisciplinary undergraduate research program, this presentation offers ideas, examples, and strategies for students to market their undergraduate research engagement in resumes, websites, and portfolios. Attendees will leave the session better able to craft relevant, action-oriented evidence statements that showcase the transferability of student research engagement in future employment opportunities.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

**Projects Organized by Students at Technische Universität Berlin Motivate Engagement in Sustainability Research**
Franz-Josef Schmitt | Christian Schröder | Anna Haas | Nikolaj Koch | Saba Nojoumi
TU Berlin | TU Berlin | TU Berlin | TU Berlin | TU Berlin

Self-organized projects motivate students’ engagement in sustainability research. Technische Universität Berlin (TU Berlin) supports students willing to participate in self-managed projects (tu projects) with student tutor positions. The tu projects are developed by the students themselves and often focus on ecological problems and sustainability. We followed the team MultiBrane of the TU project “iGEM-Synthetic Biology” developing a functional biological membrane for water treatment. MultiBrane won third prize in the BIOMOD competition 2017 in San Francisco.

Sunday, July 1, 2018—10:20 a.m.–10:50 a.m.
Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

**Disseminating a Pioneering Handbook on Mentoring Students in Undergraduate Research**

Aida L. Egues  
New York City College of Technology

A multidisciplinary committee of trained faculty mentors from fields across schools of arts and sciences, professional studies, and technology and design at a unique college within an urban university system developed a pioneering peer-reviewed handbook on mentoring students in undergraduate research, with a focus on faculty and student diversity and inclusion in undergraduate research developmental relationships.

10:50 a.m.–11:50 a.m.  
60-min panel presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

**Building Research Success across Disciplines Using a Multi-Semester Course Sequence**

Melissa I. Gebbia | Jodi F. Evans | Hia Datta  
Molloy College | Molloy College | Molloy College

Three different disciplines at Molloy College have developed multi-semester research course sequences independently of each other. The biology, psychology, and speech-language pathology undergraduate programs work with students in a two- or three-semester course progression aimed at developing, conducting, and disseminating original research. Students need to make the connection between the successful accomplishment of the series and the achievement of their career goals. The departments will share how they develop an understanding of the student’s research identity early on as well as how they assess student success later in the sequence.

Assessment of Impact of Undergraduate Research

Room Assignment: Kennedy Room

**Assessment of REU Impacts: Current Resources and Planning for Expansion**

Anne A. Boettcher | John F. Barthell | John M. Hranitz | Sally E. O’Connor  
Embry-Riddle Aeronautical University | University of Central Oklahoma | Bloomsburg University | National Science Foundation

Broadly-available surveys (e.g., SURE, CURE, AAC&U Value Rubrics…), program-mandated surveys (e.g., CIMER and URSSA-SALG), and individualized surveys are used in assessment of National Science Foundation Research Experiences for Undergraduates (NSF REU) sites. In this highly interactive session, participants will have the opportunity to review the assessment tools most commonly used by REU programs and will also discuss pressing questions with regard to expanding and enhancing assessment, particularly longitudinal impacts of REU participation on student success. The panel includes NSF program directors, as well as present and past NSF-REU principal investigators.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

**Enhancing the Postdoctoral Experience through Liberal Arts Colleges**

Mark E. Lee | Monica S. Stephens Cooley | Emily Weigel | Caitlin Conn  
Spelman College | Spelman College | Georgia Institute of Technology | Emory University

Spelman College piloted a NSF-funded postdoctoral program to accomplish several goals: increase access to undergraduate research (UR) for students, train early-career postdoctoral scientists in research, provide a setting to develop their mentoring skills, expand the number of course-based research experiences (CUREs) offered, and evaluate the value of postdoctoral fellows in undergraduate STEM departments.
Creating Collaborative Connections in & through Undergraduate Research

Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

Creating Successful Undergraduate Research Connections between Two-Year and Four-Year Colleges and Universities
Jennifer A. Lanter | Diana Spencer | Michelle Hayford | Prajukti Bhattacharyya | Jane Lehr
Moraine Park Technical College | Tulsa Community College | University of Dayton | University of Wisconsin - Whitewater | California Polytechnic State University- San Luis

This session will bring together individuals active in undergraduate research, scholarship, and creative activities at two-year colleges with those at four-year colleges and universities to discuss opportunities and pathways that allow student researchers to transition seamlessly from two-year to four-year institutions. The goal of this session is to share best practices, as well as the benefits and challenges, of connecting two-year and four-year undergraduate research experiences for students and related professional development for faculty.

10:55 a.m.–11:25 a.m.
30-min dual-presenter presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Washington Room A

L.E.A.R.N. Consortium: Research Communities for First-Year and Transfer STEM Students
Kimberly R. Schneider | Donna Chambely-Wriik | William R. Kwochka
University of Central Florida | Florida Atlantic University | Western Carolina University

Building upon a successful STEM first-year student model, three institutions have adapted and implemented a research learning community program for two unique audiences: transfer students and first-year students. These two types of programs share strategies of early engagement in undergraduate research, mentoring, and a supportive community but are implemented differently to meet the diverse needs of each population. This presentation will share the various models and assessments implemented at each institution to date and provide preliminary data, including retention, focus-group reports, surveys, and embedded measures.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Washington Room B

Co-developing Scalable and Adaptable Undergraduate Research Courses in the Humanities with Interdisciplinary Teams
Valerie Imbruce | Ashley A. Serbonich
State University of New York-Binghamton | State University of New York-Binghamton

It is difficult to enable groups to “think together” and co-develop interdepartmental initiatives. We will discuss two efforts at Binghamton University to develop interdisciplinary, interdepartmental research courses that forefront the humanities as a team effort.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Potomac Room I

Cultivating Resilience: Supporting Minoritized Student Scholarly Voices through UREs
Susan Mendoza | Sultan Hubbard
Grand Valley State University | Virginia Commonwealth University

Are effective mentoring and programmatic supports enough to overcome historic inequities and the hostile climate that minoritized students face in higher education? In this presentation, the presenters reflect on their work designing, executing, and evaluating UREs that serve minoritized students. The presenters will discuss elements of programmatic design that promote a reflective scholarly journey for students and space to hone their voices. By infusing these elements into an URE program’s framework and culture, programs can support students to engage in graduate education from a place of integration and resiliency.
11:00 a.m.–11:20 a.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Bringing a Passion for Research to Introductory Students: An Update on the Passion-Driven Statistics Project**
Lisa Dierker
Wesleyan University

In this update on the Passion-Driven Statistics Project, we will present recently collected data on the portability of this project-based, applied statistics course to varied educational settings (i.e., state and regional universities, diverse liberal-arts colleges, community colleges, and youth enrichment programs), demonstrating that this model provides students with a unique opportunity to get “hooked” on the power and excitement of quantitative research regardless of level of preparation, learning style, or initial interest.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

**Community Colleges University Partnerships as Catalysts for Promoting Materials Science Education**
Bartlett M. Sheinberg
Houston Community College

This presentation will present the findings of a recent Materials Research Society Conference educational symposium (November 2017) that addressed the roles of partnerships and collaborations relating to the development and implementation of materials science education and undergraduate research experiences at universities and community colleges.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

**Mentor-Based Research Promotes Scientific Efficacy in Underrepresented Nursing Undergrads**
Darpan Patel
UT HSC at San Antonio

The Summer Undergraduate Nursing Research Immersion Experience (SUNRISE) program was developed to provide opportunities for 2 eight-week summer mentored research experiences for eligible underrepresented/underserved (UR/US) undergraduate nursing students. Using a mentor-based approach, UR/US students were given one-on-one training that is often lacking in nursing programs. Through the first two years, the SUNRISE program improved UR/US student’s scientific efficacy and contributions to science, boosting potential for success in nursing school and enrollment in graduate education.
Creating Collaborative Connections in & through Undergraduate Research

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**Undergraduate Research Experiences Broaden Diversity in the Scientific Workforce**

Paul R. Hernandez | Anna Woodcock | Mica Estrada | Wesley Schultz
West Virginia University | California State University - San Marcos | University of California - San Francisco | California State University - San Marcos

We used a large-scale, 10-year, longitudinal, multi-institutional, propensity-score-matched research design to compare the academic performance and persistence in science of students who participated in URE(s) with those of similar students who had no research experience. Our results showed that students who completed 10 or more hours of cocurricular, faculty-mentored research per week across two or more academic semesters or summers were significantly more likely to graduate with a science-related bachelor's degree, to be accepted into a science-related graduate training program, and to be training for or working in the scientific workforce 6 years after graduation.

11:25 a.m.–11:45 a.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Integrating Student-Designed Research into a Probability and Statistics Course**

Joanna Masel
University of Arizona

We designed a course that de-emphasizes the authentic character of research in favor of stronger student ownership of research projects and an emphasis on experimental design and other statistics skills. The capstone is for students to design a randomized intervention study on a topic of their own choosing, to evaluate each others' proposals, and to carry out several in teams. This capstone is closely integrated into a probability and statistics course that shows large pretest-posttest gains on the Quantitative Reasoning Quotient and Attitudes Toward Statistics instruments.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

**STEM-Based Applied Organizational Sustainability Curriculum Development: Integrating Business, Climate Science, and the Natural Environment**

Elizabeth L. Petrun Sayers
RAND Corporation

Universities are aware of calls to help their graduates understand the relationship between traditional disciplines like business and environmental concerns. This presentation will introduce an effort between two universities and a nonprofit think tank to develop, implement, and evaluate a Science, Technology, Engineering, and Math (STEM)-based curriculum in applied organizational sustainability. Additionally, we present results from initial pilot testing of the student assessment instrument. Key evaluation areas included student cognition, knowledge, sustainability literacy, self-efficacy, beliefs, affect, and perceptions related to sustainability, climate change, international business, and the natural environment.
An Innovative (and FREE!) Program Model for Undergraduate Research Education
Stephanie M. Shiver
University of Utah

The Office of Undergraduate Research at the University of Utah hosts an innovative research-based education program called the Undergraduate Research Education Series. I will talk about the motivation for and design of the program, tracking its growth and assessing its impact, and challenges in designing and implementing this program. This program model will be helpful for any campus trying to build an educational component into undergraduate research programs, as it is flexible and free (to both students and the office), and has seen notable success on campus.

Fostering a Departmental Culture of Undergraduate Research: A Five-Year Case Study
Trent W. Maurer
Georgia Southern University

Malachowski (2017) has argued that the most significant barrier to undergraduate research is departmental culture. This session will present the results of a five-year case study of an initiative to promote a culture of undergraduate research in a department at an R3 doctoral university. Topics to be discussed will be couched in Malachowski’s (2017) recommendations and include start-up and sustaining funding sources, obtaining faculty buy-in, faculty workload and promotion and tenure considerations, administrative organization and management, student recruitment, project resources, and products/outcomes. Both successes and failures will be highlighted.

The Development and Implementation of an Undergraduate Research Practicum
David Oberleitner | Jessica A. Nelson
University of Bridgeport | University of Bridgeport

The undergraduate Research Practicum is designed to directly address the implementation of research-based coursework within the curricula. By utilizing a research practicum model, academic departments can support the integration of research into the undergraduate curriculum by offering an applied research mentorship course specific to the discipline. Discussion will include review of sample syllabi, course assignments, online resources, and assessment as well as strategies for design and implementation across different content areas, practical advice for successful mentorship, and ideas for growth beyond a single-semester practicum model.

Lunch
12:00 p.m. – 1:30 p.m.—Lunch—Regency Ballroom Foyer
Concurrent Session 2

1:30 p.m.–1:50 p.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room II

Strategizing Beyond Educational Inadequacy in Connecting Research and Teaching: An Institutional Approach
Didi M.E. Griffioen
Amsterdam University of Applied Sciences

The current assignment of vocational programs in higher education is to educate future evidence-based professionals. A substantial connection between research and teaching is presumed necessary to be able to achieve this aim with students (Healey and Jenkins, 2015). As an effect the Dutch institutes for higher professional education have increased their attention to the connection between research and teaching to develop knowledge-related competences in students. The presenter will discuss a large-scale institutional change program in Amsterdam UAS (2015-2020) that aims to implement research in 70 undergraduate programs.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

At Large "and in Charge." Results from the 2016-2017 At-Large-Division Membership Survey: Implications for CUR’s Strategic Pillars
Jack F. Shelley-Tremblay
University of South Alabama

In 2016 - 2017, one of the three At-Large Committee Counselor working groups was charged with developing and administering a survey. The At-Large Division is currently the largest CUR division but one with the most diversity of disciplines and roles. As such, the survey sought to clarify the level of interest, engagement, and understanding of the division’s members.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

An Iterative and Scaled Introduction to Research in a Biology Class for First-Year Students
Larry E. Wimmers
Towson University

The presenter will describe a semester-long series of activities for introductory biology that help students learn critical aspects of the process of science by doing science. Key features include allowing students to learn by correcting their own mistakes and providing progressive challenges culminating in an authentic research project.
Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

**STEM Undergraduate Research Experiences: Student Veteran Perspectives**  
Laura Ott | William R. LaCourse  
University of Maryland-Baltimore County | University of Maryland-Baltimore County

This work explored student veterans’ perspectives of undergraduate research experiences. Two military veterans, who participated in a summer undergraduate research internship, were interviewed about their perspectives of the internship in the context of their military experiences. Common insights from the military veterans revealed: 1) synergies between their military experiences and being able to connect to other students within the internship cohort, 2) specific skills provided by the military such as attention to detail and accountability that helped them to achieve success, and 3) disconnections between the military chain of command and the structure of a research lab.

1:30 p.m.–2:00 p.m.  
30-min dual-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

**Establishing an Institutional Office of Undergraduate Research for Broadened Participation and Assessment of Impacts**  
Michelle Richards-Babb | Kimberly D. Quedado  
West Virginia University | West Virginia University

Our centralized Office of Undergraduate Research coordinates scholarly activities across the institution. Centralization has (1) increased the number of students involved, (2) expanded the disciplines served, (3) diversified the students who engage in scholarly activities, and (4) provided support for faculty members. We also provide opportunities for students to communicate their results whilst discussing the benefits of engaging in scholarly activities with the next generation of students. Best practices for administering an Office of Undergraduate Research as well as evaluative summary data and assessment of impacts will be presented.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room B

**Barriers and Benefits to Undergraduate Research Engagement: Faculty and Administrative Perspectives from Psychology**  
Matthew T. Schmolesky | Amy M. Buddie | Tsu-Ming Chiang  
Georgia Gwinnett College | Kennesaw State University | Georgia College and State University

The current study is, to our knowledge, the first large-scale, multi-site investigation into the barriers and benefits to faculty participating in undergraduate research (UR) in psychology. The study aimed to gauge perspectives on such barriers and benefits from four distinct sources: (1) individual faculty members, (2) department chairs, (3) undergraduate research directors, and (4) deans or associate/assistant deans.
Creating Collaborative Connections In & through Undergraduate Research

1:30 p.m.–2:30 p.m.
60-min panel presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Kennedy Room

**Excellence in Mentoring Undergraduate Research and Inquiry**
Jessie L. Moore | Paul C. Miller | Maureen Vandermaas-Peeler | Elizabeth Ackley | Caroline J. Ketcham | Ruth J. Palmer
Elon University | Elon University | Elon University | Elon University | The College of New Jersey

This session features three projects that stemmed from a multi-institutional research seminar on Excellence in Mentoring Undergraduate Research hosted by Elon University's Center for Engaged Learning. These projects represent three chapters from a forthcoming CUR publication. This session will describe the research seminar and the main outcomes of three seminar projects and propose future directions for discussion.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

**Bridging the STEM Gap for Underrepresented Minorities through Undergraduate Research**
Irene Aninye | Christine F. Hohmann | Michael Summers | Jacqueline King
Loyola University Maryland | Morgan State University | University of Maryland-Baltimore County | University of Maryland-Baltimore County

The AAAS Research Competitiveness Program will lead a discussion on tools and practices to promote successful outcomes in training underrepresented minorities in STEM through undergraduate research. The panel includes three leaders of successful research and scholarship programs and laboratories that provide models for using undergraduate research to increase retention in STEM graduate programs and careers.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

**Institutional Collaboration and Hybrid Learning for Computational Data-Enabled Science and Engineering Courses Incorporating Course-Based Undergraduate Research Experiences (CUREs)**
Matthew Ikle | Hong P. Liu | Michael J. Wolyniak | Raphael D. Isokpehi | Michael Spector
Adams State University | Embry-Riddle Aeronautical University | Hampden-Sydney College | Bethune-Cookman University | University of North Texas

A consortium of four universities and colleges (Adams State University, Alamosa, Colorado; Embry-Riddle Aeronautical University, Daytona Beach, Florida; Hampden-Sydney College, Hampden Sydney, Virginia; Bethune-Cookman University, Daytona Beach, Florida) has pioneered teaching course-based undergraduate research experience (CURE) interdisciplinary computational data-enabled science and engineering (CDSE) courses using a combination of hybrid cyber learning technologies and in-class experiences. In this panel session, primary investigators from the consortium will detail the overall program design, as well as describe the technologies used and experimented with along the way. Presenters will share their experiences, challenges, difficulties, failures, learning opportunities, and—ultimately—successes from the ambitious program. CURE is a critical component of the active learning pedagogy that was used to promote CDSE education.
Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

Building Collaborative Relationships: Discussion of Vignettes Showcasing Innovative Relationships Designed to Support Student Learning
Jennifer A. Lanter | Aaron Richard Sakulich | Michael Jackson | Mark L. Lord
Moraine Park Technical College | Worcester Polytechnic Institute | Millersville University | Western Carolina University

The Council on Undergraduate Research’s Innovation and Collaboration Task Force, consisting of Councilors from several CUR divisions, has developed a website to collect, peer review, and share case-study examples of collaborations that support opportunities, resources, and/or success for undergraduates. In this panel we will discuss the information available on the website, as well as the vignette submission and review process. In all, our goal is that, through sharing these examples—both on the website and at the conference—we will inspire others to engage in innovative and collaborative activities.

