CUR Conference Planning Committee

Bridget Gourley, Co-chair
DePauw University (Chemistry)

Bethany Usher, Co-chair
George Mason University (URPD)

Scott Bates
Utah State University (Psychology)

Ruth Palmer
The College of New Jersey (At-Large)

Lynette Overby
University of Delaware (At-Large)

Jenny Shanahan
Bridgewater State University (URPD)

John Swift
Occidental College (Arts and Humanities)

Louise Temple
James Madison University (Biology)

CUR National Office Staff

Elizabeth Ambos
Executive Officer

Robin Howard
Senior Director
Membership Services, Operations and Information Technology

Lindsay Currie
Director
Communications and Membership

Melisa Zackery
Director
Conference and Meeting Services

Mary Pat Twomey
Manager
Student Programs

Athenae Belton
Accounting Specialist

Shontay Kincaid
Project Manager
Comprehensive Support for Faculty, Institutions, State Systems and Consortia

Jeffrey Johnson
Administrative Assistant
Council on Undergraduate Research
CUR Conference 2014

CREATING THE CITIZENS OF TOMORROW:
Undergraduate Research for All

Washington, D.C.
Renaissance Washington, D.C. Downtown Hotel
June 28- July 1, 2014
Sponsors

Gold Sponsor

CollegeBoard

AP Capstone™

Silver Sponsors

Bentley University

National Biomedical Research Foundation

Bronze Sponsor

Li-Cor
# Table of Contents

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome ................................................................. 4</td>
</tr>
<tr>
<td>Program at a Glance .................. 6</td>
</tr>
<tr>
<td>General Information .................. 8</td>
</tr>
<tr>
<td>Registration &amp; Check in ............ 8</td>
</tr>
<tr>
<td>Wireless Internet Login ............ 8</td>
</tr>
<tr>
<td>Poster Session Information ........ 8</td>
</tr>
<tr>
<td>Session Formats ....................... 8</td>
</tr>
<tr>
<td>Meeting Program ...................... 9</td>
</tr>
<tr>
<td>Saturday, June 28 ..................... 9</td>
</tr>
<tr>
<td>Sunday, June 29 ....................... 9</td>
</tr>
<tr>
<td>Monday, June 30 ...................... 29</td>
</tr>
<tr>
<td>Tuesday, July 1 ....................... 46</td>
</tr>
<tr>
<td>Poster Presentation Summary ........ 56</td>
</tr>
<tr>
<td>CUR Fellows Award Recipients ....... 62</td>
</tr>
<tr>
<td>Plenary Speakers Biographies ........ 63</td>
</tr>
<tr>
<td>Provost Speaker Biographies ........ 64</td>
</tr>
<tr>
<td>Index ............................................. 66</td>
</tr>
<tr>
<td>Map of Renaissance DC Hotel ....... Inside Back Cover</td>
</tr>
</tbody>
</table>
Welcome From the CUR President

On behalf of the Executive Board of the Council on Undergraduate Research (CUR), it is a privilege and honor to welcome you to the 2014 Biennial CUR Conference. The conference theme this year is “Creating the Citizens of Tomorrow: Undergraduate Research for All.” As faculty, staff, and administrators, we have all witnessed the transformative influence that quality undergraduate research experiences can have on our students. As a result, these opportunities are appropriately recognized as effective, high-impact learning pedagogies that need to be integrated more extensively into the higher education curriculum, so all students can benefit. Undergraduate research, scholarship, and creative activities bring together all institutional types, bridge disciplinary boundaries and encourage international and cross-cultural collaborations that promote diverse interactions and productive synergies. This collective energy promotes discovery and seeds innovation. It is helping us educators to develop effective leaders and empower citizens who can solve problems and provide for a better future.

The conference program includes some 400 presenters who will engage us through stimulating plenary lectures, workshops, interactive and flipped sessions, posters, panels, and performances to foster discussion, encourage networking, and facilitate an exchange of ideas to promote learning and fuel our shared passion for the undergraduate research enterprise. The presentations will address the following subthemes:

• Undergraduate Research for the Public Good
• Undergraduate Research for All
• Ensuring Access to High Quality Opportunities
• Undergraduate Research for High-Impact Learning: Scaling Up and Scaffolding
• Undergraduate Research for Transformation: Assessing the Impact
• Undergraduate Research for Mentors: Support and Sustenance
• Funding for Undergraduate Research: Finding and Leveraging Resources
• Undergraduate Research for the Future: Exploring New Directions

What you will experience over the next few days is only possible because of the hard work and dedication of many individuals and organizations. In particular, I would ask that you join me in thanking the Conference Planning Committee under the co-leadership of Bridget Gourley [DePauw University] and Bethany Usher [George Mason University]. In addition, a very special thank you to the CUR National Office staff and our Executive Officer, Beth Ambos for their never-ending efforts and commitment that make this organization live its mission and vision daily as The Voice of Undergraduate Research. It is because of them that we have fittingly chosen to venture from the campus environment to hold this, the 16th CUR Conference in Washington D.C., the most fitting venue for our theme of democratizing undergraduate research.

This conference is an opportunity for us to learn from one another by sharing what works and pushing the envelope to explore promising practices. I challenge you to move higher education in a proactive direction rather than one of complacency and reaction. CUR stands ready to help you every step of the way with our vast range of services, programs, and publications. Thank you for joining us for CUR 2014 and for all that you do to advance and improve undergraduate research and make it not only a transformative experience for a few, but for all!

Amelia J. Ahern-Rindell
2014-2015 CUR President
Council on Undergraduate Research
Associate Professor of Biology, University of Portland
Welcome from the Council on Undergraduate Research National Office

Welcome to the 2014 Biennial CUR Conference. This conference marks the first time that CUR's signature professional development event has been held in this nation's capital. We hope that you will thoroughly enjoy your time in Washington, both through active participation in this vibrant conference, and in visiting museums and monuments, and enjoying the many other amenities and attractions the region has to offer.

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 Bridget Gourley and Bethany Usher, and for the incredible leadership of the CUR Executive Board and General Council in building a strong community of undergraduate researchers and scholars. CUR’s mission is to build and enhance high-quality undergraduate student-faculty collaborative research and scholarship. Our organization is experiencing rapid growth, and over 690 institutions and more than 10,000 individuals now belong to CUR. We support the global undergraduate research enterprise, through a variety of programs, services, and advocacy. 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. 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 Ambos, Executive Officer

Welcome from the Program Planning Committee

On behalf of the CUR 2014 Program Planning Committee we welcome you to CUR’s 16th National Conference. We are excited to share almost two years of planning and preparation with you. Inspired by the location in Washington, D.C. and CUR’s commitment to broadening participation in undergraduate research, we chose the theme, “Creating the Citizens of Tomorrow: Undergraduate Research for All.” We’ve all seen first hand how transformative research experiences are for all students, particularly, some of our most at-risk populations. We recognize that there are many ways to measure success, but all agree that participating in an in-depth project with a mentor in college strengthens our students, our faculty, and our communities. Additionally, we all know the quality of the work our students do in these shared collaborations with mentors provides intellectual capital that benefits the broader citizenry. The program is designed to help all of us learn from perspectives different from our own and gain from ideas that are outgrowths of the synergistic strength that comes from bringing diverse thinkers to the table to solve complex problems. We are acutely aware that there are many challenges to engaging in this work over the long haul and we salute all of you who are participating in the undergraduate research enterprise and motivated to make it even stronger.

This CUR2014 conference is different than the ones of the past. For the first time, we are meeting in a conference center in a major city rather than being on a college campus. This change has given us additional opportunities, as well as a few challenges. We have designed the program to highlight the national location and visibility, and attracted plenary speakers who will reflect on the role of undergraduate research in the national conversation about higher education and research policy. At the same time, CUR’s style has always been interactive and collaborative and we hope you’ll continue that trend with us as we use our nation’s capital as the backdrop for the conference. We hope you’ll take advantage of the many programmatic features designed to create dialogue among participants, catch-up with old friends and engage new faces in your conversations. Participate in the book lunch, visit the Smithsonian, attend sessions, stay up late exchanging ideas with colleagues, wander the posters, or tour the monuments. And we hope that you leave with a notebook (iPad!) full of new ideas and excitement about undergraduate research in your institution.

We have had a wonderful team of colleagues, who were instrumental in developing the program: Scott Bates [Utah State University], Lynette Overby [University of Delaware] Ruth Palmer [The College of New Jersey], Jenny Shanahan [Bridgewater State University], John Swift [Occidental College], and Louise Temple [James Madison University]. Also, the entire CUR National Office Staff has been with us every step of the way.

Welcome to CUR 2014!
Co-Chairs,
Bridget Gourley
Professor of Chemistry and Biochemistry
Chair of the Faculty
DePauw University
Bethany Usher
Director Students as Scholars initiative
Associate Director, Center for Teaching and Faculty Excellence
Affiliate Faculty; Sociology and Anthropology, Women and Gender Studies
George Mason University
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Program at a Glance

Saturday, June 28th
5:00 p.m. – Welcome & Opening Plenary – Liz Lerman, Choreographer
6:30 p.m. – Dinner
8:30 p.m. – Divisional Mix and Mingle

Sunday, June 29th
7:30 a.m. – Breakfast & Poster I Setup
8:30 a.m. – Plenary II: Muriel Howard, AASCU President
9:45 a.m. – Concurrent Session 1
10:30 a.m. – Break
10:45 a.m. – Concurrent Session 2
12:00 p.m. – Lunch: Book Discussion
   The Butler, a Witness to History by Will Haygood
   The Smithsonian’s History of America in 101 Objects by Richard Kurin (Closing Plenary Speaker)
   Napoleon’s Buttons: How 17 Molecules Changed History by LeCouteur and Burreson
   Immortal Life of Henrietta Lacks by Rebecca Skloot
   David and Goliath: Underdogs, Misfits, and the Art of Battling Giants by Malcolm Gladwell
   Scatter, Adapt, and Remember: How Humans Will Survive a Mass Extinction by Annalee Newitz
   Exploding the Phone by Phil Lapsley
   Edible History of Humanity by Tom Standage
1:15 p.m. – Concurrent Session 3
2:30 p.m. – Break
2:45 p.m. – Concurrent Session 4
4:15 p.m. – CUR Fellows Addresses
   Dr. Mark Brodl, Associate Vice President for Academic Affairs, Trinity University
   Dr. Mitchell Malachowski, Professor of Chemistry, University of San Diego
5:45 p.m. – Poster Session I
7:15 p.m. – Dinner
**Monday, June 30th**

7:30 a.m. – Breakfast
8:30 a.m. – Provost Roundtable
   Ellen Junn, Provost, California State University, Dominguez Hills
   Matthew Reed, Vice President for Academic Affairs, Holyoke Community College (also –
   “Dean Dad” blogger)
   Philip Rous, Provost, University of Maryland, Baltimore County
   Kathryn Westcott, Interim Provost, Juniata College
10:00 a.m. – Break
10:15 a.m. – Concurrent Session 5
11:30 a.m. – Lunch with Dance Presentation – Dave The Potter
1:30 p.m. – Concurrent Session 6
2:45 p.m. – Break
3:00 p.m. – Concurrent Session 7
4:30 p.m. – Poster Session II
6:00 p.m. – Plenary III – Christopher Austin, Director, National Center for Advancing Translational Science, National Institutes of Health
7:00 p.m. – Banquet Dinner: CUR-Goldwater Scholars Faculty Mentor Award Recognition

**Tuesday, July 1st**

7:30 a.m. – NSF Meet and Greet Breakfast
8:30 a.m. – Concurrent Session 8
9:15 a.m. – Break
9:30 a.m. – Concurrent Session 9
11:00 a.m. – Closing Plenary: Richard Kurin, Undersecretary for History, Art, and Culture at the Smithsonian Institution
12:15 p.m. – Conference Ends, Attendees encouraged to visit Smithsonian museums
**General Information**

**Conference Registration**

The Registration Desk will be located on the ballroom level in the Renaissance Washington, DC Downtown Hotel. 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:

- Wednesday, June 25: 12:00 noon – 6:00 p.m.
- Thursday, June 26: 7:30 a.m. – 6:00 p.m.
- Friday, June 27: 7:30 a.m. – 8:00 p.m.
- Saturday, June 28: 7:30 a.m. – 9:00 p.m.
- Sunday, June 29: 7:00 a.m. – 7:00 p.m.
- Monday, June 30: 7:00 a.m. – 7:00 p.m.
- Tuesday, July 1: 7:30 a.m. – 2:00 p.m.