1:30 p.m.–3:30 p.m.
120-min workshops

Diversity and Inclusion in Undergraduate Research

Room Assignment: Tidewater II

Mentoring Undergraduate Researchers through Inclusive, Effective, and Equitable Practices: A Faculty Professional Development Series
Jane Leht | Nicki Holm
California Polytechnic State University- San Luis | California Polytechnic State University- San Luis

This session will introduce participants to the development, implementation, and impacts of a 10-hour faculty professional development training focused on inclusive and equitable undergraduate research mentorship. Presenters will provide an overview of the workshop structure and learning objectives, and share why and how the workshop series is designed to challenge colorblindness as an equity strategy in UR mentoring. Participants will engage in selected activities from the workshop series to demonstrate how objectives were addressed. Presenters will share pilot data and identified best practices to position attendees to develop/improve similar trainings.

Other

Room Assignment: Prince William Room

Introducing Digital Literacy through Undergraduate Research at Clemson University
Cora Allard-Keese | Barbara J. Speziale
Clemson University | Clemson University

In this session, we will discuss the evolution of this digital communications initiative and the logistics behind administering these opportunities within the CI program. During this interactive session, we will guide participants through the process of creating their own digital communications using Adobe’s free mobile apps that they can download onto their computers or phones. All participants should come into the session with a laptop, tablet, or smartphone, and material such as photographs, videos, and text that they will incorporate into a digital story.
Creating Collaborative Connections in & through Undergraduate Research

Diversity and Inclusion in Undergraduate Research

Room Assignment: Arlington Room

Confronting and Disrupting the Silence: Sexual and Gender-Based Harassment in UREs
Susan Mendoza | Mary deYoung
Grand Valley State University | Grand Valley State University

In the post-Weinstein Era of sexual and gender-based harassment, faculty and administrators engaged in undergraduate research are uniquely positioned to create programs and mechanisms that support students and disrupt the silence of harassment. Through this interactive workshop, participants move beyond a singular model of harassment and develop an understanding of how power manifests, is wielded, and is resisted in the academic context. Participants will co-create an agenda for action that will educate undergraduate students and faculty mentors, deepening programmatic structures, strengthening mentoring relationships, and disrupting the culture of silence.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Fairfax Room

Curricular Scaffolding of Undergraduate Autonomy and Thinking Routines for Research Mindedness
John Willison
University of Adelaide

The benefits of mentored undergraduate research to a large extent depend on the skill set, knowledge base, and attitudes that each student brings to the experience. This workshop will provide participants with the concepts and practical examples of how to enact scaffolding in the curriculum, across one semester or across multiple semesters, that builds student skills and attitudes in the context of regular subjects' knowledge base and that culminates in research mindedness.

1:55 p.m.–2:15 p.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

Course-Based Research in Introductory Psychological Science
Andrea J. Sell
California Lutheran University

This presentation describes the course-based research from the California Lutheran University Psychology Department’s introductory-level research methods class. The course is unique in that introductory-level students are permitted to collect authentic data from participants in our psychology department subject pool. I include a detailed description of the course, followed by results from a survey of alumni, students, and faculty about the course. I report the results in the form of a series of recommendations and suggestions for new instructors seeking to develop a similar course.

Room Assignment: Potomac Room II

Inquiry Learning Arrangements in Teacher Education: Arousing Teacher Students' Inquisitive Nature
Rosi Klepser | Holger K-H Weitzel
University of Education Weingarten | University of Education Weingarten

Arousing curiosity to do inquiry is regarded as prerequisite for successful inquiry learning in teacher education. We know from teacher professional development that teachers experience individual meaningfulness of research when they realize benefits for the learning processes of their students. To arouse curiosity in inquiry in primary school teacher students we developed and implemented a model of inquiry learning at our university that focuses on children’s misconceptions and learning processes even in science content courses. We present qualitative and quantitative data on how this focus fosters teacher students’ inquisitive nature.
Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**Measuring the Impact of On-campus Conference Presentations for Undergraduate Researchers**

James Craig Clarke | Thomas J. Tomcho | Mark I. Walter | Rob Foels
Salisbury University | Salisbury University | Salisbury University | Rutgers the State University of New Jersey

We used modified versions of two different established MSE measures [Lopatto 2007; Taraban and Logue 2012] over a two-year period (2016 and 2017) to assess learning gains reported by 182 students presenting research at an on-campus undergraduate research conference. Our results suggest that student research experiences presented at university venues are viewed by participants as being beneficial through increasing their scientific skills, knowledge, and interest. We discuss the importance of presenting at on-campus research conferences for increasing students’ skills.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

**Increasing Participation of Underrepresented Students in Summer Research Programs**

Kelly Sorensen
Ursinus College

Ursinus College sharply raised the percentage of underrepresented students of color participating in its summer research program from 6 percent (in 2011-2015) to 17 percent (in 2016) and 18 percent (in 2017). This presentation will explain how it was done.

2:05 p.m.–2:35 p.m.
30-min dual-presenter presentations

Internationalization and Undergraduate Research

Room Assignment: Washington Room B

**How to Plan and Manage International Undergraduate Research**

Kimberly D. S. Reiter | Nicole L. Snyder | Shelby L. Garner | Jessica A. Sheetz-Nguyen
Stetson University | Davidson College | Baylor University | University of Central Oklahoma

The Internationalization Task Force of CUR has proposed a handbook to guide faculty and administrators who are planning and executing travel abroad with their students for research and experiential purposes. Attendees are invited to meet with task force members, to become acquainted with the task force’s goals, and to help shape the structure of this handbook. The task force members hope to foster a conversation to refine the project and the proposed structure.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

**Undergraduate Research Experiences: Federal Laboratory Versus University Setting**

Leigh Ann Pennington | Marisa Moazen | Kimberle A. Kelly
Oak Ridge Associated Universities | University of Tennessee at Knoxville | Oak Ridge Associated Universities

The presenters will discuss the results of a study that examines two questions regarding undergraduate research experiences. Oak Ridge Associated Universities and the University of Tennessee at Knoxville investigated factors leading to the selection of undergraduates in research appointments at Oak Ridge National Laboratory (ORNL). Short term outcomes for two groups of student also were compared: one with students who participated in research at ORNL (federal laboratory) versus a matched group of students who participated in research in an academic setting. This session may benefit universities interested in increasing student participation within national laboratories.
2:20 p.m.–2:40 p.m.
20-min single-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Publication Rates of Molecular versus Non-molecular Biologists at PUls: A Case Study of Seven Institutions
Marcia L. O’Connell | Janet A. Morrison
The College of New Jersey | The College of New Jersey

During this session the authors will first present the results of a study conducted to determine the effect of subdiscipline in biology on the publication rates of faculty at primarily undergraduate institutions (PUIs), where faculty typically incorporate the mentoring and training of undergraduates into their research program. This will be followed by an open discussion regarding the implications of the results, their applicability to a broader range of fields and institutions, and how they might be used to inform the mentoring of faculty throughout their careers.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Presentation Date and Time: 7/1/2018—2:20:00 PM–2:40:00 PM—Room Assignment: Potomac Room VI

Scientific Argumentation in Introductory Chemistry Laboratory: Moving Students from Guided Inquiry to Independent Discovery
Ruomei Gao
State University of New York College at Old Westbury

Learning scientific argumentation in laboratory (SAIL) is developed in the introductory chemistry laboratory courses. Student ability to generate scientific arguments is gradually developed through guided inquiry and completion of their self-designed projects. The SAIL engages undergraduates in deep thinking and prioritizing the information obtained in the laboratories.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Conference Theater

A Mentoring Incubator for Broadening Participation in Engineering Research
Christine S. Grant
North Carolina State University

The goal of the Mentoring Incubator (MI) is to empower students (Mentoring Incubator Scholars) at the high school, undergraduate, and graduate levels in their successful pursuit of STEM careers in research. The MI actively engages Underrepresented Minority (URM) and women mentors as coaches in both research and professional development. The presenter will discuss both the short- and long-term impacts of creating a community of scholars who have career guidance that results from both same and cross-cultural intentional mentoring relationships. Participants will explore opportunities for similar programming in the context of the culture of their own research environments.
Conversations with the CUR Student Programs Task Force: Introducing the Online Student Resources Center
Vicki Joan Martin | Lance Barton | Kelly P. Massey | Amy Wolaver
North Carolina State University | Austin College | Georgia College and State University | Bucknell University
The CUR Student Programs Task Force is laying the groundwork for a new Student Resources Center housed on the CUR website. Task force members will use this session to introduce and discuss the Student Resources Center and to gather input from faculty, research program directors, and administrators to help shape the future direction and content of this virtual resource.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

Undergraduate Research as a University’s Signature Transformative Learning Experience
Tsu-Ming Chiang | Kelli Brown | Doreen E. Sams
Georgia College & State University | Georgia College and State University | Georgia College and State University
Higher education faces challenges on how to provide students with broad skills to prepare them for a fast-changing world. As Georgia’s designated public liberal arts university, mentored undergraduate research and creative endeavors are part of the Georgia College signature experiences as GC Journeys. In this panel, we share a model of how undergraduate research is a signature experience valued by the university. The audience is invited to share their unique strategic planning and experiences to facilitate a continuing dialogue about creating high-impact learning in undergraduate education.

Raising the Profile of the Council on Undergraduate Research [CUR] through Advocacy and Outreach: What Can You Do as a Stakeholder?
Joyce J. Fernandes | Carol R. Strong | Maria T. Iacullo-Bird
Miami University | University of Arkansas at Monticello | Pace University
Members of the CUR Advocacy Advisory Committee will discuss examples of advocacy and outreach activities and provide tips for participants to strategically engage in such activities.

Navigating Institutional Review Boards for Collaborative Research
Joanne D. Altman | Amy M. Buddie | Sarah K. Johnson | Matthew T. Schmolesky
High Point University | Kennesaw State University | Moravian College | Georgia Gwinnett College
Most researchers recognize the value of involving undergraduates in collaborative research. However, such research can bring a range of unexpected problems to the process of seeking ethical approval from the Institutional Review Board (IRB) of the home institution and sometimes from the partner institution’s IRB as well. In this panel, four faculty/administers intimately familiar with the IRB process will discuss challenges and tips for you and your students when seeking IRB approval in collaborative research ventures across academic institutions and with community partners.
Creating Collaborative Connections in & through Undergraduate Research

2:40 p.m.–3:10 p.m.
30-min dual-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework
Room Assignment: Washington Room A

Supporting Student Learning and Capturing Student Research and Creativity through an Undergraduate Journal
Tatiana Pashkova-Balkenhol | Kerrie R. H. Farkas
Millersville University | Millersville University

Are you interested in creating engaging learning environments and at the same time supporting undergraduate student research and creativity? Join us to discuss the benefits and challenges of launching an undergraduate student journal with a multidisciplinary team of faculty and students and take away some practical applications to develop or support existing undergraduate student publications at your own institutions.

Other
Room Assignment: Washington Room B

Increasing Mentoring Capacity: Developing a Program to Train High-Quality Research Mentors
Rachel Hayes-Harb | Megan Shannahan
University of Utah | University of Utah

The University of Utah’s Office of Undergraduate Research developed the Undergraduate Research Mentor Development Program in order to increase the capacity of the university to provide high-quality research mentors for undergraduate students. The program involves six “modules” presented in online course format, in addition to five in-person meetings, with a total time commitment by participants of 10-15 hours over the course of a semester. This presentation will discuss program conception and development, advertisement, facilitation, participant survey data, challenges, and future directions.

2:45 p.m.–3:05 p.m.
20-min single-presenter presentations

Other
Room Assignment: Potomac Room II

Making the Case for Undergraduate Research to Private Donors
David Brakke
James Madison University (retired)

This session will describe various approaches to making a case in support of undergraduate research for private donors and ways to structure and steward gifts. The discussion will focus on ways that departments and colleges can attract additional funds in support of research by undergraduate students working with faculty mentors. It will also address the question of what interests private donors in supporting undergraduates doing research.
Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

Aquatic Hypoxia: Bringing Environmental Issues into the Biology Curriculum of First-Year Students
Orianna Carter
Ohio University Southern Campus

The biology curriculum of first-year students broadly surveys ecology and conservation, but these remain abstract concepts without engaging environmental issues. By aligning lab and lecture content on hypoxia in an indicator species (African Viper Shrimp), it was possible to explore more in depth the driving environmental issues. This engagement process encourages student confidence, fosters personal investment in the subject, and connects abstract concepts with manageable real-world problems.

Other

Room Assignment: Potomac Room II

Undergraduate Research and Twenty-First-Century Society
Chris Freire
Student Opportunity Center

The role of undergraduate research in an increasingly competitive and quickly changing society in the twenty-first century will be examined. The presentation will begin with a brief history of undergraduate research as a high-impact practice, then cover the broader career-readiness/societal challenges that graduates will face over the next 15 years, and how undergraduate research can help students meet these challenges.

4:00-5:00 p.m.—CUR Fellows Award—Location: REGENCY

Awardees: Sandra Gregerman | Bert E. Holmes
Special Counsel for Undergraduate Research and Student Access Initiatives, University of Michigan | P. G. Carson Distinguished Chair of Science, Department of Chemistry, University of North Carolina at Asheville

5:00 p.m.–6:00 p.m. Dinner—Regency Ballroom Foyer
Sunday, July 1

Poster Session I

6:00–7:30 p.m.—Poster Location: Independence Ballroom
poster sessions

Diversity and Inclusion in Undergraduate Research

Room Assignment: Independence Ballroom

1 Research Scholars Program for Transferring Community College Students
Ronald J. Nerio | Avrom J. Caplan | Effie S. MacLachlan
City University of New York | City University of New York | City University of New York

We have developed a research scholars program that is tailored to transferring community college students. The program is a mix of traditional research experiences that are faculty/mentor based and programming in growth mind-set and overcoming stereotype threat. We are also integrating career development seminars and coding bootcamps into the program.

Integrating and Building Undergraduate Research into Curriculum and Coursework

2 The Essential Role of Information Literacy in Basic Undergraduate Research Skills
Laura A. Guertin
Penn State Brandywine

As undergraduate student researchers, students are creators of new knowledge while at the same time are required to interact with existing information. Knowing how and where to find material and answers to questions in the earliest stage of the research process is not a skill we can assume students have when they arrive at our universities. Collaboration between a discipline faculty member and a faculty reference/instruction librarian can result in several possible approaches to establishing a foundation in information literacy for students to then pursue undergraduate research experiences.

3 Undergraduate Research in a Two-Faculty Physics Department
Gardo G. Blado
Houston Baptist University

The two-faculty Physics Department at Houston Baptist University has successfully launched an undergraduate research program that has been an integral part of the physics curriculum. We describe how undergraduate research has been integrated into the physics curriculum by requiring research for all physics majors and encouraging participation in research by physics minors.

4 Research Methods and the English Studies Curriculum
Joyce Kinkead
Utah State University

This poster describes a course in qualitative and quantitative research methods for students majoring in English. Students engage in empirical research—a somewhat uncommon approach in English—to produce research reports, posters, and lightning talks.

Innovation and Collaboration in Undergraduate Research

5 CUR Fellows Awards
Nadine G. Barlow
Northern Arizona University

The CUR Fellows awards are presented at the biennial National Conference to two CUR members who have developed nationally respected research programs involving undergraduate students. This poster provides a brief history of the award, lists CUR Fellows award recipients, and discusses the selection criteria.
6 Research-Intensive Course Designation Development: Part of a Broader Campus-Wide HIP Initiative
Kevin Jardaneh | Kimberly R. Schneider
University of Central Florida | University of Central Florida

Using the existing service-learning course designation as a model, the development progression for the research-intensive course designation unfolds in partnership with those developing the integrative experience course designation and those bringing service-learning into alignment. Despite separate definitions and approval criteria, all three designations will share a common submission interface and approval process. Here we describe various collaborative efforts and logistical concerns as we move toward implementation.

7 Summer Programs Partnership: Interdisciplinary Collaboration at the University of Utah
Megan Shannahan
University of Utah

The University of Utah recently developed the interdisciplinary Summer Program for Undergraduate Research (SPUR), providing students from across the country with an intensive 10-week research experience. The development of SPUR led to the creation of the Summer Programs Partnership, a collaboration of summer research program coordinators from across campus, which allows coordinators to expand their reach by hosting combined events, tapping into existing administrative and programmatic structures, and troubleshooting common issues. This poster will discuss SPUR development, the Summer Programs Partnership evolution, and challenges and future directions of both.

8 Humboldt Reloaded: Undergraduate Research Integrated into the Bachelor-Level Curriculum at Hohenheim University, Germany
Julia Gerstenberg | Evelyn Reimnuth
Universität Hohenheim | University of Hohenheim

Starting in 2011, the University of Hohenheim in Stuttgart has been offering bachelor-level students the possibility to participate in research projects during their second year. To broaden undergraduate research learning and to integrate it into the curriculum of bachelor-level studies, more forms have been created, in which voluntariness was a stable element. Three forms of implementation shall be presented: portfolio module, orientation week, and additional semesters.

9 Establishing the MARS Lab: A Model for Conducting Collaborative Undergraduate Research
Whitney Jeter
Fort Hays State University

The purpose of this work is to share information about a process used to establish a Mindfulness and Attention Research Studies (MARS) Lab. The MARS Lab was designed as a means to develop and strengthen the research skills of undergraduate students through direct involvement in ongoing, collaborative projects with faculty mentors. Details about the process used to develop the MARS lab, the benefits of working collaboratively with students and faculty from different departments, and the lessons learned while establishing the lab will be shared.
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

10 Faculty Collaborations with Preservice Teachers: Incorporating Undergraduate Research into Teacher Education
Jennifer Manak
Bridgewater State University

When education majors engage in student-faculty UR collaborations, they refine their teaching skills, develop an appreciation for research, broaden their disciplinary knowledge, and enhance their understanding of educational theory and practice. Education faculty-student collaborations on UR develops preservice teachers’ data literacy skills and informs how they will collect, analyze, interpret, and utilize multiple forms of data in their future classrooms to improve teaching and learning. This poster session shares various models, methods, and examples of how faculty have collaborated with preservice teachers on UR projects in teacher education.

Diversity and Inclusion in Undergraduate Research

11 Broadening Participation: Lessons Learned from Institutional Teams
Mary L. Crowe
Florida Southern College

The Broadening Participation Institute helps institutions develop plans for inclusive excellence on their campuses. This poster will highlight what types of programs and policies teams developed as a result of the institute. It will share lessons learned about effective implementation after teams returned to their campuses.