**Wireless Access**

Wireless password: cur2014 (for meeting space only)

**Poster Information**

**Setup**

All posters will be shown in the foyer of the grand ballroom on the ballroom level. If you are presenting a poster during poster session 1 on Sunday, June 29th, we ask that you mount your poster between 7:30 a.m. and 2:45 p.m. If you are in poster session 2, Monday, June 30th, between 7:30 a.m. and 3:00 p.m. 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. Please bring pins or tape to affix your poster to the foam boards.

**Removal**

Please do not remove your poster before 7:00pm on either Sunday or Monday. Posters left remaining at 8:30pm will be discarded.

**Session Formats**

*Flipped sessions* are a new format for CUR, encouraging the exchange of ideas and the opportunity to gain multiple perspectives and insights on a common topic or theme. Presenters have provided access to material for participants to read and/or watch before coming to the session, and then be prepared to guide the participants through a discussion or activity based on the material. Materials can be found on the conference website.

*Interactive presentations* sharing study results, models, or other innovative techniques are structured to involve interactions between the presenter and the audience. In addition to providing a period of time for questions and answers, presenters should involve the audience through such mechanisms as brainstorming exercises, group discussion, and/or mini-surveys or polls. These interactions encourage the exchange of ideas and the opportunity to gain multiple perspectives and insights on a common topic or theme.

*Panels* are a discussion or series of short presentations on a shared topic related to undergraduate research.

*Performances or displays* are means of showcasing undergraduate student creative work, and should include discussion by the presenter[s] about the process of engaging the students.

*Posters* are intended to afford a relaxed atmosphere in which participants can share their ideas with other faculty and administrators across a wide variety of disciplines and institutions.

*Workshops* 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.
Meeting Program

Saturday, June 28, 2014

Welcome Remarks & Opening Plenary
5:00 p.m. – Grand Ballroom North/Central
Elizabeth Ambos, Executive Officer, Council on Undergraduate Research
Amelia Ahern-Rindell, President, Council on Undergraduate Research
Opening Plenary: “Trans-domain Practice and Creative Research”, Liz Lerman, Choreographer

Dinner
6:30 p.m. – Grand Ballroom North/Central

Divisional Mix and Mingle
8:30 p.m. – Foyer of Grand Ballroom North/Central

Sunday, June 29, 2014

Breakfast
7:30 a.m. – Foyer of Grand Ballroom North/Central
Poster Session I Set-up

Plenary II
8:30 a.m. – Grand Ballroom North/Central
“Undergraduate Research: Expanding the Outcomes for the Student, the Discipline, the Community”, Muriel Howard, American Association of State Colleges and Universities (AASCU) President
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Concurrent Session 1

9:45 a.m. – 10:30 a.m.

Undergraduate Research for Transformation: Assessing the Impact

The OSCAR Student Survey: Longitudinal Assessment of Student Learning Outcomes – Meeting Room 8

Session Type: Interactive Session
Presenters: Stephanie Hazel, George Mason University
Bethany M. Usher, George Mason University
Amanda Anderson, George Mason University

Undergraduate research has been identified as a high-impact practice to improve student success, learning, and retention. George Mason University's Students as Scholars initiative (through the Office of Student Scholarship, Creative Activities, & Research—OSCAR) engages in extensive faculty and curriculum development across the disciplines to build a culture of inquiry and authentic scholarship for undergraduates. Assessment has been a foundational element in the initiative, contributing to program development and the improvement of teaching and learning. This session will share data and insights from the first two years of the OSCAR Student Survey, an instrument that tracks student participation and experiences in undergraduate research and creative activities at GMU. The survey was developed in collaboration among the Office of Institutional Assessment, Students as Scholars, and Mason faculty. Items were developed to measure program and student outcomes over time as part of a longitudinal study of student learning. The survey's three parts correspond to the three developmental levels of student learning outcomes identified by Mason faculty: Discovery, Scholarly Inquiry, and Creation of Scholarship. Survey data are collected from each participant multiple times throughout their involvement with the initiative, thus allowing us to learn about how their attitudes and reports of their own learning change over time. Thousands of participants are surveyed each year through their involvement in OSCAR activities, including research courses, independent research projects, and the undergraduate research living-learning community. Responses on the first year and graduating senior surveys will be used to create a retrospective comparison group to explore differences among students who participate in OSCAR-related activities and those who do not. This longitudinal data will help us understand student development over time, and identify which experiences have had the most impact.

Undergraduate Research for All! Ensuring Access to High Quality Opportunities

Campus-wide Collaboration: Establishing a STEM Research Living-Learning Community - Meeting Room 7

Session Type: Interactive Session
Presenters: Kimberly R. Schneider, University of Central Florida
Neyda Vanbennekom, University of Central Florida

The Learning Environment and Academic Research Network (LEARN) is a STEM living-learning community established in 2011 at a large research university. This program is framed around evidence which shows the impact that early research experiences, living-learning communities, and mentoring can have on student retention. LEARN aims to increase retention of first-year STEM students by providing an integrated version of these high-impact practices. The primary target population for the program is first generation and underrepresented students. Participants live together, benefit from multiple mentors, and take Introduction to Research I & II courses which feature a research apprenticeship component. The apprenticeship is with graduate mentors who are trained and work closely with the program.

LEARN continually expands and adapts as necessary to meet the needs of both the students and the institution. To run this program successfully, the Office of Undergraduate Research developed relationships with on-campus partners including housing, orientation, admissions, and the faculty center. In the first three years of the program, the recruitment strategy, program design, and assessment plan have been honed through a process of focus groups, surveys, and trial and error. To date the program has many early signs of success, including: recruitment goals, higher GPA and retention rates, gains in student learning, and high levels of engagement in academic and leadership experiences. This session will address the implementation process, including both the multiple layers of mentoring and coordination, and the lessons learned throughout the process.
Identity, Authorship, Access: Undergraduates’ Definitions of Research in the Academy – Meeting Room 6

Session Type: Interactive Session
Presenter: Alyssa-Rae Hug, St. John’s University

I formed my own research identity as an undergraduate: in classes and through independent research, I saw myself as a knowledge-maker and, quite quickly, as a participant in the scholarly disciplines. However, as I began to explore the scholarly conversation about undergraduate research, I found that research by undergraduates is considered practice for “real”, “professional” research; a “high-impact practice”; and useful to faculty for completing and sharing their own research, but an undergraduate researcher identity defined by undergraduates themselves is not present (Behling, Fitzgerald and Midiri; Grobman; Kuh; Lancy; Merkel; Windham). Most writing about undergraduate research instead assumes that undergraduate researchers fit into an identity in binary opposition to the dominant definitions of “real researchers” in the academy [Clery, Kuh; Lancy; Merkel]. Even literature that does consider that undergraduate researchers may have some important knowledge to contribute to the disciplines as undergraduates and as researchers often exclude undergraduate researchers’ voices as researchers (Grobman; Kinkead and Grobman).

In this presentation, I will introduce the undergraduate narrative about research identity into the conversation about undergraduate research in the academy. My M.A. research explores how university seniors across disciplines describe the evolution of their researcher identities and articulate their definitions of research. This study provides information about how to better support undergraduate researchers in the university, and I argue for possible revisions to the current understandings of undergraduate research in the academy. I will offer the results and conclusions of my study, followed by a group discussion about practical methods for creating support structures for undergraduate researchers that grow from their own narratives about research.

Undergraduate Arts and Humanities Research at the National Archives, Smithsonian Institution, and Library of Congress – Meeting Room 3

Session Type: Panel Session
Presenters: Stephen Kercher, University of Wisconsin – Oshkosh
Barbara Natanson, Library of Congress
Pamela Henson, Smithsonian Institution
Kenneth Heger, National Archives

This moderated panel seeks to draw attention to the exciting research opportunities undergraduate students in the arts and humanities presently enjoy at some of America’s top research facilities. Panelists will discuss how the National Archives and the constituent facilities of the Smithsonian Institution and Library of Congress—often underutilized by undergraduate students—seek to fulfill their missions by providing access to a wide range of research materials and establishing unique internship experiences.

Expanding Multi-institutional Bonds to Team Up Students for the Creation of Research Environmental Projects – Meeting Room 10

Session Type: Performance/Display Session
Presenters: Monica Palomo, California State Polytechnic University – Pomona
Russell DiFiori, Pasadena City College
Ali Sharbat, California State Polytechnic University – Pomona

The purpose of the project is the bridging of Cal Poly Pomona (CPP) Civil/Environmental Engineering students and Pasadena City College (PCC) Science students to enhance the curriculum at both institutions, while enhancing retention of both CPP and PCC of students and facilitating PCC student transfer to CPP; and promoting graduate school and lifelong learning in a multidisciplinary and in a diverse environment. The project combines the training of CPP undergraduate students [without previous research experience] and their partnership with PCC students to develop multidisciplinary teams that worked on the design of natural treatment systems to remediate contaminated surface water streams. Twelve (12) Cal Poly Pomona engineering students were trained on how to conduct research and partnered with 50 Pasadena City College students. Students from both institutions were mentored by CPP and PCC faculty while conducting research. In addition, each institution had a senior student mentor assigned to the student groups to enhance peer-learning process. Student mentors provided support to students while conducting experimental work in the lab, with data analysis and while preparing posters and required research reports. To develop the research experience two courses were offered concurrently one at CPP and the other at PCC. Faculty in both institutions worked on developing student interaction through fieldtrips and social media. The project platform allows sustained collaboration, among engineers and non-engineering students and faculty thought a novel approach. The proposed study provides feedback of the effectiveness of the proposed approach to achieve the use of undergraduate research activities to create bonds between the two institutions.

Funding for Undergraduate Research: Finding and Leveraging Resources

How to Organize and Benefit from a Program Review – Meeting Room 16

Session Type: Panel Session
Presenters: Roger S. Rowlett, Colgate University
Michelle Bushey, Trinity University
Janice DeCosmo, University of Washington

In this session, you will learn how to prepare an effective program review to advance program interests. An introductory presentation will describe how to conduct a self-study, organize an on-campus visit, and leverage your program review for beneficial change. Experienced members of the CUR Program Review team will answer questions and lead a discussion about your program review interests.
Undergraduate Research for the Future: Exploring New Directions

Why wait? Using Early Undergraduate Research to Improve the STEM Educational Experience and Retain Talented Students – Meeting Room 2

Session Type: Flipped Session
Presenters: John E Davis, Alma College
           David L. Clark, Alma College

The first year of a university experience should provide a new stimulus for intellectual growth and a firm grounding in inquiry-based learning. It is in the first year that new students begin to match their aspirations with the learning opportunities and resources of the institution.

In this flipped session, participants will be provided with reading materials and video prior to the conference that provide a brief overview of the use of early research as a best practice in STEM education. Included in this information will be results from several campuses where early undergraduate research has been used including our experience at Alma College with our NSF STEP funded PRISM program. Two of the main components of the grant are a one-week research experience in the summer before the student matriculates and a 10-week research experience at the end of their first year. As a result of these programs, the number of declared science majors has increased. Furthermore, students participating in these programs were retained at a higher rate and had higher GPAs in comparison to a matched control group. At the CUR meeting (after a very brief review), we will immediately invite participants to discuss the use of early research at their institutions from bridge research programs through research experiences in the sophomore year. Participants will discuss and reflect upon the feasibility of implementing early research at their institution. Roadblocks like funding, faculty buy-in, and appropriate reward structures will be discussed. Types of data they would need to determine whether this strategy might be most effective and then how they would assess the impact of strategies once implemented will also be discussed. At the end of this interactive session, participants should understand the value of early research and have sufficient information to consider implementing it at their institution.

Undergraduate Research for the Public Good

CUR Advocacy – Meeting Room 17

Session Type: Workshop Session
Presenter: Kris Andrews, University of Wisconsin

At CUR’s annual meeting in June 2013, Advocacy Committee members met with all twelve divisions for the purpose of discussing advocacy. A questionnaire designed to gauge each division’s advocacy priorities for the coming fiscal year was administered. The results have been tabulated. A key finding was that the most important priority for members was educating policy makers on what undergraduate research is and how it supports national policy goals. The session would focus on “how to advocate, educating policy makers on what undergraduate research is and how it supports national policy goals, and be successful.”

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

Preparing High School Students for the Rigors of College-Level Research through the Development of an Advanced Placement® Research Course – Meeting Room 19

Session Type: CUR-Sponsored Session

Duration: 9:45 a.m.- 11:30 a.m.
Presenters: Steve Kotten, Executive Director, AP Capstone
           Serena Magrogan, Director, AP Research Curriculum and Content Development
           Rachel Bettley, Senior Director, AP Capstone Curriculum and Content Development

As a part of the newly developed Advanced Placement® Capstone Program, the AP Research course allows students to design, plan, and conduct a year-long mentored, investigation culminating in an academic thesis paper of approximately 5,000 words and a presentation, performance, or exhibition with an oral defense. Through various interactive activities, participants will review and evaluate the learning objectives of the AP Research course. Through a focus group format, participants will provide suggestions and feedback for effectively implementing the required mentoring process of the course as well as how to create linkages between high school and undergraduate research experiences.

Presenters will elaborate upon the content and the underlying philosophy of the AP Capstone program framework and the requirements, content, and skills of the program’s AP Research course. In the focus group session, participating AP Research course teachers will explain how they help their students develop interdisciplinary skills and apply scholarly understanding to real-world problems and issues. Examples of instructional strategies and performance assessment tasks will be shared and discussed; after which, a focus group format will be used to gather feedback, questions and concerns from all participants (including higher education faculty) about effectively implementing the mentor component of the course and strengthening alignment between the AP Research course experience and the undergraduate research experience.
Research Basics for Everyone: Online Modules as a Tool for Scaling Up Research Instruction – Meeting Room 5
Session Type: Flipped Session
Presenters: Nicole Perry, University of Kansas
Dyan Morgan, University of Kansas

Those interested in promoting undergraduate research face the daunting task of making undergraduate research not a privilege of the few but an experience of the many. This session will explore the practice of using online modules as a way to provide large-scale instruction to build key undergraduate research skills. Many basic research skills, such as how to read a journal article, how to develop a research question, etc., are not explicitly taught in typical classroom instruction, thus creating a disconnect between professors’ expectations and students’ capabilities. Using short videos and online modules that faculty can incorporate into their classes or students can view on our website, our office has sought to fill this instructional gap and provide more scaffolding to the undergraduate research experience. Before this session, we will provide several examples of online videos and modules developed by our office that participants can view. At the session, we will describe how these modules have been used by faculty and students at our institution and work in groups to develop ideas for new modules and plans to disseminate them at participants’ institutions. Participants will leave the session with concrete ideas about how to use online content to scaffold basic research skills for undergraduate students and plans to implement this model on their campus.

Break
10:30 a.m. – Foyer of Grand Ballroom North/Central

Concurrent Session 2

10:45 a.m. – 11:30 a.m.

Embedded Library Instruction in Undergraduate Research Classes: Assessing the Impact – Meeting Room 8
Session Type: Interactive Session
Presenters: Patricia West, George Mason University
Dorothy C. Lockaby, George Mason University
Stephanie Hazel, George Mason University
Bethany M. Usher, George Mason University

George Mason University’s 2011 reaccreditation review by the Southern Association of Colleges and Schools resulted in the Students as Scholars Quality Enhancement Plan (QEP). The QEP and its program rubric offered the University Libraries an unusual opportunity to work with faculty in designated research-intensive courses across the curriculum to offer and assess information literacy instruction in context. Together, Mason’s Office of Student Scholarship, Creative Activities, & Research (OSCAR) and the University Libraries developed a pilot project to assess the degree to which embedded library instruction within research-intensive courses contributes to improved research product by students in those courses. The aim of the project was twofold: to develop and assess sustainable practices for embedded library instruction in research-intensive undergraduate courses, and to observe and draw generalizable conclusions about the ways that developing a successful partnership of this type could change and enhance the collaboration of faculty and librarians going forward. During the fall 2013 semester, eight courses (involving nine faculty and eight librarians) piloted a model that include a student pre-assessment, faculty-librarian partnership in planning and producing an “information literacy” embedded enrichment, and student post-assessment. Librarians worked with the professors to assess the students’ projects, giving librarians a unique opportunity to see the impact of their instruction. An additional eight classes are planned for the spring 2014 semester. The pilot project developed by the George Mason University Libraries in partnership with Students as Scholars, the enthusiastic response from faculty in a range of undergraduate research-intensive courses, and the experiences of the librarians who took the project into the classrooms will be presented and will form the basis for discussion in this session. This project was initiated as a result of Mason’s participation in the Association of College and Research Libraries Assessment in Action project.
Implementing an Interdisciplinary Approach to Undergraduate Research at Historically Black Institutions – Meeting Room 10

Session Type: Interactive Session
Presenters: Vanessa McRae, Albany State University
John L. Williams, Albany State University
Andre’ Johnson, Albany State University

A shift to Interdisciplinary Undergraduate Research is definitely a new approach for Historically Black Colleges and Universities (HBCU). By far, the implementation of this approach of interdisciplinary undergraduate research is a paradigm shift in the way that knowledge is produced. In a recent telephone survey, it was determined that of the over one hundred HBCUs only three have implemented the interdisciplinary approach to research into their undergraduate research program. This suggests that more engagement is needed, and can be developed, at other HBCUs, including Albany State University. Although the consideration of increasing minorities in the STEM fields is important, the approach to interdisciplinary research among undergraduate students goes further by providing opportunities for more innovative, creative, and scientific research approaches, allowing student researchers to enhance their critical thinking and social skills while building relationships with peers outside of their discipline areas. While the student researchers will benefit vastly from this new approach, the National Institute of Health also supports and funds interdisciplinary research studies through its Interdisciplinary Research Consortia initiative; therefore, introducing this new approach will also benefit faculty interested in the interdisciplinary approach to research. In this presentation, we present the data that supports the strength of this approach to the overall research process at Albany State University. As a product our introductory infusion of this approach to our current research initiatives, we present interdisciplinary projects that were conducted as models for this method of undergraduate research. Lastly, we identify methods for utilizing interdisciplinary research to provide a move from academic division and isolation to scholarly cooperation amongst the different research areas at Albany State University.

Undergraduate Research as a Platform to Develop Scientific Leaders – Meeting Room 7

Session Type: Interactive Session
Presenters: Lance Barton, Austin College
Stephanie Gould, Austin College
Peter DeLisle, Austin College

Increasing complexity of the world and workplace requires science students to have both sound technical skills and leadership skills. This interactive presentation will examine how the research laboratory in the sciences can be used as a microcosm to develop five key characteristics of effective scientific leaders. Our program defines leadership as the dynamic interplay of the awareness of self and others, the ability to influence with or without authority, and commitment to making decisions guided by moral consciousness. Leadership is demonstrated through five key behaviors: interpersonal effectiveness, problem solving, independent and collaborative work, foresight and planning, and moral consciousness. A key principle of this program is that leadership behaviors should be taught and practiced by complete integration into the scientific learning environment including the research laboratory. Participants will learn about our model and philosophy of leadership and will be guided through an example activity that introduces basic principles of teamwork including the interplay between task completion and relationship building.
Funding for Undergraduate Research: Finding and Leveraging Resources


Session Type: Interactive Session
Presenters: Joseph Provost, University of San Diego
Jon E. Grahe, Pacific Lutheran University
Sarah K. Fortner, Wittenberg University
Dan K. Moore, Brigham Young University-Idaho
Herb Childress, Teleidoscope Group, LLC

CUR strives to increase connections between academic faculty and institutions and industrial, service, & humanitarian groups to enhance student learning and expand research opportunities. This year, the Innovation through Collaboration Task Force created and initiated a survey from members to compile examples of collaborative innovation between academics and industry, government, not-for-profits, and others including partnerships related to commercialization, service learning, and collaborative science. We will present results including: case studies, descriptions of best practices, time commitment of participants. In addition, we will describe the resource dedication and participation level of collaborations with distinct scopes, student participation, and faculty involvement. Furthermore we will describe obstacles related to initiating and maintaining partnerships. The session will include opportunities for feedback and solicit input of additional best practices.

Multi-Campus Undergraduate Research in Digital Humanities – Meeting Room 3

Session Type: Panel Session
Presenters: Bill Spellman, University of North Carolina - Asheville
Jeffrey McClurken, University of Mary Washington

During spring semester 2014, thirteen student researchers from ten colleges and universities, all member institutions of the Council of Public Liberal Arts Colleges, completed a common digital humanities research project under the direction of two faculty mentors using distance technology. The “Century America” project focused on campuses founded before 1914, the year World War I began in Europe. Using special collections and other library, campus and community resources, students researched their college in the year 1914, its mission and its challenges, together with the life of the surrounding community just as Europe plunged into the Great War. The research then shifted to 1918, the end of the conflict and the start of a terrible global influenza epidemic. Once again the research focused on the impact of the war and the epidemic on these small colleges and communities. With the support and guidance of two faculty distance mentors, the student researchers built a digital history website that offers a collective snapshot of life and community at small colleges during an important moment in America’s history. In addition to completing important guided research on their home institution, student researchers worked in a digital medium, developed skills in the areas of digital presentation and collaborative research, and honed each of these important skills for professional success in the new century. The group undergraduate research was supported by a generous grant from the Teagle Foundation of New York. Five students (to be named) and one of the faculty mentors will present the results of their work, discuss the challenges and opportunities working in a digital environment under the supervision of distance mentors, and offer insight into the prospect of leveraging consortium size to open up new opportunities for innovative undergraduate research projects.

Building a Multi-Institution Course-Based Undergraduate Research Experience (CURE) in the Natural Sciences Through the Study of Plant Genetics and Ecology – Meeting Room 5

Session Type: Interactive Session
Presenter: Michael J. Wolyniak, Hampden-Sydney College

As pedagogical research has revealed the importance of original research experiences to the development of young scientists, undergraduate-serving institutions have responded by developing research opportunities that can reach as many of their students as possible. In terms of number of students served, this is best accomplished through the use of required coursework. However, this solution presents a host of problems in terms of logistics and expense for the institution. The “Century America” project focused on campuses founded before 1914, the year World War I began in Europe. Using special collections and other library, campus and community resources, students researched their college in the year 1914, its mission and its challenges, together with the life of the surrounding community just as Europe plunged into the Great War. The research then shifted to 1918, the end of the conflict and the start of a terrible global influenza epidemic. Once again the research focused on the impact of the war and the epidemic on these small colleges and communities. With the support and guidance of two faculty distance mentors, the student researchers built a digital history website that offers a collective snapshot of life and community at small colleges during an important moment in America’s history. In addition to completing important guided research on their home institution, student researchers worked in a digital medium, developed skills in the areas of digital presentation and collaborative research, and honed each of these important skills for professional success in the new century. The group undergraduate research was supported by a generous grant from the Teagle Foundation of New York. Five students (to be named) and one of the faculty mentors will present the results of their work, discuss the challenges and opportunities working in a digital environment under the supervision of distance mentors, and offer insight into the prospect of leveraging consortium size to open up new opportunities for innovative undergraduate research projects.
Reflections of the Psychology Division Undergraduate Mentoring Award Winner – Meeting Room 16

Session Type: Interactive Session
Presenter: Robert F. Rycek, University of Nebraska at Kearney

The CUR Psychology Division is presenting its first Mentoring Award for Undergraduate Research. This session is designed to recognize that person and to allow him or her to reflect on his/her mentoring of undergraduate students. The session will include reflections by the award winner and an opportunity for the audience to ask questions and comment on the award winner’s approach to mentoring undergraduate research. The session will be moderated by the CUR Psychology Division Chair.