Innovation and Collaboration in Undergraduate Research

12 Peer Mentoring Network 224: Building Innovative Mentoring Structures to Support Curriculum-integrated Undergraduate Research
Ruth J. Palmer
The College of New Jersey

This poster presents a three-level, intersecting, peer-mentoring network model, which supports the curriculum-integrated undergraduate research experience. It represents a scaling up of the mentoring fieldwork done by students enrolled in second-year college classes who are working with adolescent/emerging adults with intellectual and developmental disabilities (IDDs), and early adolescents at risk for school failure. This pilot project, implemented in 2017-2018 and its future work, has the capacity to inform and to harness the collaboration power of the simultaneous use of multiple mentor types to advance the benefits of undergraduate research.

Innovation and Collaboration in Undergraduate Research

13 Mentoring Undergraduate Science Researchers: A Workshop Series for Current and Future Undergraduate Mentors
Margaret A Lynch
Harvard University

We have designed and implemented a series of mentoring workshops for researchers who mentor or plan to mentor undergraduates conducting science research. Undergraduates who participate in science research at large, research-intensive universities are often directly supervised by graduate students, postdoctoral fellows, or research associates, many of whom lack formal mentor training. Our highly interactive, case study-based workshops are designed to provide such training for these researchers. In our poster, we will describe the workshops’ format, content, and assessment.
Assessment of Impact of Undergraduate Research

14 Undergraduate Field Experiences Research Network
Janet L. Branchaw | Alan R. Berkowitz | Kari O’Connell
University of Wisconsin - Madison | Institute of Ecosystem Studies | Oregon State University

The Undergraduate Field Experiences Research Network (U-FERN) brings together expertise in undergraduate field experiences, broadening participation, and social science research to foster effective undergraduate field experiences at field stations and marine labs (FSMLs). We will discuss opportunities to get involved in U-FERN, including a focus on identifying, modifying, and sharing assessment tools for understanding the impact of field and marine learning experiences on undergraduates and researching evidence-based practices in undergraduate research. We will present initial results from an investigation about assessment approaches being used to assess undergraduate outcomes at FSMLs.

Integrating and Building Undergraduate Research into Curriculum and Coursework

15 Undergraduate Research in a Two-Year College: Challenges and Rewards
Chitra G. Solomonson
Green River College

Students at Green River College have been fabricating and characterizing organic photovoltaic cells. What started out as a small-scale project where students fabricate and characterize organic photovoltaic cells as part of a physics class has now morphed into an undergraduate research course. We will share the evolution of this project, including the challenges and rewards of its implementation in a two-year college.

Other

16 Mobile Technology Use in Regional Campus Libraries: How Students Use Mobile Technology to Complete Research and Access Library Services
Jennifer Hicks | Jessica Long
Miami University Middletown | Miami University Middletown

Utilizing surveys and focus groups, we conducted a study on how students use mobile technology to complete research and access library services. Based on our results, this poster will highlight how to best meet student research needs in an ever-changing mobile world.

Internationalization and Undergraduate Research

17 Leveraging International Faculty Collaborations into Undergraduate Research Opportunities
Keenan Dungey
University of Illinois at Springfield

Faculty at the University of Illinois at Springfield work with the Office of International Programs and the Undergraduate Research Support Program to create study abroad course-based undergraduate research experiences, based on their research collaborations with faculty at universities in other countries. Samples of projects from The Gambia, Brazil, and Ghana will be presented, and initial assessment of the program will be discussed.

Assessment of Impact of Undergraduate Research

18 Integrating Student Feedback and Evaluation: A Different Approach to Identifying and Documenting the Impact of Undergraduate Research
Jill Singer | Jennifer Harris | Karen G. Havholm
State University of New York - Buffalo State | University of Washington | University of Wisconsin - Eau Claire

With funding from the NSF WIDER program, an evidence-based evaluation model for guiding undergraduate research is being piloted. The model involves progress assessments by faculty and students across a wide range of learning outcomes. Through repeated structured interactions between student and mentor at the beginning, middle, and end of research, the evaluation helps students recognize and better understand strengths and weaknesses, as well as providing institutional assessment data beyond that self-reported by students. Through collaborations with CUR and SERC at Carleton College, we currently are pilot testing and refining the evaluation model.
19 The Plant Science Research Network: How Would the World Change if the Plant Science Community Came Together Behind a Single Initiative?
Lonnie J. Guralnick
Roger Williams University

The Plant Science Research Network (PSRN) is a network of many scientific societies and organizations with a mission to build plant science research. The National Plant Systems Initiative [NPSI] has begun to outline plant science research areas for the next two decades. Action items will be developed to build for the future of plant science research, education, and training. Input will be requested from many different stakeholders to continue to build on the National Plant Systems Initiative.

20 Council on Undergraduate Research Professional Development Workshops and Student Events: A Resource for the Undergraduate Research Community
Tavia S. Cummings | Liz Fray Hains
Council on Undergraduate Research | 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 also receiving professional development. In addition to these formal programs, CUR provides customized institutes, program review, and speaker recommendations. Information about upcoming events and hosting a workshop will be provided.

21 Student Research within Communities of Practice
Russell M. Genet
California Polytechnic State University - San Luis

Opportunities to conduct authentic research not only improve students’ understanding of science, they also promote their self-identification as scientists. For the past decade, Cuesta College has explored the potential to positively transform undergraduate science education through student research seminars that are specifically structured to produce published papers based on student team research within the confines of a single semester. At the outset of their college careers, students participating in this model form student-managed teams within a supportive scientific community of practice. By conducting published research projects that they plan and manage themselves, the students become—both technically and sociologically—real scientists.

Assessment of Impact of Undergraduate Research

22 Expanding and Diversifying Undergraduate Research and Creativity across All Areas of the Academic Curriculum
Florah N. Mhlanga
Lipscomb University

Well-organized undergraduate research and creativity conferences that encourage student participation can result in successful incorporation of research into the curriculum, thereby allowing engagement of diverse students in research and creativity. The annual Student Scholars Symposium at Lipscomb University is a success strategy that has enabled diverse students from various majors to engage in research and creativity.

23 Using an Undergraduate Student Research Project as the Foundation for an Inquiry-Based Biology Laboratory Course
Irene K. Reed
University of Saint Joseph

Many students are interested in pursuing research projects but lack exposure to the process of developing independent projects, which may hinder students from committing to long-term projects with faculty members. One strategy for integrating research into the curriculum that may help mediate the challenges of managing separate projects for individual students in a large class is to develop an inquiry-based laboratory based on data generated by a former undergraduate researcher. A cancer biology laboratory course was developed based on preliminary data from a former undergraduate student project, and the research process was introduced to students through literature review, grant writing, and development of independent projects based on the original study. Students reported a strong connection to the work since it originated from their peers; improved understanding and appreciation for the research process; and increased confidence in designing experiments, reading protocols, grant writing, critical thinking, troubleshooting, and technical skills.
24 Implementation of Course-Embedded Research in a Materials Science Course
Robert Prins
James Madison University

A course-embedded research project was implemented in an entry-level course in materials science. The research project is intended to reinforce the overarching course theme that the processing, structure, and properties of a material are interdependent. The research project provides students with an opportunity to apply knowledge learned in the course as well as skills learned in laboratory sessions.

Diversity and Inclusion in Undergraduate Research

25 Lions, Tigers, and Funding Shortages—Oh My!: Barriers and Successes of an Experiential Learning QEP
Chris Tsavatewa
Middle Georgia State University

Middle Georgia State University's Experiential Learning@MGA initiative provides opportunities for students to engage in experiential learning – formal, guided, and authentic experiences outside the classroom that improves the students' knowledge of the subject matter, and increases their ability to apply their learning in new situations, promotes the development of new practical skill sets, and creates an atmosphere of learning as students share their experiences with other students. The Office of Experiential Learning offers an inventory of opportunities and funding support that encourages “exploration and application beyond the classroom,” transforming students’ perspective, their career trajectories, and our shared communities. Through course redesign, project development, supportive funding, mentorships, fellowships, and other activities, the office has developed a number of strategies for broadening participation in undergraduate research. Our gamification model and supportive funding approach has been an effective practice in providing access while enhancing retention and graduation rates among low-income, first-generation, and minority students.

Assessment of Impact of Undergraduate Research

26 Enhancing Undergraduate Research Experience via a Suite of Well-Planned Events
Xuemin (Sheryl) Lu
University of Notre Dame

The importance of undergraduate students participating in research has been more and more recognized by university/college administration, faculty, and students. Traditionally, students participate in research by working in a laboratory and their research experience is largely relying on the culture of that particular laboratory. In order to enhance students' research experience, provide students with opportunities to communicate their results, and boost their scientific curiosity, we have carefully planned a series of events and activities, such as a student-led scientific publication and a joint annual meeting. Through these various events and activities, students learn about undergraduate research opportunities, improve their scientific communication skills, and share their research discoveries, all of which help build a community and culture for undergraduate research. Statistic results over the years show improvement in participation of undergraduate research and better academic outcome by our efforts to promote undergraduate research endeavors in the College of Science at the university.

Diversity and Inclusion in Undergraduate Research

27 BUILD Group Research (BGR) at UMBC: Development and Assessment of Six-Week, Authentic, Group Research Experiences
Laura Ott | William R. LaCourse
University of Maryland-Baltimore County | University of Maryland-Baltimore County

Many undergraduates, especially those at two-year colleges, miss opportunities to experience the benefits of one-on-one faculty mentoring through traditional research experiences that are often credited for helping students persist in the science, technology, engineering, and mathematics (STEM) fields. To increase the preparedness and competitiveness of more promising undergraduates, UMBC developed the BUILD a Bridge to STEM Internship, a six-week summer opportunity for pre-transfer community college and other students that is supported by the NIH-funded STEM BUILD at UMBC initiative. A unique aspect of the internship is the BUILD Group Research (BGR) experience, where students work in teams of three to four members on authentic research experiences mentored by UMBC faculty/industry researchers and coordinated by a staff scientist. Three years of internships have refined the BGR model and evaluation data from these internships show that students achieve significant gains in their science identity and research self-efficacy while clarifying their career paths.
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

28 Creating a Credit-Granting Undergraduate Research Experience for Lower-Level Students
Katherine Kipp
University of North Georgia

We created a course for first- and second-year students to gain undergraduate research experience at our associate's-level campus. Students can gain credits that will count toward their degrees by participating in undergraduate research. Early attempts suggest that our students have difficulty imagining the course as a scientific research laboratory rather than a regular class. We look forward to discussion with others conducting undergraduate research in the early years of students’ postsecondary education.

29 Adding Undergraduate Research in a Backwards-Designed Curriculum
Brett Taylor
Radford University

Radford University’s Departments of Physics and Biology present their progress in implementing a backwards-designed, research-rich curriculum supported by the Council on Undergraduate Research’s Transformations Project. In this presentation, we will report on current progress in the first year of this four-year process, primarily on the curricular revision process in each department.

30 The Mentorship of Faculty Scholarship: A Faculty Learning Community for the Promotion of Undergraduate Course-Based Scholarship
Charles W. Gunnels
Florida Gulf Coast University

In spring 2018, four faculty from different areas of study—history, rehabilitation sciences, marine sciences, and early childhood education—co-facilitated a faculty learning community (FLC). The purpose of our FLC was to show faculty ways to enhance their scholarly productivity through teaching activities as they work toward contract renewal and promotion.

Diversity and Inclusion in Undergraduate Research

31 Creating Research and Professional Development Access through the Eagle Work-Study Research Initiative
Charles W. Gunnels
Florida Gulf Coast University

Florida Gulf Coast University initiated the Eagle Work-Study Research program this past year to provide students with financial needs the opportunity to participate in an undergraduate research experience. Participating students were able to work with a faculty mentor for up to 9 hours each week with an extra hour dedicated to their professional development. Preliminary findings suggest a successful effort. The program will be improved in future years to include faculty professional development and additional student opportunities.

Innovation and Collaboration in Undergraduate Research

32 Peer-Assisted Team Research: A Flexible Research Model
Lori Sims | Louise Hainline
City University of New York - Brooklyn College | City University of New York - Brooklyn College

Peer-Assisted Team Research (PATR) is a flexible model designed to involve more community college and undergraduate students in authentic research earlier in college. PATR student teams design and carry out research plans, analyze data, and draw conclusions through a structured format that scaffolds an understanding of the research process led by experienced upper-division peers. PATR is readily adaptable to various institutional settings, including general education and majors’ courses, honors supplements to STEM classes, and extracurricular settings. Results from surveys find students positive and enthusiastic about PATR, reporting less apprehension about reading academic literature and feeling more comfortable in labs. Most regard PATR as good training to build the skills, confidence, and credentials to move on to research in a faculty research lab. This model has been especially effective in increasing science self-efficacy with underrepresented and women participants, contributing to increasing STEM diversity.
33 Chemists without Borders: An Opportunity for Undergraduate Chemistry Researchers to Have an International Impact on Chemical Education
Sarah A. Kennedy
Radford University

Undergraduate research and service-learning are high-impact practices that can greatly influence student engagement and success. In this project, several undergraduate chemistry and biology majors have engaged in research with the nonprofit organization Chemists Without Borders, to enhance chemistry education in Sierra Leone. The overarching goal is to provide chemistry laboratory kits to high schools in Sierra Leone and train teachers to use the kits in their classrooms. At Radford University, we have developed a new kinetics laboratory experiment lab kit. Additionally, we have tested and improved the kit for making soap, which is a project that has both educational and possible economic impact for students in Sierra Leone. This service-learning research project has attracted students from under-represented groups and has impacted their engagement at Radford University and the broader community of scientists.

34 Professional Development: The Key to Equity in Undergraduate Research
Chelsea Wolk
Oregon State University

Professional skills and knowledge about higher education systems are often a barrier for participation in undergraduate research, particularly for first-generation college students. Here we share programs improving retention and career readiness for URM and first-generation students at Oregon State University, focused on bringing personal, social, and career development content into the first-year experience and throughout the curriculum.

35 Using a Group-Based Peer Research Model Approach to Engage Undergraduate Nursing Students
Marian Tabi
Georgia Southern University

The presentation discusses a group-based peer research model approach and its effectiveness in engaging undergraduate nursing students in a research course to achieve desired outcomes.

36 Quality Assurance Relocation and Waste Reduction
Ziteng Wang
Northern Illinois University

This is an undergraduate research project that is sponsored by HydraForce, a global manufacturing company of hydraulic control systems used in a multitude of industrial equipment. This project aims to design new and improved facility layouts to reduce the inspection process lead time and non-value added resources. The project team [two undergraduate students] has successfully designed two new layouts; the team analyzed workers’ travel time, inspection tool utilization, and daily output and applied industrial engineering methodologies such as facility design, simulation, time study, statistical analysis and economic analysis. One of the new designs will be implemented by the company.
Creative Inquiry in the Arts and Humanities Institute
October 5-7, 2018 - Montana State University, Bozeman

Application deadline: August 15, 2018. Accepted teams will be notified on a rolling basis.

The goals of the Institute are to:

- Inform participants about current research on learning outcomes for students engaged in Undergraduate Research, Scholarship, and Creative Activity (URSCA)
- Provide models of URSC programs by a range of institutional types and budgets
- Facilitate teams in defining a mission and overall action plan for URSC in the arts and humanities on their campus, developing strategies to meet those goals, and resolving challenges
- Identify sources and strategies for obtaining funding, both internal and external
- Define arts-and-humanities-friendly assessment mechanisms for the URSC program
- Address workload and tenure & promotion issues for faculty who mentor URSC
- Ensure that teams return to campus with an action plan that addresses some or all of the above points

More info at: https://goo.gl/bMKBnc
or call Tavia Cummings at 202.783.4810 x204
Monday, July 2

7:00 a.m.–8:30 a.m.—Breakfast—Room Assignment: Regency Ballroom

8:30 a.m.-9:30 a.m.—Morning Keynote—Room Assignment: Regency

Speaker: Robin Wright
Division Director, Division of Undergraduate Education, National Science Foundation
“Emerging Directions in National Science Foundation Support for Undergraduate Education”
Introduction by: Bridget Gourley, DePauw University

Concurrent Session 3

9:45 a.m.–10:05 a.m.
20-min single-presenter presentations

Assessment of Impact of Undergraduate Research
Room Assignment: Potomac Room IV

Research Self-Efficacy: The Impact of Undergraduate Research Involvement
Tracy N. Baker
Florida Atlantic University

Literature confirms that self-efficacy, academic self-concept, and participation in undergraduate research influence the academic performance and aspirations of students, a gap in the literature remains, as research has yet to explore whether students who have participated in research have higher self-beliefs than students who have not participated in these activities. This study investigated the research self-efficacy and academic self-concept of undergraduate researchers, compared these beliefs to non-researchers, examined how these beliefs differ by gender and field of study, and identified factors that predict research self-efficacy and academic self-concept.

Integrating and Building Undergraduate Research into Curriculum and Coursework
Room Assignment: Potomac Room VI

Classroom-Based Research Experience at the Institutional Level
Lior Shamir
Lawrence Technological University

Classroom-based undergraduate research experience (CURE) is a proven intervention that strengthens student retention in STEM, improves learning outcomes, and leads to higher graduate school attendance. At the College of Arts and Sciences at Lawrence Technological University we are transforming the entire college into a college that bases its education on CURE. The transformation is done by a community of faculty from all departments and programs in the college, who meet regularly and work together to develop and improve CURE courses.
Creating Collaborative Connections in & through Undergraduate Research

9:45 a.m.–10:45 a.m.
60-min panel presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

Experiments in Course-Based Undergraduate Research: CSUMB’s Spring Research Intensives
Holly Unruh | Jennifer Duggan | Samantha Gatreaux
California State University-Monterey Bay | California State University-Monterey Bay
| California State University-Monterey Bay

High-impact practices that connect students to faculty and provide opportunity for deep engagement have been shown to have a positive impact on student performance and retention in STEM, especially for URM students. At California State University-Monterey Bay, faculty from the School of Natural Sciences developed two spring semester “research intensives” aimed at novice researchers, in which students joined the faculty member in a short, locally-based research experience during spring break. Panelists will speak about the program from the perspective of faculty, student participant, and program administrator.