Review of Undergraduate Research by Institutional Review Boards: Challenges and Changes Afoot – Meeting Room 14

Session Type: Interactive Session
Presenter: Leah Anne Carroll, University of California - Berkeley

UC Berkeley’s Institutional Review Board has been reviewing undergraduate research protocols – from students funded by undergraduate research programs and from honors thesis students -- since the mid-1990s. However, in the spring of 2013, as a result of changing federal policy that allowed more leeway in the interpretation of the word “research”, the Committee for the Protection of Human Subjects determined that they would stop reviewing all but the most exceptional undergraduate protocols. After strenuous objections were made by the undergraduate research community--faculty, program directors, and students, with support from several deans--the IRB committee chairs and director agreed to review these protocols again, while undergraduate research programs agreed to ensure better written protocols which did not involve unnecessary risks to subjects. Along the way, I surveyed many IRB boards on this topic and found several different positions, many of which are evolving away from full review of undergraduate research as a result of the new federal policy. After presenting a summary of UC Berkeley’s experience, and the arguments of the different stakeholders, the information I gathered from other institutions, I will invite audience members to share their experiences, solutions, and suggestions on this topic.

Making the Decision to Change Institutions – Meeting Room 9

Session Type: Panel Session
Presenters: Kimberley Frederick, Skidmore College
Robert Bachman, University of the South
Aileen T. Beard, The College of Saint Scholastica
Silvia Ronco, Research Corporation

The model where a faculty member stays at one institution their entire career is becoming less and less common. Each of the speakers in this panel has decided to make a change for a variety of reasons including different types of jobs and different types of institutions (R1 to PUI, University to Foundation, Faculty to Administration). We will discuss how we decided to make a change and how we negotiated that transition. This will be an interactive discussion designed to address specific questions and concerns of attendees.

How to Get Started in Research with Undergraduates in the Natural Sciences – Meeting Room 13

Session Type: Interactive Session
Presenters: Melvin L. Druelinger, Colorado State University – Pueblo
Michael P. Castellani, Marshall University

This interactive session will give pre-tenured faculty the opportunity to learn from and discuss with experienced faculty how to establish and manage a research program with undergraduate students, primarily in the natural sciences. Topics will include: choosing appropriate research projects, choosing and working with students, interacting with administrators and your department chair and grantsmanship.
Using Undergraduate Research as a Model for Other High-Impact Experiences – Meeting Room 4

Session Type: Interactive Session
Presenter: Michelle Bata, Clark University

Undergraduate research is often considered the “gold standard” of high-impact practices because it allows for close student-faculty interaction while allowing the student to engage in a project-based experience grounded in an academic discipline. Using undergraduate research – from application, to task completion, reporting and assessment – as a model to explore new directions in experiential learning, how might we think about (re)-constructing other high-impact practices to see improvements in student outcomes? This session will describe Clark University’s attempt to do just that as we pioneer a new type of high-impact experience: LEEP Projects. Steeped in the institutional philosophy of Liberal Education and Effective Practice, LEEP Projects offer real-world applications of course material, allow for authentic problem-solving experiences, mastery of the LEEP learning outcomes, and serve as a capstone academic experience. LEEP Projects are, effectively, undergraduate research and service-learning/internship hybrids that require students to complete problem-based projects at an external organization in conjunction with a faculty mentor who serves as a subject matter expert. LEEP Projects also borrow from best practices developed by study abroad professionals in the student preparation/re-entry/reflection programming offered before and after the student experience. In this session, I will 1) describe the rationale behind LEEP Projects, 2) discuss the institutional efforts behind the development of LEEP Projects – requiring close collaboration with University Advancement, Alumni Affairs, Career Services, and others, 3) describe the LEEP Projects application process and programming efforts, 4) report on preliminary student outcomes; and 5) relate the concept of LEEP Projects back to undergraduate research and other high-impact experiences. The session will end with a discussion of the advantages and challenges of a UR-based approach to experiential learning.

Lunch

12:00 p.m. – Grand Ballroom North/Central

Book Discussion

The Butler, a Witness to History by Will Haygood
The Smithsonian’s History of America in 101 Objects by Richard Kurin (Closing Plenary Speaker)
Napoleon’s Buttons: How 17 Molecules Changed History by LeCouteur and Burreson
Immortal Life of Henrietta Lacks by Rebecca Skloot
David and Goliath: Underdogs, Misfits, and the Art of Battling Giants by Malcolm Gladwell
Scatter, Adapt, and Remember: How Humans Will Survive a Mass Extinction by Annalee Newitz
Exploding the Phone by Phil Lapsley
Edible History of Humanity by Tom Standage
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Concurrent Session 3

1:15 PM – 2:30 PM

Undergraduate Research for Transformation: Assessing the Impact

Graduates’ Perspectives on the Development of All Students’ Research Skills Across Undergraduate Degrees – Meeting Room 8

Session Type: Interactive Session

Presenters: John Willison, The University of Adelaide
Sophie Karanicolas, The University of Adelaide

In this interactive presentation, find out how explicit research skill development in multiple courses across five very different undergraduate degrees enabled graduates to be ready for the complexities of employment or for subsequent research study. Undergraduate degrees in Animal Science, Electrical Engineering, Media, Medical Science and Oral Health each used and adapted the Research Skill Development framework (RSD: Willison & O’Regan, 2007) to inform the learning and assessment environment of multiple courses across each degree. Graduates were interviewed between seven and 13 months after completing three- or four-year degrees. Graduates stated that the consistent RSD framing in multiple and varied contexts made the development of their research skills explicit, and that this was substantially more helpful than when the process was left implicit. Having one conceptual framing of research skills enabled students to be more aware of what they were learning and of what was being assessed. Those who were enrolled in subsequent research study attributed the RSD framing with the development of thier identity as researchers. Those who were employed frequently identified domain-specific ways that they were using their research skills in employment, equating them with problem solving and critical thinking skills. A prevalent recommendation by all graduates was that explicit research skill development as enabled by the RSD should span the undergraduate degree from first year, as one student reflected: Since the beginning [of First Year], they have given us assignments based on this criteria. You might not have liked the assignments, but because they have been consistently applying this [RSD] structure to all of our assignments, we have come to think that way for science. A consistent framing got into students heads so that they began to think in terms of research processes no matter whether their subsequent path was research or employment.

Undergraduate Research for All! Ensuring Access to High Quality Opportunities

Multidisciplinary Science Building Projects: New Opportunities and Lessons Learned – Meeting Room 7

Session Type: Panel Session

Presenters: Kimberley Frederick, Skidmore College
Michelle M. Bushey, Trinity University
Weston R. Dripps, Furman University
Mark D. Marshall, Amherst College

What’s new on campus? A multidisciplinary science building! New building and renovation projects are changing the way science is viewed and done on smaller campuses. New approaches to how science is done, multidiscipline foci, safety and regulatory considerations, LEED certification, financial constraints, and cost realities are all considerations that make renovation or new construction of science buildings challenging undertakings for smaller campuses, and distinctly different from building projects of old. This panel is comprised of faculty currently in, or recently finished with, multidisciplinary science building projects on their campuses. The new opportunities and philosophies that drive the design, the compromises that must be faced, and the hard lessons learned, the joys of project completion, will all be discussed. What did we do right? What did we do wrong? Learn from our mistakes and insights! After brief presentations from the panelists there will be opportunity for open or small group discussion depending on the level of attendance. While our perspectives are from smaller, private campuses, many of our lessons learn will apply to institutions of other types.
Research Success for Transfer Students at the Two-year and Four-year Institution – Meeting Room 2

Session Type: Panel Session
Presenters: Janet Louden McGlynn, University of Maryland Baltimore County
            Jarrett Kealey, University of Maryland Baltimore County

This panel discussion will share successful practices for engaging transfer students in research before and after their transition from a two-year to a four-year institution. According to Phelps & Prevost [2012], “Creating or expanding community college programs and career pathways that allow students to become early and active participants in systematic investigation and research helps to optimize student engagement and development” (p. 109). Transfer students are often underrepresented in undergraduate research due to their reduced time at the four-year institution, the higher likelihood that they are commuting to campus, family obligations, and, for many, the need for paid employment. Representatives from partner community colleges and one research university will share the steps they took to create a partnership designed to bring two-year students of all disciplines into research. Research opportunities developed for transfer students include work with faculty members of the two-year institution, summer and academic-year opportunities off campus, and quick incorporation into research at the four-year institution. The panel will describe foundational relationship-building activities and information-sharing techniques before focusing on activities which have been successful in engaging more community-college and transfer students in research. Reaching community-college and transfer students can be challenging. Panelists will identify barriers to community-college student participation in research and share solutions implemented at the participating institutions. Tools shared will include a survey used to conduct an environmental scan among five institutions and a web site designed to communicate key research information to students. The panelists will also facilitate group discussion and encourage session participants to share their successes and pose specific questions. Phelps, L.A. & Prevost, A. [2012]. Community college-research university collaboration: Emerging student research and transfer partnerships. In L.A. Phelps [Ed.], Advancing the regional role of two-year colleges [New Directions for Community Colleges No. 157, pp. 97-110]. New York, NY: Wiley.

Models and Strategies for Increasing UR Experiences for Pre-service Teachers – Meeting Room 10

Session Type: Panel Session
Presenters: Dennis Munk, Carthage College
            Ruth J. Palmer, The College of New Jersey
            Kymberly Drawdy, Georgia Southern University
            Nan Li, Claflin University
            Simone DeVore, University of Wisconsin-Whitewater

Undergraduate research in schools of education, and particularly in teacher education programs has undergone relatively slow growth as compared to that in other disciplines. Undergraduate research directors often report difficulty in recruiting education faculty to provide research opportunities to pre-service teachers. The challenge in expanding UR in teacher education may be attributed to highly prescriptive licensure requirements that inhibit innovation, perceptions of educators as practitioners with interest primarily in translating others’ research into practice, and lack of familiarity with the potential impact of a research experience on a pre-service teacher’s development. Despite the above challenges, models and strategies for providing UR opportunities in teacher education are emerging. This panel discussion will include faculty from teacher education programs at public (The College of New Jersey, University of Wisconsin-Whitewater, Georgia Southern University) and private (Claflin University, Carthage College) institutions. Discussants will share the unique ways in which UR has been incorporated into their teacher education programs. Examples will include embedding and scaffolding research opportunities in the curriculum and clinical experiences, special projects supported with grant funds, and research apprenticeship programs. With their audience, the panel will discuss strategies for promoting the expansion of UR into the significant number of teacher education programs across the country.

Funding for Undergraduate Research: Finding and Leveraging Resources

Using Small Grant Opportunities to Jump-Start your Research – Meeting Room 11

Session Type: Interactive Session
Presenters: Bridget L. Gourley, DePauw University

Are you just getting started in research? Pursing a new area of research? Need a little bit of money to get some preliminary data? Trying to find summer salary for one more student? Often small pockets are available from internal sources, state science academies, local industry, local and regional granting agencies, etc. that can help get a new project off the ground. Examples of small pockets of funding will be described, strategies for learning about other opportunities in your area will be suggested, and approaches to securing funding from atypical sources discussed.

During the session participants will use the speaker’s ideas to brainstorm about possibilities in their own geographic area and professional field sharing ideas to create a collective list of approaches and resources that will be captured and shared. The session facilitates a dialogue and helps participants create an action plan to put in place after the conference.
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Undergraduate Research for the Future: Exploring New Directions

Developing Global Citizenry through Undergraduate International Community-Based Research – Meeting Room 18

Session Type: Interactive Session
Presenters: Mary Ann Studer, Defiance College
JoAnn Burkhardt, Defiance College
Jeremy Taylor, Defiance College
Fred Coulter, Defiance College

The purpose of this session is to provide information on one institution’s model of undergraduate research that provides opportunities for student and faculty researchers to interact across geographic and political boundaries to affect change. This model is focused on community based research within the context of interdisciplinary learning communities in international settings. The model’s framework includes AAC&U published High Impact Practices, Characteristics of Excellence in Undergraduate Research from CUR, and community based research and short term study abroad best practices. This dynamic program challenges student and faculty researchers to utilize collaborations with international community partners to strategically to address a community issues, thus marrying real world knowledge and context with academic research and scholarship. During this session, participants will learn about two established undergraduate research programs within this model in Cambodia and Belize as well as a currently emerging program in Tanzania. These examples will provide the participants with practical information about international partnership development, gauging location potential with an exploratory student team, and sustainability. The presenters will also share assessment mechanisms implemented to gauge students’ capacity for conducting research, cultural competence, and global literacy. During this session participants will be asked to read samples of students’ reflections and identify themes as they relate to intercultural competence and global literacy. They will then have the opportunity to determine if the themes identified align with the learning goals of the learning community. In addition, participants will be invited to provide feedback on a model used to instruct undergraduate researchers on understanding and organizing information from the professional literature.

Undergraduate Research for Mentors: Support and Sustenance

Making the Transition: From Post-Doc/Graduate Student to Faculty Involved in Undergraduate Research – Meeting Room 9

Session Type: Interactive Session
Presenters: Joyce J. Fernandes, Miami University
Susan E. Safford, Lincoln University
Karen K. Resendes, Westminster College
Louise M. Temple Rosebrook, James Madison University
Pamela Hanson, Birmingham-Southern College
Nitya Jacob, Oxford College of Emory University

This workshop is aimed at post-doctoral researchers and graduate students who are interested in finding faculty positions that include an expectation of engaging undergraduates in research experiences. As a candidate being considered for a faculty position, Workshop participants will learn about (1) Identifying academic institutions where you can be successful as a researcher even as you involve undergraduates, (2) Leveraging your research expertise to demonstrate an integration of research and teaching, (3) Crafting an undergraduate inclusive research statement, (4) Current national dialogs that are shaping the role of research in undergraduate education, (5) Resources that support the undergraduate research enterprise - institutional, professional societies and federal funding agencies.

Participants will articulate what they want from the session, and identify their thoughts about academic career paths. A discussion will follow on how post-docs and graduate students can begin to prepare for a faculty position at an institution which involves significant involvement of undergraduates. PUIs, Community colleges and Research intensive institutions (other than R1) will be considered as environments that can support engagement in scientific research. Participants will learn how to leverage their research expertise with teaching expectations. Presenters will discuss the benefits of undergraduate research for students, faculty, and institutions. Participants will form groups and discuss their experiences to identify best/desirable practices to effectively involve undergraduates in a research program. Facilitators will briefly add to the points discussed bringing in their own examples and experiences of challenges and successes. Participants will create an individual action plan, and share in pairs. The session will conclude with reporting out some key points of their discussions. Facilitators will make white board notes and look for common elements appearing in the information that is reported.
Mentoring Undergraduate Students in Laboratory Based Research: A Discussion of Best Practices – Meeting Room 13

Session Type: Interactive Session
Presenters: Rebecca M. Jones, George Mason University
George C. Shields, Bucknell University

Mentoring undergraduate research students in laboratory based sciences requires a different set of skills than many new faculty receive in graduate school. The levels of expectation and interaction can vary considerably depending upon the student, the project, and the faculty member’s other responsibilities. Dr. George Shields, Professor and Dean of the College of Arts and Sciences at Bucknell University, has mentored 105 undergraduate students since 1989. He brings a wealth of experience to this discussion and a continued passion for undergraduate research. Dr. Rebecca Jones, Affiliate Faculty and Assistant Director of OSCAR at George Mason University, has also personally mentored chemistry undergraduates and now administers a large undergraduate research program, in which she serves as a secondary mentor to over 150 students per year from across campus. In this interactive presentation, the authors will share from their experience mentoring students, detailing specific tools that have proven helpful in promoting student success. During a group brainstorming session, the faculty in the audience will develop an action plan for the coming academic year regarding recruitment, supervision and retention of research students.

Institutionalizing Undergraduate Research on a Grand Scale: Helping Move Systems and Consortia Towards Embracing Undergraduate Research – Meeting Room 16

Session Type: Panel Session
Presenters: Mitchell Malachowski, University of San Diego
Jeffrey M. Osborn, The College of New Jersey
Kerry K. Karukstis, Harvey Mudd College
Elizabeth L. Ambos, Council on Undergraduate Research
Karen G. Havholm, University of Wisconsin – Eau Claire

The Council on Undergraduate Research (CUR) is working with six state systems and public and private consortia to improve the quality of undergraduate education at each of the constituent campuses and within the larger systems/consortia by focusing on institutionalizing undergraduate research, scholarship, and creative activity within each system and consortium. The systems/consortia include the Council of Public Liberal Arts Colleges, University of Wisconsin System, California State University System, City University of New York System, Great Lakes Colleges Association, and Pennsylvania State System of Higher Education. The panel will include the PI’s on the grant along with leaders from the systems/consortia that have participated to date. Using case studies, panelists will discuss what has worked, current challenges and ongoing implementation issues and then apply what they have uncovered to assist other institutions, systems and consortia interested in advancing institutionalization of undergraduate research.

Enhancing the Traditional Undergraduate Research Poster with Interactive Print – Meeting Room 19

Session Type: Workshop Session
Duration: 1:15 p.m. – 3:45 p.m.
Presenter: Jolanda-Pieta van Arnhem, College of Charleston

This session will introduce participants to augmented reality (AR) and interactive print technologies that make use of mobile devices to enhance the traditional research poster. The New Media Consortium predicts mainstream adoption of augmented reality technologies in the next two to three years and notes that the heaviest adoption so far has been in the consumer sector (2013). These relatively new image scanning and enhancement capabilities have the potential to provide new directions for the traditional undergraduate research poster by extending student research presentations beyond the limitations of time and physical space and into digital and asynchronous interactions both in and beyond the initial community. Linking research data and artifacts as well representations of process opens up richer, more multimodal communication to engage audiences. Media can include text, audio, video, web content and 3D modeling. This session is a hands-on workshop with a defined product. The workshop facilitator will assist participants with creating a simple interactive layer that includes sample AR “pages” and media content. Participants will use the media files provided to construct a sample research poster augmented with a web url, audio and video files and social media integration in order to construct a media rich and connected poster experience. Participants will be asked to sign up for a Layar Developer account prior to the session and are encouraged to bring a laptop computer or mobile tablet with internet access in order to fully participate with the materials provided. After completing this workshop participants will have a working knowledge of creating an interactive print layer as well as the tools to further investigate how interactive print can be applied in an undergraduate research setting to enhance traditional poster design and research presentation.
Community based research: benefiting the community and students. This session will guide participants through a planning process to develop community-based research projects. Prior to the conference, attendees will view video interviews with the primary investigators of three community-based research projects in Pennsylvania and access other informational materials. These projects are: 1) research into flood management actions in Pennsylvania small towns where students reviewed library materials, met with local agency personnel and categorized the similarities and differences in 10 case study towns. Students used the data to study the effectiveness of, and problems arising from, local actions, placing local choices within the context of state and federal policy and regulatory driving forces; 2) a health and community needs assessment in central Pennsylvania in a collaborative effort between two universities and local nonprofits; and 3) quantitative data analyses of statewide hospital inpatient records as a service to a state government agency. In each project students have assisted with designing research, implementing data collection and/or completing analysis. The interviews will describe the challenges and opportunities presented by these projects, such as the enthusiasm and hunger for knowledge that first-time researchers bring to their projects, set against the need for supervisors’ time and attention to guide new researchers to learn their craft. We also discuss how projects chain together, so that findings in one project open opportunities to carry out the next one. Participants at the conference will then be able to ask questions about the challenges and pay-offs of these projects. Participants will be asked to inventory resources and community connections already available to them, develop skills in finding and nurturing community partnerships, build resources for the undergraduate researchers in their teams, and discuss venues for the dissemination and translation of the research results.

Variations on Archives, New Knowledge and Public Access: Innovative Undergraduate Research in the Humanities – Meeting Room 3

Session Type: Panel Session
Presenters: Maria T. Iacullo-Bird, Pace University New York Campus
Stephen Kercher, University of Wisconsin – Oshkosh
Cheryl L. Nixon, University of Massachusetts Boston

Presenters from the fields of History and English will discuss courses of their own design that illustrate three different creative approaches to undergraduate research in the humanities. These disparate academic offerings share the use or creation of archival materials in research and exhibitions, and the role of public access in the student research process and course outcomes. Stephen Kercher will present how University of Wisconsin Oshkosh (UWO) History majors throughout their American History courses research archival materials from the Wisconsin Historical Society (WHS). This is possible at a second-tier institution such as Oshkosh (UWO) due to the establishment, in 1963, of the Wisconsin Area Research Center Network, a uniquely progressive system which allows university students statewide to order WHS materials that are made available at their home institutions. UWO History undergraduates have produced original scholarship in American social, cultural, political, and civil rights history. Cheryl Nixon, will address how in her course “Libraries and the Making of Knowledge,” students performed rare book and manuscript research at the Boston Public Library and UMass Boston’s Healey Library, culminating in student-curated rare books exhibitions open to a public audience. Students learned archival research skills, located and assessed primary sources, and determined how best to make their new knowledge accessible and exciting to the public. Maria T. Iacullo-Bird will present the Pace University 9/11 Oral History Project in which undergraduates interviewed witnesses to the World Trade Center catastrophe to create primary sources about September 11, 2001 in New York City. Students learned oral history methodology, became immersed in 9/11 materials and created new knowledge about this watershed event including how Pace coped with enormous tragedy. The student-designed-and-created project website accessible to the public holds the digital archive that contains interviews in both oral and textual form and related visual materials provide a virtual exhibit.
**Winter Seven: A Collaborative Arts Production Featuring Students and Faculty – Meeting Room 15**

**Session Type: Performance/Display Session**
Presenter: David M. DeVasto, Elmhurst College

Winter Seven is a song cycle written by David DeVasto with lyrics by Lance Wilcox. The piece explores seven different images of Winter. It features the Elmhurst College Chamber Singers under the direction of Susan Moninger, with special guests, Scott Udendeng, baritone voice (Chicago Symphony Orchestra Chorus), Frank Babbitt, viola (Chicago Lyric Opera Orchestra), Jennie Brown, flute (MAverick Ensemble), and Soyoung Kee, piano. All of the instrumentalists are faculty colleagues who teach at Elmhurst College along with Drs. DeVasto and Wilcox.

There have been several public performances of the work with three additional performances scheduled for Spring 2014. A professional recording of the work is scheduled for Spring 2014. The realization of this project was made possible by grants from Elmhurst College. Winter Seven is an example of “Undergraduate Research for the Public Good”, due to the community outreach via public performances. These performances included audience interaction and brief commentary from the composer and author. It has been an encouraging experience where all partners have benefitted. Winter Seven also includes strong themes related to “Undergraduate Research for Mentors: Support and Sustenance”. This is evident in the collaborative process between faculty members including, tenured, non-tenured, and adjunct faculty. Aside from the interdisciplinary exchange of ideas between Lance Wilcox (English) and David DeVasto (Music), this project has unified the Elmhurst College Music Department by bringing together faculty with diverse musical expertise. The students have likewise benefitted as participants in the collaborative process. A performance presentation of this collaborative work will showcase the following, the creative process, the collaborative process, issues with logistics, and the final product in the form of either a live performance (personnel permitting), a presentation including audio with visual aids, a video of the performance, or a combination thereof.

**Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding**

**Developing Students as Scholars Through Scaffolded Undergraduate Research – Meeting Room 5**

**Session Type: Workshop Session**
Presenter: Amy Jo Stavnezer, The College of Wooster

The College of Wooster has, over a period of more than 60 years, developed a rigorous program of study that culminates with a senior research experience. The Senior Independent Study Project requires seniors to become explorers and co-creators of knowledge, as they progress through a year-long research project working one-on-one with a faculty member in their major discipline. What differentiates us from other institutions is that this democratic experience is not restricted to those in an honors program, but rather is required of all students. This Senior I.S. (as we call it) has shaped our curriculum, and has effectively created a “culture of research” that guides how we teach our introductory and mid level courses. In this session we will describe how we prepare students for Senior I.S. using a “research-as-pedagogy” approach across all four years and explain the incredible value of bringing students of all levels through this process. Participants will learn how a research-based pedagogy works from experienced faculty members. An examination of our scaffolded curriculum will reveal how we manage to prepare all of our undergraduates for a mentored research project by the time that they reach their senior year. We will present examples to energize and engage students in STEM courses at all levels through research-inspired activities from a variety of disciplines. Participants will leave with specific activities and assignments, as well as a list of resources for locating additional ideas in STEM disciplines.