Monday, July 2, 2018—9:45 a.m.–10:45 a.m.
Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Presentation of Four Distinct Interactive Teaching Styles to Better Connect the Undergraduate Curriculum to Undergraduate Research

David L. Anderson | Danara Moore
Greenville College | Greenville College

This presentation describes a series of courses with specific student research outcomes. Although professors have developed and evaluated individual courses, little research has focused upon the synergistic value of integrating a combination of different teaching experiences to enhance the learning of individual students. This presentation will compare experiential, case-based, publisher application-focused, and interactive classes. Although the learning approaches in each course are different, the final evaluation [consulting paper and problem solutions] reinforces the benefits achieved from enabling unique student learning paths to understand the materials.

Internationalization and Undergraduate Research

Room Assignment: Kennedy Room

Mentoring Undergraduate Research through Study Abroad Courses

Tsu-Ming Chiang | Doreen E. Sams | Karen J. Berman
Georgia College and State University | Georgia College and State University | Georgia College and State University

Preparing college students to acquire cultural competency as global citizens is essential in this interconnected world. Learning through research involves active engagement in understanding culture’s relationship to human behavior. This panel presents strategies and best practices of mentoring undergraduate research (UR) through study abroad classes and research-based opportunities across three disciplines: marketing, psychology, and theater. Cross-cultural UR enriches cultural knowledge and builds cultural competency through connecting cultural and behavioral factors within guided sets of hypotheses. This panel will share unique experiences from three disciplines and invite further dialogues from audience.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

A Retrospective on NCUR 2018 by the Hosting Campus: Successes and Lessons Learned

University of Central Oklahoma | University of Central Oklahoma | University of Central Oklahoma | University of Central Oklahoma | University of Central Oklahoma

The University of Central Oklahoma was selected to host the National Conference on Undergraduate Research (NCUR) in April 2018. This session will chronicle the experience of the host institution, including unique features, successes, and lessons learned, from the perspectives of those most involved in the process, from the submission of its bid to host NCUR and continuing through the postconference wrap-up. This session should be of interest to those considering hosting NCUR in the future, as well as those seeking to expand their campus involvement with NCUR.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

The Research Opportunity Center (The ROC): Innovative Transformations to Traditional Undergraduate Research and Mentorship Models

Jamie Gilbert | Meghan A. Gilbert | Christina White
Central Washington University | Central Washington University | Central Washington University

The Office of Undergraduate Research at Central Washington University developed the pilot Research Opportunity Center (The ROC) dedicated to providing programs and resources to students while eliminating the one-size-fits-all mentality. The center’s purpose is to reevaluate traditional definitions of research and provide innovative models that define undergraduate research through multiple disciplinary perspectives. Instead of creating one undergraduate research mentorship model, the center is dedicated to providing multiple, inclusive mentorship programs tailored to the individual student. This session will include discussion from multiple viewpoints: department, faculty, and students.
Creating Collaborative Connections in & through Undergraduate Research

9:45 a.m.–10:45 a.m.
60-min workshops

Other

Room Assignment: Prince William Room

**How to Get Started in Research with Undergraduates in the Natural Sciences**
Michael Castellani | Melvin L. Druelinger
Marshall University | Colorado State University - Pueblo

This workshop covers the following topics: project selection, student selection and management, benefits and risks of collaboration, working/negotiating with a chair or dean for institutional support, understanding institutional culture, and the basics of proposal writing.

**Diversity and Inclusion in Undergraduate Research**

Room Assignment: Arlington Room

**More than Compositional Diversity: Creating More Inclusive Research Environments**
Heather Haeger | Monique Armstrong-Land | Camille Smith | Corin V. White
California State University - Monterey Bay | California State University - Monterey Bay | California State University - Monterey Bay | California State University - Monterey Bay

Despite the demonstrated benefits of undergraduate research for students who are from traditionally underrepresented ethnicities, first-generation college students, from lower-income families, and transfer students, they are still less likely to participate in or stay in research experiences. Participants in this workshop will engage in dialogue around inclusive research environments, including (1) student’s sense of belonging, (2) staff and faculty inclusive practices, and (3) faculty training for inclusive mentoring. Facilitators and participants will collectively construct strategies informed by best practices to create programmatic structures that holistically support new-majority student in research.

**Integrating and Building Undergraduate Research into Curriculum and Coursework**

Room Assignment: Fairfax Room

**Guiding Education through Novel Investigation - Academic Collaboration Tools (GENI-ACT): Moving Authentic Science into Your Classroom**
Derek W. Wood | Brad Goodner
Seattle Pacific University | Hiram College

Workshop participants will learn how to incorporate authentic research into the classroom using the GENI-ACT system. Faculty can join existing projects focused on microbial bioinformatics, annotation, genetics, functional genomics, biochemistry, and other topics or can create their own projects. Examples of projects, assessment results, and the benefits and challenges of authentic course-based research will be addressed.

**Assessment of Impact of Undergraduate Research**

Room Assignment: Tidewater II

**Taxonomies for High-Impact Practices (HIP) in Undergraduate Research**
Abby E Fischer | Kristi Wilkum | Laura Lee | Kathy Immel
University of Wisconsin Colleges | University of Wisconsin Colleges | University of Wisconsin Colleges | University of Wisconsin Colleges

Participants will explore the development and use of taxonomies to assess the parity, equity, and student learning outcomes of high-impact practices (HIP) in undergraduate research across disciplines and across an institution. By effectively incorporating HIP undergraduate research experiences across the curriculum, it may be possible to increase participation, engagement, and retention of underserved populations.
10:10 a.m.–10:30 a.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Mentorship for Developing Course-Based Undergraduate Research Experiences (CUREs): The CUR Mentorship for Integrating Research into the Classroom (MIRIC) Program**

Michael J. Wolyniak
Hampden-Sydney College

The CUR Biology Division has launched an initiative designed to provide mentorship for instructors interested in developing course-based undergraduate research experiences (CUREs) for their classrooms. The Mentorship for Integrating Research into the Classroom (MIRIC) program pairs experienced mentors with instructors of all levels from graduate student through tenured faculty who wish to develop the skills necessary for effective CURE development. The goal of MIRIC is to facilitate the development of CUREs of all types at a variety of institutions and, by doing so, contribute to reforms to how science is taught.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**Walsh University's Innovative Undergraduate Cancer Cell Research for Nursing Majors: An Investigation of the Cellular Response of Metal Ions on MCF-7, A375, and HFF Cells**

Amy J. Heston
Walsh University

The focus of this project was to create research techniques for undergraduate nursing majors who had only two semesters of chemistry laboratory experience. This study investigated the antiproliferative effects of thallium and barium salts on breast cancer cells (MCF-7), skin cancer cells (A375), and normal Human Foreskin Fibroblasts (HFF). Cytotoxicity was monitored utilizing Sulforhodamine B (SRB) assays. Critical thinking in chemistry and its application to real-life situations were key learning objectives in investigating the toxic effects of various metal compounds on biological cells. Assessment of this project showed that these students felt it allowed them to become better nurses because of their newly acquired knowledge of scientific detail. This work also reinforced content from other science courses such as chemistry and aided in increasing student self-efficacy. This project provided a unique research experience and strengthened undergraduate research at Walsh University.

10:20 a.m.–10:50 a.m.
30-min dual-presenter presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Washington Room A

**Bridging for Student Success: Cross-Program Collaboration to Support Underrepresented Students in Research Activities**

Andrea J. Sell | Paloma Vargas | Lorenzo Ramirez
California Lutheran University | California Lutheran University | California Lutheran University

In this presentation, we describe collaborations between two research programs on campus, a program that specializes in helping underrepresented students navigate STEM research and a program geared toward advanced students working on independent faculty-mentored research projects over the summer. We outline the processes undertaken for collaboration and present outcomes in terms of best practices and suggestions for other program directors who would like to build similar collaborations at their institutions.
Creating Collaborative Connections In & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Washington Room B

**Using Undergraduate Research to Enhance STEM Education at the Departmental and Institutional Level**
Mitchell Malachowski | Jeffrey M. Osborn | Kerry K. Karukstis | Elizabeth L. Ambos | Jillian Kinzie
University of San Diego | The College of New Jersey | Harvey Mudd College | Council on Undergraduate Research | Indiana University

In this session, we will describe the CUR Transformation project that is funded by the National Science Foundation. The research agenda of the project focuses on studying student, faculty, departmental, and disciplinary influences on the process of integrating and scaffolding the components and desired outcomes of undergraduate research throughout a four-year curriculum.

10:35 a.m.–10:55 a.m.  
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Advancing Course-Based Undergraduate Research Experiences in All Disciplines at IUPUI**
Dominique M. Galli
Indiana University - Purdue University Indianapolis

The IUPUI Center for Research and Learning offers centralized support for the development and implementation of course-based undergraduate research experiences. Resources include a guide that identifies key attributes essential for maximizing the undergraduate research experience at all levels and across disciplines, an R-course development award, and a community of practice to share best practices. Progress made and challenges encountered will be discussed.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**Engaging Undergraduates in Original Research in Their First College Course: Logistics and Impact**
Kristine Lang | Phoebe Lostroh
Colorado College | Colorado College

Undergraduate research is an integral part of science education; however, many students begin college with no clear idea what research is or how to get involved. This presentation will describe a first-year experience (FYE) course in which students work on an original research project that is part of an ongoing physics-biology interdisciplinary research program. During the course, students participate in every aspect of research from reading background journal articles and designing the experiment through data collection and analysis, and they finish by using their own original data to write a scientific journal article. The nuts and bolts of the course structure will be described, as well as an assessment of the course impact on students. The data shows that students in this course engage in subsequent research at a much higher rate and for more total time than students who took similar science-oriented FYE courses without a research component.
10:50 a.m.–11:10 a.m.
20-min single-presenter presentations

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Using Technology to Leverage the Dissemination of Student Research
Crystal S. Anderson
Longwood University

Technology can be used to make student research relevant beyond the dissemination event. It can be used to secure participation from a range of disciplines and measure the impact of dissemination of student research.

10:50 a.m.–11:50 a.m.
60-min panel presentations

Internationalization and Undergraduate Research

Room Assignment: Kennedy Room

International Collaborative Research Experiences and Sabbaticals
Robert Bachman | Kimberley Frederick | Nicole L. Snyder
University of the South | Skidmore College | Davidson College

The growing internationalization of research has led to increased opportunities for researchers at all levels to experience the benefits of cross-cultural collaborations and research experiences. In this session, the presenters will offer a variety of opportunities to support research stays abroad, discuss the steps in planning such an experience, and share our own experiences as a scholar abroad. This panel will be an interactive session designed to address specific questions and concerns of attendees.

Other

Room Assignment: Roosevelt Room

CUR Psychology Division Mid-Career Mentoring Award Presentation
Amy M. Buddie | Anthony Hermann
Kennesaw State University | Bradley University

The CUR Psychology Division Mid-Career Mentoring Award is presented to a CUR Psychology Division member who has influenced undergraduate research through his/her own research, through scholarly or creative projects with undergraduates, and/or through demonstrated leadership activities. The 2018 awardee is Anthony Hermann from Bradley University, who will give a presentation titled “Reflections on Undergraduate Research in Psychology.”
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

What Exactly Do You Mean by “Research”? The Challenges of Infusing Research across the Curriculum at a (Mostly) Two-Year School
Frank Holiwski | Rosa Guedes | Julie Havens | Natalee Fender | Amy Capps | Allie Morgan
South Georgia State College | South Georgia State College | South Georgia State College | South Georgia State College | South Georgia State College

Faculty and students from biology and the social sciences, representing courses at the associate's and bachelor's levels, will discuss how they have engaged with an institutional effort to infuse undergraduate research across the curriculum at South Georgia State College. Multiple perspectives will be offered in an effort to share the challenges of such an approach, as well as some of the solutions found.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Regency Ballroom

The Women of Consequence Project: Transforming Undergraduate Research into Performance
Lynnette Young Overby
University of Delaware

This presentation will document the process of creating a performance based on historical data. The process began as an undergraduate research summer scholars project and transformed into a one-hour performance and outreach activity that allowed students to embody the lives and spirits of 1800 women who were educators, editors, and abolitionists. University of Delaware Scholar/Artists: Nicodemus Williams, Amber Rance, Rachel DeLauder, Melissa Jones, Ikira Peace, April Singleton, Tierra Fair and Dianna Ruberto

11:00 a.m.–11:30 a.m.
30-min dual-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Assessment for In-Curricular Research Skill Development and Evaluation of Its Whole-of-Program Effectiveness
John Willison
University of Adelaide

The Research Skill Development (RSD, Willison and O’Regan, 2007) framework has been used since 2005 to frame the assessment marking criteria of in-curricular assignments, including laboratory tasks, fieldwork, clinical and literature-based work. Evaluation of whole-of-degree effectiveness of the use and re-use of the familiar but adapted RSD for framing assessment-for-learning has shown effective student preparation for large undergraduate research projects and the development of skills used by employed graduates.
Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Using Story Map Software to Tell the Story of Your Undergraduate Research Travel Grants Program
Susan A. Troop
University of Tennessee at Knoxville

Using ArcGIS® software by Esri, you can tell the story of your undergraduate research travel grants program in a way that is interactive and visually pleasing, as well as being a tool to create a historical record of the program. The Esri story map app is user friendly, is easy to maintain, and is a great way to draw attention to the travel grants program on your undergraduate research website.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

A QEP’s Impact on Culture: Lessons from a New Consolidated and Elevated State University
Chris Tsavatewa
Middle Georgia State University

Middle Georgia State University’s [MGA] QEP Experiential Learning@MGA aligns with the institutional mission of access and research and reinforces the student-centered focus of the strategic plan. This QEP offers students an array of experiential learning (EL) opportunities and include internships, undergraduate research, and service learning, all of which are identified by scholars of higher education as “high-impact practices” contributing to student success. Using a gamification approach, students are incentivized to go beyond the minimum requirements of their majors and earn bronze, silver, gold, or platinum levels of recognition based on their successful completion of additional experiential learning opportunities, as abundant scholarship attests to the cumulative value of multiple EL activities. The QEP has demonstrated a mechanism to improve retention and degree completion, using best practices and new ideas to demonstrate the cultural impact of undergraduate research.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Social Media Audit: Chancellors’ Use of Instagram and Twitter in the University of Wisconsin System
Ganga Abhay Vadnavkar
University of Wisconsin - Eau Claire

This study is a compilation of data collected by undergraduate students as part of a social media course. The purpose was to determine trends regarding Twitter and Instagram use among 30 chancellors from different universities in the University of Wisconsin system.
Creating Collaborative Connections in & through Undergraduate Research

**Lunch**

12:00 p.m. – 1:45 p.m.—Lunch—Room Assignment: REGENCY

**Lunch Keynote**

Lunch Keynote: David Lopatto  
Director of the Center for Teaching, Learning, and Assessment, Grinnell College  
“Assessment of Undergraduate Research”  
Introduction by: Ruth J. Palmer, The College of New Jersey

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**EuroScholars Program**
A European Academic Research Experience

- **Participating Research Institutions**
  - University of Leuven, Belgium
  - Ludwig Maximilians-Universität München, Germany
  - Leiden University, The Netherlands
  - Karolinska Institutet, Stockholm, Sweden
  - University of Geneva, Switzerland
  - University of Zurich, Switzerland

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**The WORLD is TOO BIG to stay in one place**

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Monday, July 2, 2018—12:00 p.m.–1:45 p.m.
Monday, July 2

Concurrent Session 4

1:30 p.m.–2:00 p.m.
30-min dual-presenter presentations

Innovation and Collaboration in Undergraduate Research

Room Assignment: Washington Room B

**Book Reviews as Engaged Scholarship**
Hailley Fargo | Nicholas J. Rowland
The Pennsylvania State University | Penn State Altoona

A relatively underappreciated research opportunity for student skill enhancement is the academic book review. This presentation will outline the experiences of faculty and students as they started to work alongside university librarians to produce increasingly rigorous academic book reviews. For students, these outcomes include information literacy gains, nontrivial opportunities for writing growth, and tangible resume-builders such as an undergraduate publication.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

**Assessing the Impact of Undergraduate Research in Multiple Disciplines: One Size Does Not Fit All**
Cora Allard-Keese | Barbara J. Speziale
Clemson University | Clemson University

Creative inquiry (CI) is a unique model of team-based research that is available in all disciplines and to all undergraduate students. The structural models of research experiences and measures of productivity among CI projects are varied. This presentation will offer results of an analysis of the productivity of creative inquiry undergraduate research experiences at Clemson University as well as discuss examples of disciplinary productivity and how it shapes the research program.

1:30 p.m.–2:30 p.m.
60-min panel presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

Supporting Faculty-Student Undergraduate Research for Underrepresented Students
Cheryl L. Dickter | Anne Charity Hudley | Natoya Haskins
The College of William and Mary | University of California - Santa Barbara | College of William and Mary

To address the lack of research experiences of undergraduates from underrepresented groups, WMSURE was created to support faculty-student research teams. Panelists will speak about their model, which was established at a small public university, and describe how it was adapted to a large, research-focused institution. The speakers will describe ways in which they continue to support student-faculty teams with programming and funding. This workshop will provide participants with strategies to adapt this model to meet the research goals of underrepresented students at their institutions.
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Jefferson Room

Integrating Research into a Class, a Curriculum, and a Campus Culture
Robert Bachman | Mary L. Crowe | Bridget L. Gourley | Danielle Vinson
University of the South | Florida Southern College | DePauw University | Furman University

Panelists with administrative and subject-matter expertise will provide individual and campus-wide perspectives on the pedagogic and faculty workload impacts of these initiatives. We will also address common challenges encountered by faculty and students and provide attendees with opportunities to discuss how they might integrate research into their classes and curricula.