Whether you envision a large-scale change of curriculum at your institution, or you simply want to incorporate more research-focused activities into a single course, this session is for you.

**Break**

2:30 p.m. – Foyer of Grand Ballroom North/Central
Undergraduate Summer Research Programs: Models for Success – Meeting Room 8

Session Type: Panel Session
Presenters: Melinda E Lowy, American Physiological Society
Brooke Bruthers, American Physiological Society
Marsha Lakes Matyas, American Physiological Society
Medeva Ghee, Brown University
Deborah Collins, Brown University
Jo El Schultz, University of Cincinnati Main Campus

American Physiological Society (APS), The Leadership Alliance (TLA) and American Society for Pharmacology and Experimental Therapeutics (ASPET) as national organizations have different, yet successful, models for undergraduate summer research programs. This session focuses on similarities and differences in each program and in program goals. Panelists will discuss evaluation results from impact studies of each program on the participants. APS’ programs encourage applications from US and international students and from underserved populations to work in member labs. APS staff and members provide professional skills training, research hosts provide physiology content and research methods training. Fellowships fully fund stipends and travel support to attend a research-based meeting [Experimental Biology or symposium], one provides subsistence. The TLA program encourages applications from students in groups traditionally underrepresented in the sciences to work under the guidance of a research mentor at 1 of 22 participating TLA institutions. These programs offer research seminars, professional development workshops, and social/cultural activities. The institutions offer outstanding, closely mentored research experiences in a broad range of academic disciplines. Students present their research at the TLA National Symposium. TLA fully funds the students’ stipends, but the institutions support the students’ travel and housing expenses. ASPET programs allow members to host a student in their lab or institutions to develop their own undergraduate summer research program locally. ASPET provides partial funds for stipends for the individual awards, with the member’s institution providing the remainder. Research hosts provide mentoring, professional development and research instruction. Institutional program awards are given to a group of members at an institution for 3 yr. Funds are for partial support of the program, the institution provides the remaining stipend and matching funds for running the program. Student participation in research meetings is encouraged but not supported financially.

Assessing Student Engagement through E-portfolio: The Summer Scholars Program at the University of Delaware – Meeting Room 12

Session Type: Panel Session
Presenters: Lauren Elyse Barsky, University of Delaware
Lynnette Y. Overby, University of Delaware
Steve Beighley, University of Delaware
Dana Yeliseyev, University of Delaware

The Summer Scholars Program, sponsored by the Undergraduate Research Program at the University of Delaware enables selected undergraduates, generally sophomores and juniors, to conduct in-depth research or creative work with University faculty. Students in the Summer Scholars Program work on their projects full-time for ten weeks in the summer and continue to complete three credits’ worth of research in the following academic year. In Fall 2009, the Center for Educational Effectiveness (CFEE) began awarding Instructional Grants to support the development and implementation of Teaching, Learning and Assessment (TLA) ePortfolios, that are focused upon integrative learning, student reflection, and faculty feedback. These e-portfolios engage students in reflecting upon their research, and their achievement of programmatic and general education student learning outcomes. Throughout the course of the summer program the e-portfolio site allows students to reflect upon their experiences throughout their ten weeks of research during the summer. The purpose of these reflections are to help the students to develop an even greater awareness of their gains in written communication, oral communication, inquiry and analysis, and creative thinking. Each week, the students are asked to write a reflection or series of reflections in response to questions about their research, and then upload their reflections to this site in Sakai. The process of viewing the rubrics, responding to prompts, uploading artifacts, reflecting on their products, getting immediate feedback from the graduate program assistants, and continuing to revise, provides a powerful learning experience for the students. The purpose of this panel is to discuss how e-portfolio can be used to effectively monitor and assess students’ personal growth, learning, and development as well as to provide suggestions for future assessment. The panelists include a graduate program assistant and an undergraduate research student who participated in the program.
Incorporating Undergraduate Research into Education Courses and Curricula – Meeting Room 10

Presenter: Jennifer Manak, Bridgewater State University

Students majoring in Education are notably underrepresented in Undergraduate Research (UR) programs. Considering the outstanding benefits of Undergraduate Research for students, it is important for teacher preparation programs to find ways to incorporate UR into the curriculum in order to prepare future educators to most effectively teach the next generation of students. Faculty who are mentoring UR in Education stress the importance of disciplinary models and definitions of research that include the scholarly practices of educators within the field. This session shares successful UR models in Elementary, Early Childhood, and Special Education from coursework, grant-funded summer research, and honors thesis projects. In addition, this session demonstrates how existing scholarly practices in the field of Education meet the criteria for “undergraduate research.” Session participants will have opportunities to brainstorm ways to incorporate UR into current education courses and curricula as well as discuss how to overcome barriers to UR involvement in education.

Chicago Waterways: STEM to STEAM – Meeting Room 6

Session Type: Interactive Session
Presenter: Margie A. Martyn, City Colleges of Chicago – Harold Washington College

Learn how a community college in Illinois integrated the science and the arts to investigate research and report on the Chicago waterways. The research project involved 17 students, 7 faculty members and a Vice President of Academic Affairs. Students and faculty from the physical sciences, biology, English, Art and Library Science approached the project with different lenses. The group traveled to art museums, collected water samples on the Chicago River, surveyed residents, learned from guest scientists, advocates from the Friends of Chicago River, and became a true learning community. The project spanned two semesters and culminated in a poster session that was open to the community at large. Some of the students have presented at a SENCER (Science Education for New Civic Engagement and Responsibilities) in Washington, D.C. and other students plan to present in the future. The research projects varied by discipline (traditional posters, photography artifacts, a Wunderkammer, biological samples, an edited annotated bibliography and more). Feedback from faculty and students as well as lessons learned will be shared. The group of faculty have moved on to create a District-wide committee to find scalable and enduring models to integrate undergraduate research into the College so that more students can benefit in the future.

Undergraduate Researchers Abroad – Meeting Room 18

Session Type: Interactive Session
Presenters: Janet McGlynn, University of Maryland Baltimore County
Brian V. Souders, University of Maryland Baltimore County

As we seek more venues and opportunities for student research, international settings offer new and valuable options. Undergraduate research can be conducted successfully as a part of a classic semester abroad, during courses with short-term international research segments, through faculty-led field work, and while participating in formal programs housed in international institutions. This interactive session will describe various international options, consider related marketing and communications, discuss necessary student preparation, and include ways to continue the research experience at that student’s home institution. Using the UMBC experience as a starting point, the session will include discussion and information sharing among participants about key issues in the internationalization of undergraduate research, such as: 1) Identifying appropriate international programs, 2) Supporting faculty as they build courses incorporating international research, 3) Educating students about the options available to them, 4) Providing appropriate international options for STEM students, 5) Addressing student [and sometimes parental] hesitation about international travel, 6) Coaching students as they prepare to conduct independent research during a semester abroad. Discussion will address policy concerns, programmatic offerings, and communications and publicity efforts. Participants will consider ways to engage faculty members and students and to expand the ways in which these constituencies view both research and opportunities abroad. The session facilitators (from both undergraduate research and study abroad) will provide examples and resources while structuring time for attendees to share successes and challenges from their home institutions.
Developing Undergraduate Research From Within: A Synergistic and Collaborative Approach to Faculty Development and Student Engagement – Meeting Room 7

Session Type: Interactive Session
Presenters: Charlotte K. Simmons, University of Central Oklahoma
                      John F. Barthell, University of Central Oklahoma
                      Wei R. Chen, University of Central Oklahoma
                      Beverly K. Endicott, University of Central Oklahoma

Over the past several years, the University of Central Oklahoma (UCO), like most other state-supported institutions, has experienced a marked decline in state funding. In keeping with UCO’s emphasis on transformative learning and in the face of fiscally challenging times, the UCO College of Mathematics and Science (CMS) has embraced a student-centered philosophy, promoting undergraduate research and curriculum innovation by simultaneously encouraging faculty development and student learning, and doing so in a fiscally sustainable manner. This workshop will describe the synergistic approach the College has taken over the past seven years to do so, including the formation of several interdisciplinary centers within the CMS that have significantly enhanced external grantmanship efforts in support of undergraduate research. The CMS Center for Undergraduate Research and Education in Science, Technology, Engineering and Mathematics (CURE-STEM), for example, provides faculty with student-centered research programs resources that include reassignment time, student wages, travel funds, and supplies. In turn, faculty members have obtained external funding (including NSF STEP, NSF S-STEM, and DOE SSS grants) that support undergraduate participation in research, with an emphasis on including members of underrepresented groups and on initiating the undergraduate research experience the summer prior to freshmen enrollment and sustaining it throughout the undergraduate experience. The CMS has experienced a surge in undergraduate majors during this time period, with an increase of 65.63%, and there has been a demonstrated increase in retention and graduation rates and GPAs of students engaged in research. Meanwhile, more than a quarter (26 of 97) of CMS T/TT faculty members who are dedicated to serving as mentors for these students are currently supported by a CMS package that includes reassignment time, and other reward systems are currently being developed. Through group discussion and other activities, participants will explore opportunities to establish similar student-centered research mechanisms on their campuses.

Models for Supporting Undergraduate Research in the Arts and Humanities – Meeting Room 3

Session Type: Panel Session
Presenters: Ruben Dupertuis, Trinity University
                      Timothy Fehler, Furman University
                      Milton Moreland, Rhodes College
                      Jenny Olin Shanahan, Bridgewater State University

The arts and humanities are often underrepresented in undergraduate research programs. The challenges are many, including the typically individual nature of inquiry in the arts and humanities, the need for facility in multiple languages, or an institutional setting in which a developed program in the STEM disciplines is already in existence. This panel addresses the challenges of integrating arts and humanities disciplines into undergraduate research programs from the perspectives of three different institutions that have approached the challenges in different ways. The panel is organized around a number of questions: What role do disciplinary differences play? What models exists to ensure student readiness for undergraduate research? What models of financial support are available? What kind of programming is needed to support UR? How does one develop appropriate mentoring? How do we encourage faculty to participate? How do we make their participation sustainable? Participating institutions with highlights of their UR programs: Furman University’s Office of Undergraduate Research and Internships provides summer fellowships for students to collaborate on faculty research projects, supports student conference travel expenses to present their research findings, and sponsors a campus-wide student scholarship day with over 500 student presentations of their previous year’s achievements. Support of the arts and humanities is a part of the general UR program. Rhodes College hosts an Undergraduate Research and Creative Activity Symposium, provides fellowships funding for faculty-mentored student research and travel, and supports student research through the Rhodes Institute of of Regional Studies. Trinity University’s Mellon Initiative for Undergraduate Research in the Arts and Humanities derives student research opportunities from faculty scholarship. To sustain this the Mellon Initiative is working towards embedding research skills and opportunities into the curriculum at all levels.
This workshop is aimed at faculty members who want to start research with undergraduate students but have little or no funds to start up a research program. Workshop participants will learn about and brainstorm approaches to (1) Providing credit-bearing or financial support to undergraduate students conducting research in their labs, (2) Leveraging the teaching supply budget to provide necessary reagents for undergraduate research, (3) Leveraging laboratory exercises in teaching labs to provide skills training and preliminary data for undergraduate research projects, and (4) Assessing undergraduate research efforts to have data to present requests for greater administrative support. Participants will articulate what they want from the session, and provide one or two suggestions from their own experiences or reading. Every participant will write what potential resources (i.e., credit-bearing research or independent study classes) exist at their own institutions and how they can tap into them. This information will be shared with others, so that potential resource lists can be expanded. A 10-15 minute discussion will ensue to contribute to resource plans participants will write. The main session is “Leveraging Teaching Labs”. Presenters will discuss ways in which laboratory exercises and lab supplies can be leveraged for undergraduate research programs and will provide one or two examples, then participants will form groups and discuss additional ideas. The groups will discuss the best ideas they came up with, including a process to move from teaching labs to undergraduate research projects. During the last session participants will complete the creation of individual action plans. Resource lists, ideas and processes will be recorded by a facilitator and an electronic copy will be made available to all participants. Deliverable: At the end of this session, each participant will produce the outline of a plan to use at their own institutions to start their own undergraduate research program.
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Building the On-ramps: Mentoring the Transition From College to Career or Graduate School – Meeting Room 9

Session Type: Interactive Session
Presenters: Herb Childress, Teleidoscope Group, LLC

The shift from undergraduate life to professional career or graduate school, especially for first-generation students, can be logistically difficult, culturally alien, and filled with unknowns. How does a student choose the right graduate program, evaluate job offers, weigh the competing demands of moving for a career and staying home and near family? How does a student learn a new culture filled with unfamiliar terms like CV, PI, R1, IACUC, P&T? Having mentored a student to success through URSCA they’ve conducted within our school, how can we continue that mentoring to help students safely enter post-college life?