Other

Room Assignment: Kennedy Room

What Next? Evaluating Career Options for Faculty Advancement
Kimberley Frederick | Joyce J. Fernandes | George C. Shields | Rebecca M. Jones
Skidmore College | Miami University | Furman University | George Mason University

During the course of an academic career, new challenges, a new balance of responsibilities, or a new institution may be of interest to the faculty member. The focus of this panel is what those next steps might look like and how to figure out what is a good fit. Members of the panel have moved into administrative positions (dean and provost), served as a program officer at NSF, switched institutions and position types, and run their institution’s undergraduate research program.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

Small Staff, Big Plans: Maximizing Resources and Scaling Impact in Centralized Offices
Kimberly R. Schneider | Korine Steinke Wawrzynski | Shelley Pressley
University of Central Florida | Michigan State University | Washington State University

Many undergraduate research programs and centralized offices run with small staffs. It is common to have someone with a partial appointment charged with entire campus programming. In this panel, experienced undergraduate research program directors will discuss best practices and lessons learned in establishing an office, with emphasis on organization, evaluating campus climate and institutional support, and maximizing opportunities. Through small-group discussion, participants will discuss how to maximize resources, leverage partnerships, scale impact, and other strategies that can be adapted at institutions of varying size. Ideas from the discussion will be compiled and shared with attendees.

1:30 p.m.–3:30 p.m.
60-min workshops

Assessment of Impact of Undergraduate Research

Room Assignment: Tidewater II

Undergraduate Research Assessment 101 and Beyond: Framework and Toolkit
Heather Haeger | Tsu-Ming Chiang | Joanne D. Altman
California State University - Monterey Bay | Georgia College and State University | High Point University

Assessing the impact of undergraduate research experiences and programs is imperative for improving the quality of undergraduate research and for securing internal and external supports of universities. However, assessment is a daunting task complicated further by limited time and resources. This workshop introduces strategies for developing assessment plans and highlight three areas: (1) systematic tracking, (2) survey methods, and (3) moving beyond self-reported learning. Participants will think critically about their own undergraduate research programs, identifying learning outcomes, and adapt measures for those outcomes using techniques highlighted in the workshop.
Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Fairfax Room

Scaffolding for and Integrating Undergraduate Research across the Curriculum
Elizabeth A. Perry-Sizemore | Rosalie Richards
Randolph College | Stetson University

Are you interested in practices of promise for advancing the integration of undergraduate research across the curriculum? How can you contribute meaningfully to advancing research integration? During this workshop, you will answer these questions using a toolkit of strategies for activating cognitive and affective learning and scaffolding research experiences, and leave with a draft plan customizable to your work, your department, or your institution.

Other

Room Assignment: Prince William Room

ACS PRF Undergraduate Research Support for Fundamental Petroleum Science
Dean A. Dunn
American Chemical Society

This workshop will discuss writing research proposals and methods to improve your chances of getting your proposal funded. General information on what makes a competitive research proposal, an overview of ACS PRF research grants, and the specifics of preparing a proposal to ACS PRF will be covered. There will be an opportunity to ask questions and obtain answers to anything relating to the proposal writing process.

2:00 p.m.–2:20 p.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

Integrate a Complete Research Process into a Course
Bizhen Hu
Abraham Baldwin Agricultural College

An undergraduate course was designed to provide students with an experience of a complete research process. Through the course, students completed a research proposal to practice literature searching, experimental design, and methodology. Students then conducted an in-class experiment, analyzed the data, and summarized the experiment as a manuscript to practice experimental design and methodology, data interpretation and analysis, as well as scientific writing.

Internationalization and Undergraduate Research

Room Assignment: Potomac Room IV

Creating International Research and Study Opportunities for STEM Undergraduate Students
Isabelle Lagadic
Northern Kentucky University

This presentation will highlight the implementation and the development of summer-long research and semester-long study abroad programs for STEM undergraduate students at Northern Kentucky University. The audience will be provided with key information on the challenges, options, and creative approaches for the successful establishment and sustainability of similar programs.
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room II

CUREing Retention of Hispanic Students: UTEP’s Freshman-Year Research-Intensive Sequence
Lourdes E. Echegoyen | Stephen B. Aley | Miriam J. Alvarez | Guadalupe Corral | Sandra L. Oviedo | Jeni Clark
University of Texas at El Paso | University of Texas at El Paso | University of Texas at El Paso | University of Texas at El Paso | University of Texas at El Paso | University of Texas at El Paso

With the goal of broadening participation, developing an early science identity, and increasing student engagement and persistence, we established the Freshman-Year Research-Intensive Sequence (FYRIS) in 2015, with funding from the Howard Hughes Medical Institute and the National Institutes of Health (BUILD). The sequence involves enrollment in a research foundations course and one or two laboratory or lecture courses that faculty modified to convert them into course-based undergraduate research experiences (CURES), which are part of degree requirements. This presentation will include data on the number of courses, disciplines and students impacted, retention trends, psychosocial results from surveys, and engagement of students beyond FYRIS. In addition, details on how we obtained faculty and administration buy-in, our approach to course modification, and sustainability plans will be discussed.

2:05 p.m.–2:35 p.m.
30-min dual-presenter presentations

Innovation and Collaboration in Undergraduate Research

Room Assignment: Washington Room B

Summer Impact Grants: A New Model for Collaborations in Undergraduate Research
Bethany M. Usher | Karen T. Lee | Stephanie Foster
George Mason University | George Mason University | George Mason University

George Mason University piloted a successful new undergraduate research program last year, the Summer Impact Grants, which supported 8 structured, team-based multidisciplinary projects (27 faculty members and 46 students). Faculty propose themes in the fall, students are recruited in the spring, and projects run through the summer. We will share our program model, analyze the learning achievements of the students, and discuss opportunities for similar programs at attendees’ institutions.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

The Research Aligned Mentorship Program: Quantitative and Qualitative Assessment Methods and Preliminary Outcomes
Erwin Cabrera | Erica J. Friedman
Farmingdale State College | Farmingdale State College

The Research Aligned Mentorship (RAM) program at Farmingdale State College (FSC) is funded through a First in the World grant awarded by the U.S. Department of Education. Through randomized control trial, FSC and its four partner institutions (Bowie State University, Central Connecticut State University, Kean University, and SUNY College at Old Westbury) are gathering both qualitative and quantitative evidence to demonstrate effectiveness of distinct program interventions. Preliminary quantitative findings on attrition, retention, probation, and effective methods for acquiring baseline psychological data and participation in focus groups will be shared.
2:25 p.m.–2:45 p.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

A Survival Guide for Undergraduate Research in Economics
Seth Gitter
Towson University

This guide covers 17 topics from reasons why (or why not) for conducting a undergraduate research project in economics to what to do once you have finished the project. Each section is divided into two parts—one that is intended for the student and the other for the instructor.

Internationalization and Undergraduate Research

Room Assignment: Potomac Room IV

A Scottish Experience: Learning through Partnerships
Paula Hentz
Stetson University

In this session, attendees will learn about a collaboration between three U.S. universities and one Scottish university to develop a joint study abroad program with a focus on project-based learning in Inverness, Scotland. Students were assigned to a local Scottish business or social enterprise and asked to connect their coursework to solve real-life problems that the businesses faced. Details of the program and data collected from student evaluations will also be shared.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room II

Producing Data Versus Activating and Integrating Knowledge: Experience in Physical Chemistry at Penn State Balancing these Two Goals in Undergraduate Research
Bratoljub H. Milosavljevic
The Pennsylvania State University

Due to the limited time of undergraduates, there are two elements of undergraduate research that need to be balanced: (1) experimental/computational work and (2) the knowledge activation and integration. In this presentation I will describe my pedagogical approach that utilizes modified project-based learning. It is executed in the three-course-sequence consisting of CHEM 457 (experimental physical chemistry), CHEM 459W (advanced experimental physical chemistry), and CHEM 494 (undergraduate research). Several examples will illustrate how to overcome the problem of producing and integrating new knowledge without extensive background knowledge and within limited time.
Creating Collaborative Connections in & through Undergraduate Research

2:35 p.m.–3:35 p.m.
60-min panel presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Roosevelt Room

**Ending the STEM Crisis? Increasing Student Persistence with Course-Based Research Experiences**
J. Robert Hatherill | Daiyuan Zhang | Nancy H. Hensel
Del Mar College | Del Mar College | New American Colleges and Universities

This session addresses the theme by providing fundamental research to improve student achievement and retain STEM students, especially underserved students. This panel addresses the pedagogical challenges in STEM education and provides assessment data for discovery-based undergraduate research. Since STEM-related companies drive the U.S. economy, it is imperative to meet the demands of the twenty-first century by increasing students’ interest in STEM fields. Further there is a growing need to educate all students to better understand and appreciate the importance of STEM to their lives, their communities, and the Earth.

Other

Room Assignment: Jefferson Room

**Conversation with the CUR Student Programs Task Force: State Capitol Days National Survey and Best Practices for State Capitol Days**
Vicki Joan Martin | Jamie Gilbert | Meghan A. Gilbert | Michael Jackson
North Carolina State University | Central Washington University | Central Washington University | Millersville University

The CUR Student Programs Task Force created a State Capitol Days survey to catalogue the number of states and identify which states host a state capitol day celebration/event where undergraduate students from across the state gather to present their research (posters, oral presentations, performances) and to promote undergraduate research to their state legislators. Task force members will use this session to discuss the results of the national survey and identify best practices for organizing and running successful State Capitol Days.

Innovation and Collaboration in Undergraduate Research

Room Assignment: Lincoln Room

**Designing Arts and Humanities Posters for Research Presentations**
Maria T. Iacullo-Bird | Jenny Olin Shanahan | Amy Woodbury Tease
Pace University New York Campus | Bridgewater State University | Norwich University

Opportunities for interdisciplinary dissemination of scholarship and artistic projects on college campus research days and events such as Posters on the Hill in Washington, DC, require poster presentation. However, faculty from the arts and humanities fields can be unsure how to approach a method of scholarly exhibition more commonly associated with the sciences and social sciences. This session will provide examples of how faculty can effectively translate works of creative expression and humanities scholarship—for themselves and their students—to poster format. We will analyze several models and share templates of successful arts and humanities posters.
2:40 p.m.–3:10 p.m.
30-min dual-presenter presentations

Innovation and Collaboration in Undergraduate Research

Room Assignment: Washington Room B

Transforming Undergraduate Education and Perceptions of Teamwork through Course-Based Research Experiences
Gareth Jones | Diane C. Tucker
University of Alabama at Birmingham | University of Alabama at Birmingham

UAB, through a collaborative process, will develop and support faculty as they create new and innovative course-based research courses for undergraduates. In addition, UAB will evaluate the process through assessment of this experience for both faculty and student through the use of the VALUE Rubric for Teamwork.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

Thirteen Years of a Summer Institute in the Arts and Humanities: Impact on Faculty Teaching, Research, and Mentoring
Jessica E. Salvador | Janice DeCosmo | Jennifer Harris
University of Washington | University of Washington | University of Washington

The Summer Institute in the Arts and Humanities (SIAH) was created to address a shortage of opportunities for undergraduate research in the arts and humanities, and to inspire and support faculty in expanding their practice of engaging undergraduates in research. This session provides a retrospective on 13 years of the summer institute and highlights findings from an assessment study that explored the impact of participation in SIAH on faculty leaders’ subsequent teaching, research, and mentoring of students.

2:50 p.m.–3:35 p.m.
20-min single-presenter presentations

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

Translating a Business Idea into a Product
Indu Khurana
Hampden-Sydney College

The perfect way to teach business is by making students understand the fundamental rules of business and giving them hands-on experience of running a business. I discuss the interrelationships between different environments in which a business operates and its interaction with the human, physical, and financial resources with a practical approach. The course is built around the successful creation and presentation of a business plan, which is based on the practical knowledge of business that students gain in the class.
**Creating Collaborative Connections in & through Undergraduate Research**

**Internationalization and Undergraduate Research**

Room Assignment: Potomac Room IV

**Planning for Sustainable International Research Partnerships**
Suzanne E Rocheleau | Jaya Mohan
Drexel University | Drexel University

In planning sustainable international research partnerships, attention must be given to the needs of students, the institution, and the international partners. Logistical issues can make or break an international research opportunity so all must be aligned in order to be sustainable. This presentation will discuss factors that make for good partnerships, as well as discuss issues that can become complicating factors.

**Other**

Room Assignment: Potomac Room II

**Impact of “Flipped” Classroom on Student Engagement and Achievement**
Chadia Aji | Javed Khan
Tuskegee University | Tuskegee University

To increase the success rate and retention in education especially in STEM disciplines, the classic teaching modality has to be revised. The impact of “flipped” classroom teaching methodology on students’ engagement and achievement in early math and aerospace engineering courses has been investigated.

**Diversity and Inclusion in Undergraduate Research**

Room Assignment: Conference Theater

**Role Modeling is a Viable Retention Strategy for Undergraduate Women in the Geosciences**
Paul R. Hernandez | Emily V. Fischer | Amanda S. Adams | Sandra Clinton | Rebecca T. Barnes | Melissa Burt | Elaine Godfrey | Brittany Bloodhart | Heather Henderson | Ilana Pollack
West Virginia University | Colorado State University | University of North Carolina at Charlotte | University of North Carolina at Charlotte | Colorado College | Colorado State University | University of North Carolina at Charlotte | Colorado State University | West Virginia University | Colorado State University

We compare female STEM majors in PROGRESS to a matched control group (N = 380) using a longitudinal prospective multi-site quasi-experimental design. PROGRESS members identified more female STEM career role models than controls (60 percent vs. 42 percent, respectively), suggesting that deliberate interventions can develop the networks of undergraduate women. We also find that the persistence of undergraduate women in geoscience-related majors is related to the number of female STEM career role models they identify. Their odds of persisting approximately doubles for each role model they identify.

**Integrating and Building Undergraduate Research into Curriculum and Coursework**

Room Assignment: Potomac Room VI

**Curriculum Innovation through Faculty and Student Collaborative Projects at a Highly Selective Institution**
Oludurotimi Adetunji
Brown University

For over 30 years, the Karen T. Romer Undergraduate Teaching and Research Awards (UTRA) program at Brown University has been supporting research and curricular innovation through collaborative projects between faculty members and students in all academic disciplines. The author will present the origin of the UTRA program particularly as it relates to the role of “T” in UTRA and the generative impact that the program has had upon Brown’s curriculum. Examples of new or redesigned courses spanning life sciences, physical sciences, humanities, and social sciences fields will also be presented.

Monday, July 2, 2018—2:50 p.m.–3:35 p.m.
A January Workshop and Other Programs to Prepare Scholarship Students for First-Year Sciences
Kathryn A. Goddard
Ursinus College

Many institutions provide summer programs to prepare students for college life; in the Ursinus College JBridge four-day workshop a small group of S-STEM scholarship students reflect on the first semester and prepare for the biology course to be taken in the second semester. The JBridge program will be described in this presentation. Additional opportunities for these scholars include research opportunities during the summer (including prior to the first year) and semester, a weekly intensive advising and skill building program, and cohort building activities. The S-STEM scholars have the same or higher retention rates, higher first-semester biology grades, and higher first- and second-year GPAs than the comparison groups among the neuroscience, biology, and biochemistry and molecular biology majors at Ursinus College.

3:15 p.m.–3:45 p.m.
30-min dual-presenter presentations

Internationalization and Undergraduate Research
Room Assignment: Potomac Room IV

Research Abroad: Short Term, High Impact
Kadie J. Hayward Mullins | Wes Lewis
Embry - Riddle Aeronautical University | Embry - Riddle Aeronautical University

As institutions look to increase retention, many are creating opportunities for students to participate in multiple high-impact practices. The Office of Undergraduate Research at ERAU Daytona Beach has developed a short-term research abroad program for students that is held during during spring break. Students who participate in the program are required to develop a research question, collect primary data while in-country, and produce a research artifact upon completion of the trip. This presentation will cover the development of a short-term research abroad program, limitations, and areas for future growth.

Innovation and Collaboration in Undergraduate Research
Room Assignment: Washington Room B

WISE-CIO: Computer-Based Education via Online Courseware
Sheldon Liang
Oklahoma Christian University

WISE-CIO coordinates iBEEs (intelligence for Business, Education, and Entertainment) to work through “big data” distributed in the cloud. It synthesizes ideas, influences, and intelligence to be delivered to support operations, management, and decision-making.
Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

**STEM Leaders: Engaging URM and Low-income First-Year Students through Mentorship, Professional Development, and Undergraduate Research**

Chelsea Wolk | Stephanie K. Ramos  
Oregon State University | Oregon State University

STEM Leaders is a cohort-based program for URM and first-generation, low-income students in STEM majors. Using high-impact educational practices, the program engages first-year and new transfer students in professional development courses, peer mentoring, undergraduate research, and public presentations. Here we share our assessment data to highlight on the successes and challenges in retention and career readiness through the first 4 years of the program and scalability of this type of program model at other universities and colleges.

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4:00-5:00 p.m.—CUR-Goldwater Scholars Faculty Mentor Reward Reception—Location: REGENCY

Awardee: David Peak  
Professor of Physics, Utah State University

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Poster Session II

6:00–7:30 p.m.—Poster Location: Independence Ballroom

Integrating and Building Undergraduate Research into Curriculum and Coursework

1 Using a Self-Modification Project to Integrate Undergraduate Research into the Curriculum
Susan J. Larson | Kacey R. Finch | Sarah Strand
Concordia College - Moorhead | Concordia College - Moorhead | Concordia College - Moorhead

Behavior Modification is a 200-level psychology course that incorporates a self-modification project with the goal of students producing a lasting behavioral change. Students apply behavior modification principles to this project as they are introduced to research methods, collect behavioral data, and write an empirical APA-style paper. This poster will describe the self-modification research project and summarize information on effectiveness of it. The authors recommend the use of a self-modification project in Behavior Modification to scaffold undergraduate research into the curriculum and to prepare students for future, more intensive research.

Other

2 Needles in a Haystack: Collecting Data on Undergraduate Research Participation at a Large Public Institution
Sarah D. Ferstel | Douglas Villien
Louisiana State University | Louisiana State University

This poster will detail the process by which we gathered data on undergraduate research participation at Louisiana State University. We analyzed data from a variety of sources such as course enrollments, research programs, and academic departments. The final results from those efforts give an overall picture of undergraduate research participation, as well as provide useful data to justify current and future university-wide initiatives related to undergraduate research.

Integrating and Building Undergraduate Research into Curriculum and Coursework

3 Student-Driven Research in Costa Rica: Engaging Undergraduates on Study Abroad and Back in the Classroom
Carolina Perez-Heydrich | Francie Cuffney
Meredith College | Meredith College

This poster outlines the process employed to facilitate and engage students in development of a research project while studying abroad in tropical ecosystems of Costa Rica. We discuss methods associated with guiding students in development of a research project while abroad, and demonstrate how the project continued to engage students after returning to campus. This student-driven process of developing and implementing a group research project could be easily adapted to other environments and disciplines.

Innovation and Collaboration in Undergraduate Research

4 Using Biofilms as an Interdisciplinary Undergraduate Research Theme
Chris Wentworth
Doane University

Faculty from the Biology, Chemistry, and Physics & Engineering Departments at Doane University have created a biofilm-themed research program called the Center for Undergraduate Research on Biofilms that involves students from many majors in an ongoing research experience that has resulted in conference presentations and peer-reviewed publications. This program solves many of the challenges faced by undergraduate research programs at primarily undergraduate institutions. In this presentation, we describe the structure of CURB, illustrate how the center solves challenges, and show examples of research results obtained by our student researchers.
Creating Collaborative Connections in & through Undergraduate Research

Integrating and Building Undergraduate Research into Curriculum and Coursework

5 Integrating Original Research in Undergraduate Physical Chemistry Curriculum
Tugba G. Kucukkal
Gallaudet University

An original computational quantum chemistry research was integrated in the undergraduate physical chemistry curriculum. Students worked together cooperatively throughout the project and were able to track the overall progress in real-time through shared Google Sheets/Docs files. Excellent outcomes for student learning were achieved, including an experience of working on real-world problems using the abstract concepts learned in class as well as the possibility of a peer-reviewed publication.

6 Can Student Research Coaches Help Undergraduate Students Build Confidence, Skills, and Abilities through Genuine Research Experiences?
Mary Tripp | Kimberly R. Schneider
University of Central Florida | University of Central Florida

Our research examines ways that research coaches [undergraduate/graduate students who facilitate in-class research experiences] can most effectively support research-focused undergraduate courses. We utilized pre- and post-surveys to understand undergraduate students’ perceptions of their research-related confidence, skills and abilities, engagement, previous knowledge of the subject of study, and identity. Results indicate that research coach courses were especially effective for undergraduates with minimal to no previous research experience, significantly increasing their perceptions of their understanding of their academic field, perceived research skills, and confidence in their abilities.

7 Fostering Intentional Mentorship
Embry - Riddle Aeronautical University | University of Wisconsin - Eau Claire | St. Catherine University | UNAVCO | Embry - Riddle Aeronautical University | University of Wisconsin - Madison | University of Wisconsin - Madison | University of Wisconsin - Madison

Intentional mentoring involves setting expectations at the beginning, clarifying the goals of the mentoring relationship, identifying the expected frequency of contact and duration of the relationship, ensuring mentor and mentee share similar concerns, setting of relationship boundaries, and periodically evaluating the satisfaction of mentor and mentee. In this poster, we will provide examples of several different intentional mentoring programs, including a community of practice model, a train-the-trainer workshop, a community college-based workshop, a student dissemination-based model, a web-based model, and an individualized training model.

8 Building a Culture of Undergraduate Research, One High School Student at a Time
Roger Schieferecke | Leslie Z. Paige
Fort Hays State University | Fort Hays State University

The Kansas Academy of Mathematics and Science, located on the campus of Fort Hays State University, is home to over 100 domestic and international high school students who are actively participating in undergraduate research. Learn how the program introduces students to the field of research, connects them with faculty, and supports them through opportunities to present. Longitudinal data will be shared regarding various aspects of the students that participated in the program.

9 Developing Community among Undergraduate Research Students at a Primarily Undergraduate Institution
Lance Barton | Jessica Healy
Austin College | Austin College

At Austin College, we have established new mechanisms to build community and a sense of belonging among undergraduate research students. The Community of Scholars program encourages interaction among students in both social and professional settings and allows students to engage in developmentally appropriate professional development activities.
10 Leveraging Senior Theses to Create Course-Embedded Research
Sherrell K. Byrd
Fort Lewis College

Senior theses are often the culmination of a student’s research. However, good senior theses can be used as course-embedded research projects, providing new ideas for projects and augmenting data for publication. This poster presents a senior thesis project that was used as a course-embedded research project in a junior-level cell biology course. The effects of two ras inhibiting drugs, lovastatin and FTI-277, on the membrane localization and downstream signaling were examined in a cancer cell line. The benefits of this method of embedding research in courses will be examined.

11 Assessment Practices and Learning Outcomes in Educational Research
Suzanne F. Lindt | Stacia C. Miller | Austin Kureethara Manuel | Ruth J. Palmer
Midwestern State University | Midwestern State University | Midwestern State University | The College of New Jersey

The current research sought to gain an understanding of how colleges and schools of education assess undergraduate research and to understand the different practices used. Through a survey with Likert-scaled items and open-ended questions, current faculty conducting research with undergraduate education students suggested that the most important components to be assessed are those that encourage students to think critically, develop their understanding of the research process, and to develop the skills that lead students build their skills so they may achieve success as classroom teachers.

12 Integrating Research into Florida State University’s Global Service-Learning Program
Kimberly Reid
Florida State University

This poster outlines the research-focused curriculum integrated into Florida State University’s global service-learning program, Global Scholars. Since the launch of this program six years ago, our office has worked to solidify best practices for introducing and engaging Global Scholars students in qualitative research. This poster describes those best practices such as specific lessons we teach in the program’s predeparture, in-country, and reentry phases; how students collect and record data; how they connect their research abroad to research topics in local communities; and how they present their research to others.

13 Building Transdisciplinary Skills among Undergraduate Students through Summer Research Experiences
Aude Lochet | Alan R. Berkowitz | Shirley Vincent | Geoffrey Habron | Alexander Maas
Cary Institute of Ecosystem Studies | Institute of Ecosystem Studies | National Council for Science and the Environment | Furman University | University of Idaho

The Urban Water Innovation Network, a global network focused on urban water sustainability issues, is providing summer research experiences to undergraduate students from natural sciences, social sciences, and engineering. While conducting independent projects in their discipline, students are engaged in collaborative and transdisciplinary work through seminars and a case study in urban water sustainability. What are the benefits of combining independent research experiences with collaborative work? Preliminary results from the 20 participants since 2016 show positive impacts on students’ orientation toward transdisciplinary research, with some gains in their understanding.
Creating Collaborative Connections in & through Undergraduate Research

Innovation and Collaboration in Undergraduate Research

14 Using Social Network Mapping to Identify and Facilitate Community-Based Opportunities for Undergraduate Research
David Montez
Florida State University

Social network documentation and analysis may be a means of ensuring that academic institutions are better able to understand the community network or ecosystem it and its students exist within. Therefore, academic institutions will possess the information needed to better target and connect with non-academic organizations with the goal of facilitating collaborative undergraduate research. This project will document the process of deploying the social network approach to effectively map the Tallahassee-Leon County (FL) non-profit and entrepreneurial communities to facilitate community-based collaborative undergraduate research.

Integrating and Building Undergraduate Research into Curriculum and Coursework

15 Student Participation in a Pre-Research Course Significantly Improves Their Engagement in Faculty-Mentored Research
Svitlana Zbarska | Joseph Webb
Iowa State University | Iowa State University

At Iowa State University, a pre-research course was successfully introduced to inspire undergraduate student engagement in research. This course provided structured opportunities to identify research interests while equipping students with knowledge to be successful in future research experiences. Based on comparative analysis of multiple surveys, there was a significant increase in the number of students engaged in research and a significant increase in student intent to apply for summer REU programs. These results indicate that introducing a pre-research course to undergraduate students will increase their engagement in faculty-mentored research.

Diversity and Inclusion in Undergraduate Research

16 Lowering Barriers to Get Involved in Research: Training Colleagues to Introduce Students to Research through a Skill-Building Course
David Bahr | Susan Burkett | Shelley Pressley | Kimberly R. Schneider
Purdue University Main Campus | University of Alabama | Washington State University | University of Central Florida

A workshop to provide skills to faculty, administrators, and staff for running undergraduate research training skills programs was held concurrently with a student training program at the University of Central Florida. Workshop participants observed a peer-mentored short course in research training in action and developed individualized plans to implement a student-centered training program at their institution. Participants viewed co-locating the faculty and student workshops positively. Many participants viewed the breadth of the programming, which is applicable to all STEM fields, to be one of the strengths of the workshop.

Other

17 Engage 100: Embedding Undergraduate Research into Campus-Wide High-Impact Practice Engagement Initiatives
Latika L. Young | Alicia Batailles
Florida State University | Florida State University

Florida State University’s new Engage 100 campaign aims for 100-percent participation in academic high-impact practices for FTIC (first time in college) students during their first year. Although this engagement can be accomplished in multiple ways, undergraduate research features prominently as one of the HIPs being actively encouraged. This poster outlines some of the benefits and challenges of embedding UR into the wider campus conversation about undergraduate engagement in high-impact practices.
**Assessment of Impact of Undergraduate Research**

**18 Pilot of a Co-Curricular Assessment Model at Arkansas State University for Student Research Events**
Emily Devereux | Andrew Sustich  
Arkansas State University | Arkansas State University

Universities provide diverse events for students to present their research, scholarly, and creative works to various audiences, and it is believed that participation in these events enhance students’ learning in preparation and practice for writing conference abstracts and in making conference presentations. Models for co-curricular assessment of student learning outcomes from such events are not readily available and need to be developed and piloted for further research. Arkansas State University is currently piloting a model for assessment of student research events to be further refined and repeated at additional institutions.

**Integrating and Building Undergraduate Research into Curriculum and Coursework**

**19 CUR Transformations: Helping STEM Departments and Universities Create Research Rich, Scaffolded Curricula**
Mitchell Malachowski | Elizabeth L. Ambos | Kerry K. Karukstis | Jeffrey M. Osborn | Jillian Kinzie  
University of San Diego | Council on Undergraduate Research | Harvey Mudd College | The College of New Jersey | Indiana University

The CUR Transformations project focuses on working with 24 departments (biology, chemistry, physics, or psychology disciplines) on 12 campuses over a four-year period to assist them in their desire to transform their campuses into models for twenty-first-century STEM education. We will describe the project's research agenda, which focuses on studying student, faculty, departmental, and disciplinary influences on the process of integrating and scaffolding the components and desired outcomes of undergraduate research throughout a four-year curriculum.

**20 Integrating Undergraduate Research in Physics and Astronomy through a Capstone Course**
Daniela Topasna | Gregory Topasna  
Virginia Military Institute | Virginia Military Institute

The capstone course is a core curriculum requirement at Virginia Military Institute as part of its Quality Enhancement Plan. The primary goals of the course allow physics majors the opportunity to revisit the fundamentals of physics and to complete a meaningful research project in physics or astronomy. The course is offered in the first semester of the fourth year. We present several examples of successful projects in physics and astronomy and how certain challenges generated learning and pedagogical opportunities.

**Internationalization and Undergraduate Research**

**21 Nerd Night @ Drexel U**
Jaya Mohan | Emily Kashka  
Drexel University | Drexel University

Nerd Night @ Drexel U is a quarterly event that invites students from all disciplines to give a short, informal talk on their research or other interesting topics with which they are involved. This poster will discuss the benefits to students, challenges faced, and suggestions on how to establish a similar event on other campuses.

**Integrating and Building Undergraduate Research into Curriculum and Coursework**

**22 Ten Years That MELTed the Research Skill Development Framework**
John Willison  
University of Adelaide

In the 10 years since the Research Skill Development RSD; Willison and O'Regan, 2007) framework was presented at the CUR Biennial Conference in 2008, there has been extensive evaluation of its implementation, which has led to fine-tuning of the framework. The poster will highlight the improvements made to the RSD over the last10 years, and summarize lessons learned in the adaptation and implementation of the framework. Discipline-oriented and context-savvy adaptation has now happened many times, and the family of frameworks that share the same core parameters are called MELT: the Models of Engaged Learning and Teaching (see www.melt.edu.au). This poster will show that the core parameters of the RSD are being used to formulate a variety of MELT, whether for problem solving, critical thinking, clinical reasoning, evidence-based practice, or other complex thinking skills.
Innovation and Collaboration in Undergraduate Research

23 Using Undergraduate Research to Foster Collaboration between Academics and Student Life
Rachel F. Pickett | Tracy L. Tuffey | Emily K. Naumann
Concordia University Wisconsin | Concordia University Wisconsin | Concordia University Wisconsin

An undergraduate psychology student research team explored student attitudes about depression, utilization of coping strategies, and social media usage. The project was a cross-sectional survey design that took place over seven years. Collaboration between academics and student life, such as outreach programs, curriculum development, and campus-wide education, are discussed.

Diversity and Inclusion in Undergraduate Research

24 Developing Partnerships with Non-Academic Units to Expand Research Opportunities
Herbert Hill
Virginia Commonwealth University

Through the establishment of campus partnerships with non-academic units, the Office of Undergraduate Research at VCU has been able to increase the level of institutional funding available to undergraduate researchers and their faculty mentors. The arrangement carries the added benefit of moving us closer to realizing our shared goals by providing our undergraduates with high-quality, experiential-learning opportunities through research, a central component of the strategy at VCU to grow the next generation of civic and globally engaged scholars, innovators, and professionals.

25 Native American-Based Mathematics Materials for Integration into Undergraduate Courses
Charles Peter Funkhouser
California State University - Fullerton

This project has developed and researched undergraduate mathematics materials based in the culture and mathematics of Native American peoples for integration into undergraduate courses. These materials are classroom ready, and are developed and piloted in consultation with Tribes in the Rocky Mountains, the Plains, the Pacific Northwest, and the Southwest. We are currently beginning new culturally-based efforts with other Tribes and mathematicians throughout the United States, as well as broaden the lesson content domain into all areas of STEM.

26 Summer Research Community: A Collaborative Approach to Advancing Undergraduate Research at Boise State University
Catherine Bates | Donna Llewellyn
Boise State University | Boise State University

The Summer Research Community (SRC) at Boise State University is a partnership of REU programs, college departments, and campus partners with the goal of fostering a greater scholarship community at the institution. This poster will describe an approach to building a 10-week interdisciplinary research community for student researchers that supports the personal development of teamwork and communication skills that are so valuable in today’s academic and non-academic workplaces. The presenters also will share results gathered from previous studies that document the personal gains from creating an authentic environment where students in a variety of different fields gain exposure to and interact with people from myriad disciplines.

27 STEM Opportunities within Hispanic-Serving Institutions for Underrepresented Students
Anthony Villarreal
Claremont Graduate University

Findings from NSF-funded research provide insights on the opportunities for two- and four-year Hispanic Serving Institutions (HSIs) in STEM. Data-informed implications for practice, policy, and future research are presented.

28 Outcomes from an NSF S-STEM Grant: SUCCESS Scholars, Research Culture, and Curriculum Evolution
Amy M. Deveau
University of New England

As the first SUCCESS scholar cohort advances toward graduation at the University of New England, this presentation will discuss successes, challenges, curriculum innovations, research culture, general outcomes, and insights gained from the NSF S-STEM Grant (Award #1259896).
Creating and Assessing Video Animations of Deep Earth Processes to Support Student Learning and Investigations

Jeffrey G. Ryan | Robert J. Stern | Victor Ricchezza | Lochlan Vaughn
University of South Florida | University of Texas at Dallas | University of South Florida | University of Texas at Dallas

This NSF-funded project seeks to generated and educationally evaluate scientifically accurate and engaging video animations of deep earth processes targeting introductory and upper-level undergraduate geoscience courses. We report initial results from the development and testing of an initial animation discussing the different modalities of mantle melting.

Best Practices for Retention, Persistence, and Success of Underrepresented Minorities in STEM at Oregon State University

Stephanie K. Ramos
Oregon State University

The STEM Leaders Program will be discussed, including its program structure, successes, and insights on retention for first-year and transfer students. The presenter will discuss the preliminary trends for grades for students each term for demographic groups.

CUR Posters on the Hill

Michael Jackson | Larry E. Wimmers
Millersville University | Towson University

CUR Posters on the Hill was established in 1997 as a mechanism by which CUR could educate members of Congress about the importance of undergraduate research. Undergraduate researchers from across the nation are selected from amongst the disciplinary divisions of CUR. In this presentation, the co-chairs of the committee will be available to discuss the history of the program, provide the current criteria and selection process used for this event, as well as to listen to feedback.

Realising Inclusive Science Excellence (REALISE) at Radford University

Tara L. Phelps-Durr
Radford University

Radford University’s REALising Inclusive Science Excellence (REALISE) program aims to create a learning environment that is student-ready, welcoming, and inclusive. This is a collaborative effort between the Departments of Biology, Chemistry, and Physics to redesign entry-level courses to include effective, fun, project-based STEM learning (i.e., undergraduate research, making-themed projects, collaborative assignments, etc.).

The Perception of FYE Students on Research and Writing

Marian Tabi
Georgia Southern University

This study focused on the perception of first-year students regarding research and writing in a Global Health Nursing course, which sought to help students gain the essential tools for academic success.
Creating Collaborative Connections in & through Undergraduate Research

Innovation and Collaboration in Undergraduate Research

34 Application of Deep Learning to Batch Effect Correction in RNA Sequencing Data
Qingguo Wang
Lipscomb University

In this poster, we present a project that integrates big genomic data and disease study into undergraduate research. Whole transcriptome sequencing (RNA-seq) data is an important tool for understanding the genetic mechanisms underlying human diseases. But the batch effects inherent in the RNA-seq data prevent comparative analysis of samples from disparate sources. In this work, we apply deep learning to remove batch effects in the RNA-seq data. Our results show that a residual neural network minimizing maximum mean discrepancy can effectively remove certain study-specific batch effects. Besides the scientific implication of the work, the impact of the research on the participating undergraduate student is also discussed.

Assessment of Impact of Undergraduate Research

35 Speak Up! A Program for Teaching Communication Skills to Undergraduate Researchers
Richelle Bernazzoli
Carnegie Mellon University

Speak Up! is a lunchtime workshop series created by a multidisciplinary team at Carnegie Mellon University for summer participants in campus undergraduate research programs. Piloted in summer 2016 and repeated in summer 2017, the workshop modules blended learning and practicing core component skills for written, oral, and visual communication, with an emphasis on strategies for communicating complex research. Pre- and post-program assessments were administered to capture how the workshop series affected participants’ perceptions of their professional communication skills. The results suggest that (1) the Speak Up! program recalibrated students’ self-assessment of their written and oral communication skills, and (2) complementary programming such as research communication workshops can enhance the benefits of participation in undergraduate research, consequently providing additional, indirect ways of assessing the impact of undergraduate research.