The purposes of this interactive session are a) to clarify for ourselves the practical and emotional difficulties our students may face as they leave the relatively safe and familiar world of “school” for the unfamiliar territory of career or advanced scholarly life, b) to share some of the ways in which we have mentored students facing this transition, and c) to help CUR start to enumerate mentorship practices that go beyond the completion of the undergraduate research project and into a satisfying adult life. Session participants who have had success with this broader mentorship will be asked to share their strategies and practices, just as importantly, those of us who aren’t sure we’re doing it right but who recognize its importance will be given space to talk about our uncertainties and collect possible ideas for better supporting our students as they leave us behind to take on new roles and responsibilities.

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

Enhanced Alumni: Developing Graduate Attributes Using a Scaffolded Research Skills Framework – Meeting Room 4

Session Type: Flipped Session
Presenters: Catherine A. Smelling, The University of Adelaide
Sophie Karanikolas, The University of Adelaide
John Willison, The University of Adelaide

As the 21st century evolves, the curricula, graduate outcomes and professional skills of higher education programs must increasingly meet the demands of a robust regulatory environment. Federal and state agencies, institutional values and accreditation bodies require a diverse skill set to be substantiated across curricula.

The wide-ranging applicability of research skills in undergraduate programs is well documented (Brew, 2012; Chanock, 2007); furthermore, significant correlation with positive student learning outcomes and graduate qualities that are valued by employers, has been demonstrated (Jenkins & Healey, 2009; Willison, 2012). Students need a set of core research skills during college and university and significantly, these skills are fundamental to graduate success in a multifarious present and future (Barnett, 2005). Research skills are integral to conceptualising, locating, interpreting, evaluating, communicating and applying information (Bundy, 2004) and authors such as Barnett (2009) and Harris (2007) consider them crucial for democratic citizenship and effective engagement with 21st century issues.

This ‘flipped’ workshop will challenge participants to reflect on their own undergraduate learning and teaching context, and to consider how a scaffolded research skills framework may be instrumental in fostering graduate qualities in their students that will enhance them as citizens of tomorrow. Before the session, participants will be asked to complete some straightforward ‘pre-class activities’ that allow them time to reflect, review and revise their knowledge and understanding of ‘graduate qualities’ and ‘scaffolded frameworks’. This is a major advantage of the flipped classroom approach which is distinctive from other contemporary pedagogies as it, “allows educators (presenters) to differentiate instruction to meet individual student (participant) needs and spend more time in the classroom (session) focused on collaboration and higher-order thinking.” (de Haan, Technology with Intention).

Course-based Undergraduate Research Experiences – What if the Treatment is a CURE? – Meeting Room 5

Session Type: Interactive Session
Presenters: Erin Dolan, University of Georgia
Lisa Auchincloss, University of Georgia
Aspen Robinson, University of Georgia

Numerous calls for reform in undergraduate biology education emphasize the value of undergraduate research, yet most institutions lack the resources to engage all or even most undergraduates in research. In response, an increasing number of faculty are developing Course-based Undergraduate Research Experiences, or CUREs. CUREs involve whole classes of students in addressing a research question or problem that is of interest to the scientific community. Although CUREs are becoming more commonplace, there are two significant shortcomings in our understanding of CUREs as a context for teaching and learning. First, there is no consensus definition of what constitutes a CURE. Second, there has been little systematic exploration of how students are affected by participating in CUREs. In order to address the first issue, we have designed a survey that aims to distinguish CUREs from other laboratory learning experiences, including traditional lab instruction and apprenticeship-style undergraduate research experiences (UREs). We will present evidence of the validity and reliability of this survey instrument as a measure of CURE instruction. We will also present data on how these three instructional styles (traditional, CURE, URE) compare, from the perspectives of students and faculty, in terms of the extent to which students engage in scientific practices, discovery, collaboration, and iteration as well as the extent to which students' work has the potential to be relevant or important beyond the classroom. This aspect of our educational research lays the foundation for addressing the second issue: how particular aspects of CUREs relate to desirable student outcomes, including improved understanding of the nature of science and pursuit of further education or careers in science research.
Undergraduate Research Groups in Social Science: Promoting Accessibility and Retention Through Extended Inquiry – Meeting Room 2

Session Type: Interactive Session
Presenters: Lara Margaret Beaty, City University of New York- La Guardia Community
Tomoaki Imamichi, City University of New York- La Guardia Community

Undergraduate research typically is an option only for the best students, and community colleges typically have fewer opportunities than four-year colleges to become involved in research. The potential outcomes for students, however, would be particularly valuable for students whose connections to higher education are tenuous: increased mentoring, more exposure to academic culture, increased sense of belonging, a space within the college where they belong, and a sense of purpose for their learning. Accepting a broader range of students also poses problems in terms of working with students who are more diverse yet have less knowledge and who are often less committed. Inspired by participatory-action research and Engeström’s developmental work, plans for a research group were formed to have students gain greater social support as they collectively designed a research project rather than the more typical method of having them work on an existing or individual project. The goal was to create a year-long activity that started with what students already knew (nurturing a hybrid of everyday and academic language), supplementing this with reading, an introduction to methods, and coding of existing data, designing a new study as a group, and then carrying out the research. This also presents the opportunity for studying developmental processes within the group.

The Student Experiences Research Group (SERG) was formed as a way to involve students in research about student college retention, a topic about which they have relevant experience and expertise. This group is currently working with its third cohort, and a second group, Researchers in Student Environments (RISE), which focuses on the college environment, was initiated this year. This project proposes to present student work and progress from these two research groups, inviting students to tell part of their story and help evaluate this approach to undergraduate research.

**CUR Fellows Addresses**

4:15 p.m. – Grand Ballroom North/Central

Dr. Mark Brodl, Associate Vice President for Academic Affairs, Trinity University
Dr. Mitchell Malachowski, Professor of Chemistry, University of San Diego

**Poster Session I**

5:45 p.m. – Foyer of Grand Ballroom North/Central

**Dinner**

7:15 p.m. – Grand Ballroom North/Central

---

**Monday, June 30, 2014**

**Breakfast**

7:30 a.m. – Foyer of Grand Ballroom North/Central

Poster Session II Set-up

**Provost Roundtable**

8:30 a.m. – Grand Ballroom North/Central

Ellen Junn, Provost, California State University, Dominguez Hills
Matthew Reed, Vice President for Academic Affairs, Holyoke Community College
Philip Rous, Provost, University of Maryland, Baltimore County
Kathryn Westcott, Interim Provost, Juniata College

**Break**

10:00 a.m. – Foyer of Grand Ballroom North/Central
Concurrent Session 5

10:15 AM – 11:30 AM

Undergraduate Research for All! Ensuring Access to High Quality Opportunities

Session Type: Interactive Session

Presenters: Kathy Lee Sutphin, University of Maryland Baltimore County
Janet McGlynn, University of Maryland Baltimore County

This interactive session will explore various symposia models, considering the appropriate use of each and will provide a forum for sharing funding and campus support strategies. Participants will be invited to share the symposia models from their campuses. Discussion will include typical symposium-planning issues: Host one centralized annual symposium for all? Define it as department or discipline specific? Limit presenters to participants from a particular program? Showcase only work carried out on campus? Require that faculty mentors be from defined institutions? Invite students from other institutions to participate? Charge a registration fee? Provide food? Maintain poster boards on campus? Arrange for judging and prizes? The session will be launched with information about UMBC’s matrix of annual research presentation venues, which provide professional-level opportunities to disseminate the results of undergraduate research. This calendar of opportunities begins in April with the campus-wide Undergraduate Research and Creative Achievement Day (URCAD), which is open to all students and comprises multiple and concurrent oral and poster sessions as well as a keynote speaker. The Summer Undergraduate Research Fest (SURF), sponsored by the College of Natural and Mathematical Sciences, follows each August with a mixture of oral and poster presentations that serve as the culminating experiences of many summer research experiences. The two-day Annual McNair Scholars Conference is held in September for McNair Scholars at UMBC and across the U.S. and features a keynote speaker, oral and poster sessions, breakout sessions, and a graduate school fair. The gala Undergraduate Research Symposium in the Chemical and Biological Sciences in October attracts students from institutions near and far who present their posters to volunteer faculty judges in two sessions to compete for first and second place honors in assigned discipline-specific groups. This fall symposium also includes a keynote speaker, morning and afternoon workshops, and an awards ceremony.

Best Practices in Managing Campus-wide Undergraduate Research Initiatives at Larger Institutions – Meeting Room 7

Session Type: Panel Session

Presenters: Megan A. Shannahhan, Michigan State University
Korine Steinke Wawrzynski, Michigan State University
Julie Morris, University of South Carolina – Columbia
Kimberly R. Schneider, University of Central Florida
Helene Cweren, The Ohio State University

Managing a campus-wide undergraduate research program at a larger institution or a multi-campus system can be challenging due to several factors, such as disciplinary differences, decentralized organizational structures, communication barriers with faculty, staff, and students, and difficulty in establishing relationships because of institutional size. Accordingly, multiple factors and key constituents should be considered when starting or sustaining campus-wide programs. In this panel, seasoned undergraduate research program directors from large institutions will discuss best practices and lessons learned related to program organization, staffing needs, effective partnerships, funding strategies, strategic communications, and research forum organization. Specific topics include: 1) campus cultures and how the administrative organization of undergraduate research offices fits respective campus environments, 2) best communication practices related to website development, social media utilization, and publicity, and how these practices can help increase faculty and student awareness about undergraduate research, 3) different funding models and what has been most effective in cultivating research opportunities across the disciplines, 4) key campus partners in increasing faculty and student engagement in undergraduate research, 5) key features in running a successful undergraduate research forum, as well as innovative improvements that enhance student experiences. Through small and large group discussion, participants will discuss how proposed models and strategies could be adapted and utilized at their institutions. Participants will gain clear examples of strategies and outcomes related to administration, organization, communications, and funding.
Expanding Student Engagement: The Research Scholars Program – Meeting Room 2

Session Type: Workshop Session
Presenter: Katy Downs, University of Michigan

This interactive session showcases the UROP Research Scholars Program: an innovative active learning model that integrates academic and career goals, leadership skills, and public speaking with the second year undergraduate research experience. During the fall semester, Scholars develop an academic plan to identify their academic and career goals and the steps needed to meet those goals. In the winter semester, they create eportfolios to reflect on their experiences and showcase their work. To further their hands-on experience of their intended profession and facilitate networking, Scholars identify and attend a research colloquium, seminar or other event in their department. In addition to participating in their research projects on a more advanced level than during their first year, Scholars help design and facilitate biweekly seminars. Throughout the year, the seminars focus on the interdisciplinary nature of research and how to present research to professionals in the discipline as well as to the lay public. As their final project, Scholars present their research during the UROP Spring Research Symposium poster sessions or oral presentations. To foster their ability to convey the excitement of their research to a general audience, those giving oral presentations are coached by TEDx UofM. Through participation in this workshop, participants should develop strategies to promote student engagement in taking research to the next level, incorporating career exploration and preparation with the research experience, and sharing their research with professionals and the general public so it is accessible to interdisciplinary audiences.