Innovation and Collaboration in Undergraduate Research

36 Growing Scientists: University Charitable Garden Provides Valuable Undergraduate Research Opportunities
Susan Agolini
Marymount University

Exposing undergraduates to meaningful research experiences has a significant effect on their retention in science majors, development of a science identity, and interest in pursuing graduate education in a STEM field. As the impact of the research experiences can be even more significant for underrepresented minority students, increasing the number of undergraduate research opportunities has become a focus of many smaller colleges and universities, particularly ones like Marymount, where minority students make up more than 40 percent of the undergraduate population. Taking advantage of a previously established collaboration between Marymount University and the Arlington Food Assistance Center (AFAC) in which produce grown in a campus garden is donated to the AFAC food pantry, biology students have started seeing the garden as a natural “outdoor lab” and designing research projects that address questions surrounding plant-to-plant interactions, irrigation, pest control, and other urban agriculture topics. The research, which has grown out of this service project, allows students to develop a greater understanding of the power of scientific inquiry to answer real world questions that influence sustainability and the magnitude of their service to the community. One experiment evaluates the impact of plant-to-plant interactions by growing sunflowers with mustard in small, 3-D printed growth chambers, which simulate the arrangement in the garden. The effect of sunflowers on mustard can be striking and we wanted to confirm the effect before growing the plants in a compact urban garden setting. This research allows students not only to examine a meaningful biological question, but also to develop the skills required to design and print the requisite 3-D structures. Such a project provides an excellent example of how opportunities for integrated STEM undergraduate research experiences can develop from student engagement in community service projects.
We piloted a collaborative course-based undergraduate research program assessing ecosystem health at a nearby restored stream and wetland area. Three courses [Conservation Biology, Ecology, and Animal Physiology] used complementary approaches to examine the presence, abundance, physiological condition, and activities of organisms at restored sites to identify functional indicators of how restoration activities affect the environment, contributing to an integrative robust assessment of habitat function. We propose that professors at resource-poor undergraduate institutions with differing areas of expertise (e.g., chemistry, microbiology, geology) can integrate authentic research experiences into their classes by incorporating small changes that not only increase research productivity for industry partners but also broaden the participation in undergraduate research. Authors: Katie Staab, Jason Scullion, Holly Martinson.
Tuesday, July 3

7:30 a.m.–9:00 a.m.—Breakfast—Room Assignment: Regency Ballroom Foyer

Concurrent Session 5

9:00 a.m.–9:20 a.m.
20-min single-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Building Assessment into Course-Based Undergraduate Research Experiences (CUREs)
Julio Rivera | Thomas G. Groeleau
Carthage College | Carthage College

This presentation will focus on the process of redesigning a standard applied business statistics course into a CURE. The purpose of the redesign was to better prepare students for research-intensive courses, including their fourth-year thesis. The presentation will also focus on and present assessment data centered around meeting departmental goals in statistics. We will focus on the use of specifications grading to both support undergraduate research and focus students on the course/departmental learning outcomes.

Other

Room Assignment: Conference Theater

Humboldt Reloaded: Undergraduate Research Experiences for Second-Year Students in Stuttgart, Germany
Evelyn Reinmuth
University of Hohenheim

The University of Hohenheim in Stuttgart offers participation in research projects to all bachelor-level students during their second year. About 600 students (roughly 50 percent) choose to participate in one of the more than 150 projects offered each year. Results are presented in a student research conference through a printed abstract booklet, talks, poster sessions and awards at the end of each year. The project Humboldt Reloaded [HR] is funded by the federal government through a 16-million Euro grant from the Quality Pact for Teaching, which runs from 2011-2020.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

The Impact of Early Undergraduate Research Experiences on Continued Research Participation: Comparing Two Contrasting Approaches at Montana State University
Colin A. Shaw
Montana State University Bozeman

Rates of continued research participation are compared for (1) students who completed lower-division research-intensive courses and (2) students who participated in a combined research seminar and introductory faculty-mentored research project.
9:00 a.m.–9:30 a.m.
30-min dual-presenter presentations

Other

Room Assignment: Washington Room B

Thriving in Survival Mode: Tips and (Tech) Tricks for Doing More with Less
Aubrey Kuperman | Kelsey Eagen | Colleen M. Smith
University of Central Florida | University of North Florida | University of Central Florida

This session will cover a variety of methods and tools that undergraduate research staff members at two institutions use to increase program efficiency and assessment. In each category, free or low-cost web-based tools will be discussed, and the presenters will illustrate how these tools have increased output or improved the quality of services offered by their offices. The presenters will share how these solutions have been used on their campuses and will lead a discussion about how participants can adapt these tools to fit individuals’ institutions.

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

UW-Whitewater Undergraduate Research Program and Student Success: A Data-Driven Self-Study
Catherine Chan | Prajukti Bhattacharyya
University of Wisconsin - Whitewater | University of Wisconsin - Whitewater

The Undergraduate Research Program leadership team at the University of Wisconsin-Whitewater conducted a self-study on the characteristics of student participants and possible outcomes of their participation. We analyzed various demographic, retention, and graduation data spanning the academic years 2009-2010 to 2016-2017. Results suggested that students participating in mentored research show improved retention and graduation rates compared to other students from similar demographics.

9:00 a.m.–10:00 a.m.
60-min panel presentations

Other

Room Assignment: Jefferson Room

Who Owns It? Understanding Undergraduate Research, Intellectual Property, and Tech Transfer
Candace Rypisi | Marisa Moazen | Andrew Sustich | Kristen Ruka
California Institute of Technology | University of Tennessee at Knoxville | Arkansas State University | WiSys Technology Foundation

As undergraduates become more and more involved in research activities, attention needs to be paid not only to their development as young scholars but also as members of our community who may have ownership rights over the intellectual property they are contributing to or creating. This panel will provide both an overview of national policy (Bayh-Dole Act) and recent litigation that impacts how schools think about intellectual property generally and a discussion on whether their institutions have addressed, or not, the ownership rights of undergraduate researchers.
Creating Collaborative Connections in & through Undergraduate Research

North Carolina Public and Private Colleges and Universities Converge Around Undergraduate Research
Lee Phillips | Mary A. Farwell | Rebecca Battista | Joanne D. Altman
University of North Carolina at Greensboro | East Carolina University | Appalachian State University | High Point University

Public and private North Carolina colleges and universities work, collectively, to help promote undergraduate research and creative inquiry as a pathway to learning process through discovery. These efforts are coordinated by faculty/UR program directors from both state and independent institutions. The presenters will discuss the successful programs that have evolved from these collaborations and best and worst practices. Participants will be able to leave with models and ideas for developing or strengthening efforts to grow regional programs that forge collaborations among a variety of universities and colleges.

Innovation and Collaboration in Undergraduate Research

Peer Mentoring Networks: Amplifying the Benefits of Curriculum-Embedded Undergraduate Research Opportunities
Ruth J. Palmer | Suzanne F. Lindt | Stacia C. Miller | Deborah L. Thompson
The College of New Jersey | Midwestern State University | Midwestern State University | The College of New Jersey

This session proposes a collaborative learning experience on peer mentoring, that is designed to achieve the following objectives: (1) clarify the efficiencies and efficacies of peer mentoring in the context of undergraduate research; (2) build broad conceptual frameworks that inform the practice of peer mentoring; and (3) facilitate the design of exploratory context-based peer mentoring approaches. To support continuing engagement, participants will have access to an established set of electronic resources on peer mentoring and will be invited to join an online Peer Mentoring Learning Community.

9:00 a.m.–11:00 a.m.
120-min workshops

Developing Student Research Program Collaborations at Florida Atlantic University
Tracy N. Baker | Jennie Soberon
Florida Atlantic University | Florida Atlantic University

At Florida Atlantic University, several undergraduate research and inquiry programs focus on continuing investment in research. 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. During this presentation, best practices will be shared for individuals interested in developing or improving similar programs on their campuses.
Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Fairfax Room

**Entering Research: A Curriculum to Support Undergraduate Research Trainees**
Janet L. Branchaw | Amanda R. Butz | Amber R. Smith
University of Wisconsin - Madison | University of Wisconsin - Madison | University of Wisconsin - Madison

The Entering Research curriculum includes over 100 field-tested activities and resources to support STEM research trainee development in seven areas that have been shown to contribute to trainee retention and advancement, and diversification of the scientific research workforce. The workshop is for research training program directors and academic department faculty members who support undergraduate researchers as they navigate their research experiences. Participants will be given access to the curricular materials and learn how to use them to build new or customize existing courses and workshops to support research trainees.

**9:25 a.m.–9:45 a.m.**
20-min single-presenter presentations

Other

Room Assignment: Conference Theater

**OUR Explorers: A Program to Expose Undergraduates to Research Opportunities across Campus**
Allison Beauregard-Schwartz
University of West Florida

The University of West Florida (UWF) Office of Undergraduate Research (OUR), recently launched the OUR Explorers program for underclassmen. The goals for this program are to encourage students to engage in research earlier, to increase engagement in undergraduates research, and to broaden the scope of potential mentors that students consider. OUR Explorers students are matched with three or four faculty “guides” from a broad range of research specialties to shadow for the spring semester, based on the student’s stated interests and career goals.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

**National Research on the Effects of Inquiry-Based Learning / Undergraduate Research in German Universities**
Harald Mieg
Fachhochschule Potsdam

I will present the structure and results of ForschenLernen, a 3.5-year national project on the effects of inquiry-based learning in Germany. The project involved more than 15 German universities and mostly focused on undergraduate research. The research questions were: [1] Does inquiry-based learning affect students’ research competencies? [2] How do students learn in inquiry-based learning (the subjective logic of learning)? [3] How do concepts of research affect undergraduate research practice?

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**FYRE Poster Sessions: Enhancing the Research Curriculum at the American University in Cairo**
Richard John Byford
American University in Cairo

Although the 100-level research writing course has long been established here at the American University in Cairo, Egypt, only recently has greater interest been taken in developing strategies to enable first-year students to take their course-based research to greater levels. In pursuit of this initiative, we encourage our first-year students to pursue their own research interests with a view to publication at the First-Year Research Experience Wall Poster Exhibition. A student-wide study will commence next semester to assess the impact on the students of this particular initiative.
Creating Collaborative Connections in & through Undergraduate Research

9:25 a.m.—9:55 a.m.
30-min dual-presenter presentations

Innovation and Collaboration in Undergraduate Research

Room Assignment: Potomac Room II

Joining Forces for Data Science Education: The Coalition for Undergraduate Computational Data-Enabled Science & Engineering (CDSE) Education
Michael J. Wolyniak | William C. Anderson | Raphael D. Isokephi | Hong P. Liu | Matthew Ikle
Hampden-Sydney College | Hampden-Sydney College | Bethune-Cookman University | Embry-Riddle Aeronautical University | Adams State University

Data science education has become indispensable across all STEM disciplines, yet many institutions do not have the resources to effectively offer a range of courses providing data science experience to students. This project represents a coalition of four small institutions that have joined forces to create in-person and virtual data-science-based courses across a range of STEM disciplines taught in a paired peer instructor format. This model for instruction is providing a novel approach to providing more data-science-based educational opportunities for students at each member institution.

9:35 a.m.—10:05 a.m.
30-min dual-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

The Impact of Mentoring Undergraduate Researchers on Faculty Productivity
Korine Steinke Wawrzynski | Justin Micomonaco
Michigan State University | Michigan State University

This study explores the impact of undergraduate researchers on faculty productivity at a large, doctoral-granting research university to understand why faculty involve undergraduates in their research. Most faculty participants viewed undergraduates as positively contributing to their research productivity; however, differences emerged by discipline. Faculty described undergraduate work as serving one of two purposes: expanding labor capacity or diversifying the research agenda. We will outline characteristics of productive undergraduate research experiences and describe emerging models for mentoring undergraduates that benefit faculty scholarship.

Other

Room Assignment: Washington Room B

Process versus Product: Finding the Right Collaborative Balance
Kimberly Hall | Carolyn Martsberger
Wofford College | Wofford College

This presentation focuses on the tension between process-oriented versus product-oriented mentoring in a collaborative faculty/undergraduate project that resulted in the creation of a children’s book on the photoelectric effect.
9:50 a.m.–10:10 a.m.  
20-min single-presenter presentations

**Other**

Room Assignment: Conference Theater

**Partnership in Practice: Undergraduate Research and Career Development**
Caroline McGuire | Ana Clara Blesso  
University of Connecticut | University of Connecticut

This presentation will highlight areas of potential partnership between undergraduate research and career development offices, helping attendees imagine how to maximize this relationship on their campuses. Using the University of Connecticut as an illustrative case, we will discuss opportunities for collaboration related to student advising, services to targeted student populations (e.g., women in STEM, undocumented students), skill development (e.g., networking, résumé writing), programming, data collection, and policy and compliance.

**Assessment of Impact of Undergraduate Research**

Room Assignment: Potomac Room IV

**Connecting the Arts and Humanities to Workforce Development through Undergraduate Research**
Jenny Olin Shanahan  
Bridgewater State University

Half of recent college graduates are unemployed or underemployed, and the others considered underprepared for the workplace, according to most employers across myriad industries and nonprofit sectors surveyed by AAC&U. Students majoring in the arts and humanities who engage in faculty-mentored research, however, demonstrate gains in the very skills most highly valued by employers, including problem-solving and analysis, adaptability, and oral and written communication. This presentation explains how undergraduate research bridges the gap between those focused on workplace development, and scholars and advocates of the arts and humanities.

**Integrating and Building Undergraduate Research into Curriculum and Coursework**

Room Assignment: Potomac Room VI

**Creating Discipline-Specific Undergraduate Research Curricula in the Health Professions**
Fred E. Bertrand | Donna Slovensky  
University of Alabama at Birmingham | University of Alabama at Birmingham

The undergraduate research and honors curricula in the UAB School of Health Professions were revised to provide research opportunities that emphasized teamwork and discipline-specific projects within the health professions. This goal was accomplished by re-envisioning a research-driven honors program and offering an undergraduate research certificate that is consistent with directed elective requirements of the biomedical sciences and health care management majors.
Creating Collaborative Connections In & through Undergraduate Research

10:00 a.m.–10:30 a.m.
30-min dual-presenter presentations

Diversity and Inclusion in Undergraduate Research

Room Assignment: Potomac Room II

Leveraging Existing Resources to Evolve Institutional Goals
Bryan L. Dawson | Anastasia W. Lin
University of North Georgia | University of North Georgia

Developing new undergraduate research programs is often an exercise in evaluating existing initiatives and the ways they might be realigned. In this presentation, we will discuss how we partnered with programs in different offices across the university to devise a successful McNair grant application and program that was in keeping with institutional priorities. The session will conclude with a workshop activity aimed at generating actionable ways attendees might extend and reimagine existing undergraduate research opportunities at their local universities.

10:00 a.m.–11:00 a.m.
60-min panel presentations

Other

Room Assignment: Roosevelt Room

Best Practices for Early-Career Faculty in the Physical Sciences and Engineering
Rebecca M. Jones | Mary E. Konkle | John F. Mateja
George Mason University | Ball State University | Goldwater Scholarship Foundation

This panel will feature experienced faculty in the physical sciences and engineering and address such topics as establishing a research group, obtaining external funding, adopting a teacher-scholar model, and maintaining a work-life balance. We will provide short synopses of best practices in each of these areas and share real-life examples. Attendees will learn from the presenters’ successes and failures and leave this session with concrete plans for how to reach their professional goals.

Diversity and Inclusion in Undergraduate Research

Room Assignment: Arlington Room

Scaffolding Active Learning Strategies to Build Research Skills in Underrepresented Groups
Karen H. Almeida | Catherine Chan | Bridget L. Gourley | Hector Palencia
Rhode Island College | University of Wisconsin - Whitewater | DePauw University | University of Nebraska at Kearney

This is an interactive panel designed to foster discussion of the unique challenges facing underrepresented groups in the learning process. We will focus on teaching practices that best assist these underserved students and improve their success rates. Topics will be loosely divided into three sections, including current barriers, effective learning strategies, and potential issues with implementation. Attendees will learn about successes and failures across four diverse campuses and will leave this session with a set of strategies that facilitate the learning of underrepresented groups.
So You Are Thinking about Publishing in SPUR
James T. LaPlant | Janice DeCosmo | Laurie A. Gould | Karen G. Havholm | Elizabeth Foxwell
Valdosta State University | University of Washington | Georgia Southern University | University of Wisconsin - Eau Claire | Council on Undergraduate Research

Editorial Board members and the editor-in-chief of CUR’s flagship journal will discuss the submissions guidelines for authors, the peer review process, and the new design of *Scholarship and Practice of Undergraduate Research* (SPUR). The session will cover upcoming themes of SPUR, the focus areas of the redesigned table of contents, and characteristics of manuscripts that have been accepted for publication.

Room Assignment: Lincoln Room

Models for Integration of Mentorship into Workload, Evaluation, and Tenure and Promotion
Janet A. Morrison | Jeffrey M. Osborn | Karen K. Resendes | Juliane Soukup | Anne A. Boettcher
The College of New Jersey | The College of New Jersey | Westminster College | Creighton University | Embry - Riddle Aeronautical University

The foundation of undergraduate research, scholarship, and creative activity (URSCA) is strong mentorship. To increase participation and effectiveness, 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. Explicit reporting of mentoring activities also facilitates data gathering regarding URSCA participation. Increasingly, institutions nationwide are formalizing recognition of mentorship in faculty workload and evaluation. There are a range of models for incorporation that vary based on campus size, focus, and barriers to incorporation. In this interactive session, panelists will discuss integration of URSCA into faculty workload and recognition/reward systems on their campuses, which are at varied stages, and then invite participants to raise questions and discuss their institutions’ goals and challenges.

10:10 a.m.–10:40 a.m.
30-min dual-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Washington Room A

System-Wide Outcomes Assessment of a System-wide Community College Undergraduate Research Program at The City University of New York
Avrom J. Caplan | Ronald J. Nerio
City University of New York | City University of New York

The City University of New York launched an annual, system-wide undergraduate research program in 2014 for associate-degree students among its seven community colleges and three comprehensive schools. Over 800 students enrolled in the program, which provides year-long mentored research experiences in STEM fields. A mixed-methods assessment shows that community college students who engage in the program receive strong benefits that promote academic success.

Rewards and Challenges of Undergraduate Research in the Humanities at a Small Liberal Arts College
Amy Frederick | Eva M. Cadavid
Centre College | Centre College

This session is a discussion of how faculty in the humanities at a small liberal arts college in rural Kentucky are engaging in undergraduate research. The panelists will address the obstacles they face as well as the models that have worked well in their disciplines: art history and philosophy. They will share how they are incorporating undergraduates in their own research but also student-generated research projects. The panelists will discuss the effects that such work has had on the students, the benefits to their departments, and the benefits to their own research.
Creating Collaborative Connections in & through Undergraduate Research

10:15 a.m.–10:35 a.m.
20-min single-presenter presentations

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Supporting Non-Tenure-Track Faculty Dedicated to Undergraduate Research Mentorship
Patrick J. Killion
University of Maryland-College Park

Non-tenure-track faculty are increasingly involved in the mentorship of undergraduate research. This session will focus on best practices developed to support, measure, and assess their impact on students served in a manner that supports ongoing professional growth.

Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

STEM BUILD at UMBC: Investigating Interventions Combining Credit and Non-Credit Curriculum with Group Research Experiences
William R. LaCourse
University of Maryland - Baltimore County

The STEM BUILD at UMBC, a NIH-funded initiative, seeks to retain promising undergraduates in science, technology, engineering, and mathematics (STEM) through sustainable and scalable interventions. The BUILD Group Research (BGR) model seeks to replicate aspects of faculty one-on-one research experiences that are not available to many students. This presentation focuses on the BTP training experience beginning with a six-week hybrid BTP Summer Bridge that introduces research skills through microbiome BGR projects followed by a fall 2-credit interdisciplinary science laboratory course. In the summer 2 BGR experience, students develop molecular biology and analytical chemistry skills in the noncredit Bioanalytical Laboratory course, and in summer 3 students collect soil samples for an intense, non-credit, three-week Phage Hunters course. The goal for BTP Year 4 is participation in group or individual advanced summer research experiences. Other required courses focus on medical terminology and research ethics. A capstone medical case studies course is encouraged.

Assessment of Impact of Undergraduate Research

Room Assignment: Potomac Room IV

Assessing Student Learning in Co-curricular Undergraduate Research Programs
Dominique M. Galli
Indiana University - Purdue University Indianapolis

The IUPUI Center for Research and Learning assesses student learning in undergraduate research using both qualitatively and quantitatively data. Close to 400 students ranging from first-year to fourth-year students and more than 100 mentors have been surveyed. Data collected as well as select excerpts from student reflective essays will be presented to demonstrate student learning.
Integrating and Building Undergraduate Research into Curriculum and Coursework

Room Assignment: Potomac Room VI

**Design, Implementation, and Assessment of a Multi-Year, Curriculum-Based Undergraduate Research Experience in the Geosciences**

Joseph L. Allen | Elizabeth G. Creamer | Stephen C. Kuehn
Concord University | Virginia Polytechnic Institute & State U | Concord University

Although unusual, short-term, course-based undergraduate research experiences (CUREs) can be developed into a multi-year, curriculum-based research experience (MY-CURE). As part of an NSF IUSE study, we have designed and implemented a curriculum-based research experience that uses an integrated, mixed-methods evaluation scheme to explore nuances in student learning. In this presentation, we discuss best practices for converting a CURE to a curriculum-based experience, and discuss observations from a cohort who completed the URE across five consecutive semesters from fall 2015 to summer 2017.

**11:00 a.m.–12:00 p.m.—Closing Plenary—Room Assignment: REGENCY**

**Speaker:** José Antonio Bowen
President, Goucher College

“Preparing Students for a New Learning Economy with a New 3Rs: Redesigning for Student Relationships, Resilience, and Reflection”

Introduction by: Larry Wimmers, Towson University

**Keynote will be followed by a book signing.**
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This cross-disciplinary volume incorporates diverse perspectives on mentoring undergraduate research, including work from scholars at many different types of academic institutions in Australia, Canada, the United Kingdom, and the United States. It strives to extend the conversation on mentoring undergraduate research to enable scholars in all disciplines and a variety of institutional contexts to critically examine mentoring practices and the role of mentored undergraduate research in higher education.
Sunday, July 1, 2018 – Morning Plenary

Dr. Freeman A. Hrabowski III, president of UMBC (University of Maryland, Baltimore County) since 1992, is a consultant on science and math education to national agencies, universities, and school systems. He was named by President Obama to chair the President’s Advisory Commission on Educational Excellence for African Americans. He also chaired the National Academies’ committee that produced the report Expanding Underrepresented Minority Participation: America’s Science and Technology Talent at the Crossroads (2011). His 2013 TED talk highlights the “Four Pillars of College Success in Science.” Named one of the 100 Most Influential People in the World by Time Magazine (2012) and one of America’s best leaders by U.S. News & World Report (2008), he also received TIAA-CREF’s Theodore M. Hesburgh Award for Leadership Excellence (2011), the Carnegie Corporation’s Academic Leadership Award (2011), and the Heinz Award (2012) for contributions to improving the human condition. UMBC has been recognized as a model for inclusive excellence by such publications as U.S. News, which in the past eight years has recognized UMBC as a national leader in academic innovation and undergraduate teaching. Hrabowski’s most recent book, Holding Fast to Dreams: Empowering Youth from the Civil Rights Crusade to STEM Achievement, describes the events and experiences that played a central role in his development as an educator and leader.

Monday, July 2, 2018 – Morning Plenary

Robin Wright earned a bachelor of science degree from the University of Georgia and a PhD from Carnegie-Mellon University. After postdoctoral training at UC-Berkeley, she was on the faculty of the University of Washington (Zoology Department) before moving to the University of Minnesota in 2003, where she served as associate dean for faculty and academic affairs; as head of the Department of Biology Teaching and Learning; and as professor of genetics, cell biology, and development. Prior to her turning to an exclusive focus on undergraduate education, her lab used genetic, cell biological, ecological, and evolutionary approaches to explore cold adaptation. In addition, her laboratory was well known as a great place for undergraduates to pursue research. Over the past 27 years, she has mentored nearly 100 undergraduate researchers. At Minnesota, she helped to develop and co-teaches the Nature of Life orientation program and has been a leader in development of Foundations of Biology, an innovative, team-based introductory biology course for biological sciences majors. She leads HHMI- and NSF-supported initiatives to deliver discovery-based research experience for the thousands of majors and nonmajors who take biology classes in the College of Biological Sciences. Wright has served on the Education Committee of the American Society for Cell Biology and as chair of the Education Committee for the Genetics Society of America. In addition, she was a senior editor of CBE-Life Science Education and is the founding editor-in-chief of the new biology curriculum journal CourseSource. She is a member of the Executive Committee for the HHMI/National Academies of Science-sponsored Summer Institute on Biology Education and the National Academies Scientific Teaching Alliance. She was named as a National Academies Biology Education Mentor for 14 years. She was elected as a Fellow of the American Association for the Advancement of Science in 2012 and was recognized by the Genetics Society of America with the Elizabeth Jones Award for Excellence in Undergraduate Education. She currently serves as director of the Division of Undergraduate Education at the National Science Foundation.
Monday, July 2, 2018 – Lunch Plenary

David Lopatto is professor of psychology and the Samuel R. and Marie-Louise Rosenthal Professor of Natural Science and Mathematics at Grinnell College. His career includes a term as chair of the Faculty as well as a stint as interim dean of the College. Lopatto is currently director of Grinnell College’s Center for Teaching, Learning, and Assessment.

Lopatto’s research on the psychology of learning and motivation has come to focus on the learning outcomes of undergraduate experiences in science, especially the effect of undergraduate research experience on student learning, career choice, and attitude. He is the author of several surveys for the assessment of undergraduate science learning that are used by more than 150 institutions and more than 10,000 undergraduates annually. His published work includes the book *Science in Solution: The Impact of Undergraduate Research on Student Learning*. Lopatto’s work uncovers the complex career and personal gains acquired by students through conducting authentic research with faculty mentors. He was elected a Fellow of the Education Section of the American Association for the Advancement of Science in 2015 and was awarded the Bruce Alberts Award for distinguished contributions to science education by the American Society for Cell Biology in 2016.

Tuesday, July 3, 2018 – Closing Plenary

José Antonio Bowen is president of Goucher College. Bowen has won teaching awards at Stanford University, Georgetown University, University of Miami, and Southern Methodist University; he was dean of SMU’s Meadows School of the Arts for eight years. He is the founding director of the Centre for the History and Analysis of Recorded Music (C.H.A.R.M.) at the University of Southampton, England. He has written more than 100 scholarly articles, edited the *Cambridge Companion to Conducting* (2003), received a National Endowment for the Humanities (NEH) Fellowship, and contributed to *Discover Jazz* (Pearson, 2011). He is an editor of the 6-CD set *Jazz: The Smithsonian Anthology* (2011). He has appeared in Europe, Africa, Asia, the Middle East, and the United States with Stan Getz, Dizzy Gillespie, Bobby McFerrin, Dave Brubeck, Liberace, and many other musicians. He has written a symphony (nominated for the Pulitzer Prize in Music), a film score, and music for Hubert Laws, Jerry Garcia, and many other musicians. He has served on the Editorial Boards for *Jazz Research Journal*, *The Journal of the Society for American Music* (Cambridge University Press), *The Journal of Music History Pedagogy*, and *Per Musi: Revista Académica de Música*. He is also a founding board member of the National Recording Preservation Board for the Library of Congress and a Fellow of the Royal Society of Arts (FRSA) in England. Bowen has been featured in the *New York Times*, *Forbes*, the *Wall Street Journal*, *Newsweek*, and on NPR for his book *Teaching Naked: How Moving Technology out of Your College Classroom Will Improve Student Learning* (Jossey-Bass, 2012, and winner of the Ness Award for Best Book on Higher Education from the Association of American Colleges and Universities). This book was followed by *Teaching Naked Techniques: A Practical Guide to Designing Better Classes* with G. Edward Watson (Jossey-Bass, 2017). He received the Ernest L. Boyer Award for significant contributions to American higher education from the New American Colleges and Universities in January 2018, and Stanford honored him as a Distinguished Alumni Scholar in 2010.

His book in progress is *A New 3Rs: Using Behavioral Science to Prepare Students for a New Learning Economy* (Johns Hopkins University Press, due 2019). For more on his teaching, see his blog at teachingnaked.com or follow him on Twitter @josebowen.
CUR Fellows Award Recipients

Sandra Gregerman
Special Counsel for Undergraduate Research and Student Access Initiatives, University of Michigan

Sandra Gregerman is currently special counsel for undergraduate research and student access initiatives at the University of Michigan. She recently stepped down as director of the Undergraduate Research Opportunities Program, a program she ran for 25 years. UROP engages first-year, second-year, and community college students in research and grew from a pilot program with 15 students to 1400 students and 800 faculty participants working with all UM schools and colleges and all academic disciplines. Prior to this, she was the director of academic programs for the University of Michigan’s School of Natural Resources and the Environment. In her work in higher education, she has focused on early engagement of students in research, the retention of women and historically underrepresented students in STEM and the role of undergraduate research in increasing the retention and pursuit of graduate education by underrepresented students. She is an expert on the development and implementation of undergraduate research programs, with a focus on early engagement of students in research including community college transfer students. She has served as a consultant to the National Science Foundation and numerous colleges and universities across the country interested in establishing such programs. She has served as the chair of the Board of Governors for the National Conference of Undergraduate Research and on the Executive Board for the Council on Undergraduate Research.

Bert E. Holmes
P. G. Carson Distinguished Chair of Science, Department of Chemistry
University of North Carolina at Asheville

Bert E. Holmes has a B.A. in mathematics, a B.S. in chemistry with a minor in physics, and a Ph.D. in physical chemistry. Currently he is the Philip G. Carson Distinguished Chair of Science at the University of North Carolina-Asheville. His entire 44-year career as a college professor has been at three undergraduate liberal arts colleges and he has been honored with the top teaching award at each. He was a program officer at the National Science Foundation serving as co-lead for three years of S-STEM, for one year as co-lead of STEP and he also worked on TUES, the Noyce Program, and Climate Change Education. He has had numerous education [ILIP, CCLI and S-STEM] awards from NSF and his work with undergraduates has been supported by research grants from NSF for 26 consecutive years. Since 2010, he has 24 research publications with 48 undergraduate co-authors focusing on experimental and computational investigations of reaction dynamics of interest to atmospheric and combustion scientists. He has seven publications or book chapters related to developing a research-rich curriculum or using a comprehensive undergraduate research program to transform a chemistry department. During the past five years he has [1] assisted or led 14 workshops on writing more competitive NSF proposal or institutionalizing undergraduate research and [2] served as an external reviewer/consultant for 16 institutions evaluating specific aspects of their educational program. He has earned three prestigious national awards: the Council on Undergraduate Research Fellows Award, the Catalyst National Award for Excellence in Chemistry Teaching from the Chemical Manufacturers Association, and the American Chemical Society Award for Research at an Undergraduate Institution.
CUR-Goldwater Scholars Faculty Mentor Award Recipient

David Peak

Utah State University, 2018 CUR-Goldwater Scholars Faculty Mentor Awardee

More than 160 undergraduates have engaged in research projects with me. Nineteen of these have received 12 Goldwater Scholarships and 9 Honorable Mentions. Beyond the wonderful CUR-GS award, my successful mentoring of undergraduate researchers has also received national recognition from the American Physical Society (1996 Prize for a Faculty Member for Research in an Undergraduate Institution) and the Carnegie Foundation for the Advancement of Teaching (2009 Utah Professor of the Year).

In 2001, I initiated a Goldwater Scholarship preparation “bootcamp” at USU. I started the bootcamp, in part, because I enjoy interacting with bright, incipient scientists and engineers. But, as a land-grant university professor, I also feel I should assist my state’s citizens to gain equal-access to opportunities available at better-known, more expensive, universities. Since the program started, 33 of my 41 bootcampers have earned 22 Goldwater Scholarships and 14 Honorable Mentions.

My wife and I have established an endowment at USU that each year funds an Outstanding Undergraduate Researcher award from each of our eight academic colleges, one of whom receives the additional award of the University’s Undergraduate Researcher of the Year. The endowment also funds an annual award to the faculty member chosen as Undergraduate Research Mentor of the Year.

Well before joining the faculty at USU in 1994, I was already involved in the national undergraduate research movement. In fact, I played a role in helping both the Council on Undergraduate Research and the National Conferences on Undergraduate Research become the important institutions they currently are. I’m delighted to see how essential CUR and NCUR have become for supporting and growing undergraduate research in America.
CUR Events and Institutes – 2018-2019

The Council on Undergraduate Research is pleased to share a calendar of coming events with you. Please check the CUR website at https://www.cur.org for frequent updates.

2018

July 12-16, 2018, Georgia College, Milledgeville
Proposal Writing Institute- This institute will bring together faculty and administrators interested in preparing proposals for submission to external funding agencies. The four-day institute will consist of one-on-one work with a mentor, writing, small group discussions, and critiquing of proposals. The institute has been developed to assist novice to experienced proposal writers in drafting complete proposals for submission. Prior to the institute participants will be able to access information that will help them begin to draft their proposal. Host institutions are being sought for future Proposal Writing Institutes.

October 5-7, 2018, Stetson University, DeLand, FL
Beginning a Research Program in the Natural Science at a Predominantly Undergraduate Institution Institute- This institute gives individuals, pre-tenured faculty members, the opportunity to learn from and discuss with experienced faculty how to establish and manage a research program with undergraduates. While at the institute, participants will also prepare plans for starting and/or advancing their individual research programs at their respective campuses. A range of topics will be covered during the institute that show ways to achieve career success in undergraduate research. Application deadline is August 15, 2018.

October 5-7, 2018, Montana State University, Bozeman
Creative Inquiry in the Arts and Humanities Institute- This institute will assist campus-based teams in developing transformative opportunities for Undergraduate Research, Scholarship, and Creativity Activity (URSCA) in the arts and humanities. The goal of the institute is to inform participants about current research on learning outcomes for students engaging in URSCA. Application deadline is August 15, 2018.

October 12-14, 2018, Capital University, Columbus, OH
Transforming Undergraduate Research Culture and Curricula (TURCC)- This workshop will bring together teams of three to five faculty members and administrators from institutions interested in institutionalizing existing research activities and in developing research-rich curricula to support those goals. Application deadline is August 15, 2018.

October 12-14, 2018, The College of New Jersey, Ewing, NJ
Integrating Undergraduate Research into Teacher Education Programs and Related Fields (EDUCATION)- This workshop will bring together teams of three to five faculty members, including deans/dean representatives, department chairs, program coordinators, and faculty from institutions interested in addressing the issues and challenges that facilitate and/or inhibit the adoption of undergraduate research into the complex activities of teaching and learning within educational units and institutions. Application deadline is August 15, 2018.
2019

February 14-16, Crystal Gateway Marriott, Arlington, VA
CUR Dialogues- This conference is designed to bring faculty and administrators to the Washington, D.C., metropolitan area to interact with federal agency program officers and other grant funders. Attendees will also have the chance to engage in several networking opportunities. Registration will open in early fall 2018.

April 11-13, Kennesaw State University, GA

June 27-29, 2019, The Ohio State University, Columbus
Undergraduate Research Programs Division’s (URPD) Conference 2019- This 1.5-day conference is aimed at faculty and academic professionals interested in the improvement, management, and promotion of undergraduate research and creative activities. Faculty, undergraduate research program directors, and administrators will share ideas, strategies, and best practices. The abstract submittal portal will open in September 2018.

Please see our website at www.cur.org or contact Tavia S. Cummings at tcummings@cur.org or 202.783.4810 x204 for more information.
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Creating Collaborative Connections In & through Undergraduate Research

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