Funding for Undergraduate Research: Finding and Leveraging Resources

NSF-IUSE Program: Supporting Improvements in Undergraduate STEM Education (Focus on the Geosciences) – Meeting Room 11

Session Type: Workshop Session
Presenters: Jill Singer, State University of New York- Buffalo State
Jeffrey Ryan, University of South Florida

This interactive session provides current information about the NSF-Division of Undergraduate Education’s Improving Undergraduate STEM Education (IUSE) program. This new funding opportunity supports a wide-range of activities aimed at improving STEM education for majors and non-majors. The IUSE program supports the design, development, and wide-spread implementation of effective evidence-based STEM learning and teaching knowledge and practice, as well as foundational research on student learning. While IUSE supports projects in all NSF-funded STEM disciplines, this session focuses on opportunities and proposal writing strategies for faculty in the geosciences, physical geography, and environmental geosciences.

Undergraduate Research for the Future: Exploring New Directions

Initiating an Undergraduate STEM Based Research Program Abroad Using the SUNY Oswego Global Laboratory Model – Meeting Room 18

Session Type: Interactive Session
Presenters: Shashi M. Kanbur, State University of New York- Oswego
Cleane Medeiros, State University of New York- Oswego
Lorrie Clemo, State University of New York- Oswego

A major theme of this conference is creating the citizens of tomorrow: these citizens will need significant competencies in STEM and have a global perspective. Here we describe one model for developing a STEM based under graduate research experience abroad: the SUNY Oswego Global Laboratory: undergraduate student spend 6-8 weeks to undertake scholarly and creative activity, primarily in STEM fields, at major, research institutions overseas under the mentorshop of a faculty member at that host university. The program started in, 2011 with twenty 21 students to 55 students in the summer of 2013. Students have been to Brazil, Costa Rica, France, Switzerland,India, the Democratic Republic of Congo and Taiwan. Host institutions include the Federal University of Paraiba, Brazil, the Universidade, de Iberoamerica, Costa Rica, the University of Calcutta, India and National Central University, Taiwan. Students are required to, develop a large format poster summarizing their project and these are presented at a poster conference in the fall. The results of three years, of this program can be seen at http://www.oswego.edu/academics/research/global_laboratory/posters. Assessment of the, program involves students’ progress on their project, their global perspective [gpi.central.edu], their cognitive development, as measured on the Perry index, and their maintenance of an e-portfolio. The program has doubled the number of undergraduates involved in, Scholarly and Creative Activity at SUNY Oswego. This interactive session will describe the program and its development and thus demonstrate how such a program can be initiated at a predominantly undergraduate college.
Undergraduate Research for Mentors: Support and Sustenance

‘I Love It.’ Student Motivators to Engage in the Development of their Research Skills in the Curriculum. – Meeting Room 12

Session Type: Workshop Session
Presenters: John Willison, The University of Adelaide
Catherine A Snelling, The University of Adelaide

‘It’s the best thing I’ve ever done. I love it’. This is a not so typical comment from a graduate looking back over her experience of explicit research skill development across her undergraduate degree. In considering research for all undergraduates one major factor is motivation: how do we help many students to have this almost addictive reaction to researching? This workshop provides colleagues with an opportunity to think deeply about the motivations and drivers of research and to devise practical ways to engage all students in curricula that develop their research skills. As a participant, you will need to be informed about the conceptual model for this workshop, the Research Skill Development framework (RSD, Willison & O’Regan, 2007) by reading in advance a journal article or watching several short videos. The RSD framework delineates the more cognitive aspects of scaffolding students to work increasingly independently. However, its representation of emotions and drivers to engage in research are more subtle. This workshop will unpack the domain of emotions in research by moving back and forth between participants’ perspectives, and those of graduates who completed undergraduate degrees that explicitly developed their research skills in multiple courses. Practical strategies that helped students with emotional engagement will be presented as examples, and then you will collaboratively workshop approaches for your own context. The outcomes for this workshop will be:1) A deepened understanding of the emotions and drivers of student engagement in research processes; 2) Adapting to your context a framework for scaffolding student motivation, as well as cognitive and psychomotor domains; 3) Participants’ collaboratively produced strategies to scaffold student motivation in the development of research skills in the curriculum.

Expanding Opportunities for Undergraduate Research Using Vireo, an Open Source Thesis Review and Publication Platform – Meeting Room 14

Session Type: Workshop Session
Presenters: Duncan S. MacKenzie, Texas A & M University
Tammis Sherman, Texas A & M University
Plamen Ivanov, Texas A & M University
Laura Hammons, Texas A & M University
Micah Cooper, Texas A & M University

As institutions work to broaden participation in high impact educational practices, workloads for personnel who coordinate, administer, and monitor completion of these experiences will increase. A written thesis often serves as a capstone experience in undergraduate research, requiring students to formally analyze, synthesize, and communicate research findings. Thesis review can be particularly cumbersome when quality control of documents must be assured across a large and diverse student population. In this workshop participants will test drive Vireo, an online, open source platform developed by the Texas Digital Library to facilitate electronic thesis receipt, review, and publication. We have been adapting Vireo, originally developed for graduate thesis submission, for thesis review and publication in our Undergraduate Research Scholars program, annually comprising over 200 students from all academic disciplines. To assure academic rigor and uniform quality of final documents students are required to submit a proposal and three drafts of the final thesis that are reviewed through Vireo by our Undergraduate Research office. We have found that Vireo successfully automates many aspects of thesis review while organizing participants and documents into a filterable, searchable database. Workshop participants will learn how descriptive data on students is collected, how proposal and thesis review is achieved, how customized emails to students are generated, and how final documents are approved by faculty advisors and published in an open access digital repository. Participants will also gain experience in filtering the database and creating both public and private notes to accompany document actions. As an open source platform with a growing user community, Vireo may be customized for particular institutional workflow needs. Vireo has successfully supported the expansion of our Research Scholars program, improved our communication with this expanding cohort of students, and, through its publication interface, facilitated public access to undergraduate research results.
Undergraduate Research for the Public Good

SENCER Center for Innovation, Chesapeake Bay: Opportunities for Collaboration on Research and Curriculum Reform – Meeting Room 6

Session Type: Flipped Session
Presenter: Thomas C. Wood, George Mason University

SENCER (Science Education for New Civic Engagements and Responsibilities) is a national dissemination project representing over 2000 people from more than 430 universities and affiliated organizations across the United States. Funded primarily by the National Science Foundation, SENCER applies the science of learning to the learning of science. Recently, a new SENCER Center for Innovation was created to represent the collective interests of Universities, Colleges and affiliates in the mid-Atlantic, Chesapeake Bay region. In this flipped-session, we will discuss opportunities to include undergraduate research in curriculum and courses, primarily through an interdisciplinary STEM approach, to current societal issues. We will explore opportunities to collaborate in a collective mission to provide innovative education and research opportunities for undergraduate students. Faculty and administrators interested in learning more about SENCER, and how to become a SENCER institution, are encouraged to attend. Prior to attending the event, participants should review the SENCER.net website, particularly the Chesapeake Bay Center for Innovation link, and come prepared to discuss ideas for including research opportunities in the undergraduate curriculum. We hope to expand the SENCER network and promote collaboration for project development throughout the Chesapeake Bay region. It is our hope this expanding local network will build upon the success of the national SENCER project and provide opportunities for multiple institutional funding of innovative research and education projects in the coming years. Participants with all levels of experience are encouraged to attend.

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

SENCER Center for Innovation, Chesapeake Bay: Opportunities for Collaboration on Research and Curriculum Reform – Meeting Room 6

Session Type: Flipped Session
Presenter: Bernadette Connors, Dominican College of Blauvelt

The need to provide students with research opportunities is now commonplace in many small colleges and universities, even when limited funding is available. Oftentimes 1-2 semesters is not sufficient time to complete a meaningful project with sufficient data for a thorough analysis, nor do students necessarily see the connection between classroom work and real application. Another approach to addressing this need is to introduce research projects into the various class curricula to have them carried out through successive semesters in multiple courses taught by a team of faculty. Utilizing the yeast model system we can introduce freshmen in General Biology to traditional techniques of microbiology by having them use disc diffusion assays and standard plate count methods alongside different treatment regimens. Especially useful would be commercially available null mutants of yeast with deletions of known or unknown genes. In sophomore classes (Genetics and Microbiology or Cell Biology) students can be introduced to tools of molecular biology to create overexpression plasmids or gene deletions using PCR and standard subcloning methods. As seniors in the formal research classes students could carry out microscopy techniques by examining GFP localization or cell cycle analysis. As seniors in the upper level courses students could complete various analyses dependent on the results from the previous three years. This continuity ensures students can be involved in a long term, meaningful project while working with faculty that bring different talents and expertises to the project, while the flexibility in design and the need to critically think about the available information is what we as educators strive to provide for all of our students. Materials to be provided to those participating in this flipped session would include: Student and faculty commitment contracts, syllabi for courses taught at Dominican College, laboratory guides for these methods, database and literature guides.

Group Projects – Creative Problem Solving and Research-Based Learning in the Social Sciences, Arts, and Humanities – Meeting Room 4

Session Type: Interactive Session
Presenters: Alexa Sand, Utah State University
Seth Meisel, University of Wisconsin - Whitewater

Many faculty in humanities, arts, and social science disciplines struggle with the issue of how to build in research experiences, and awareness of those experiences as research from the beginning of a student’s engagement in their disciplines. This interactive, highly participatory, session explores the potential for the group project to become a key component in building research into the curriculum for ALL students, regardless of their background or level of proficiency in a discipline. The presenters will outline the compelling evidence that supports team-based problem solving as a pedagogical approach and give some basic strategies for building successful group projects into courses at a variety of levels and across different disciplines. But the core of the session will be the sharing of expertise and experience by participants in a moderated discussion. Session participants will share their strategies for addressing such issues as: 1) overcoming student resistance to working with others; 2) challenges in converting the lecture-based, content-driven course to a project-based course; 3) grading, accountability, and assessment 4) articulating the relationship between in-class research learning and larger, institutional goals. The overall objective of the session is to begin to develop a portfolio of best practices for integrating group research projects as opportunities for building research skills into all levels of humanities, arts, and social science curricula.

Monday, June 30, 2014—10:15 a.m.–11:30 a.m.
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Establishing A Learning Community for Mentors of Undergraduate Researchers – Meeting Room 9

Session Type: Interactive Session
Presenters: Jennifer Harris, University of Washington
Janice DeCosmo, University of Washington

The success of the undergraduate research experience rests largely on the quality of the mentor-mentee relationship. Students in our programs regularly report greater gains in learning and skills when they also report positive mentor interactions. After being frustrated by having offered many “one-time” mentoring workshops and never getting much beyond “the basics” with mentor training, in Autumn, 2013, we decided to try out a new structure – the Learning Community (LC). Sponsored by the UW Teaching and Learning Center, LCs meet regularly throughout an entire academic term, and most importantly invite participation from faculty, graduate students, postdoctoral associates, and professional staff. Our LC, titled: Mentoring Undergraduate Researchers: Strategies for Happy and Productive Mentees and Mentors, provides an opportunity for mentors of undergraduate researchers to explore approaches to guiding undergraduates to become scholars. Interactive sessions included discussion of successful mentoring structures, brainstorming around typical pitfalls, exploring resources and tools for guiding and assessing student progress, and leading mentees toward greater independence. The enthusiasm of our first LC participants has inspired us to provide further support for mentors of undergraduate researchers, and has solidified our plans to continue in this format. During this session we will share our model and experience, and, as we do in the LC, invite participants to share their experiences, questions, relevant literature, resources and tools.

Finding Connections: Faculty and Undergraduate Collaborative Research in the Humanities – Meeting Room 3

Session Type: Panel Session
Presenters: M. Soledad Caballero, Allegheny College
Amelia J. Carr, Allegheny College
Ishita Sinha Roy, Allegheny College

Allegheny College has historically had a robust summer research climate, but until recently it has been faculty and students in the natural and social sciences working in laboratory environments or arts faculty collaborating on creative projects. Faculty in humanities disciplines were nearly invisible on campus, working in traditional, more isolated modes. Nor were the humanities disciplines reaping the benefits of this high impact practice of collaborative research that prepares students for their academic and career futures through meaningful research experiences and mentorship. In order to change this cultural trend and thinking, Allegheny College applied for and was awarded an Andrew W. Mellon Foundation grant to incentivize research collaboration between undergraduate students and faculty in the humanities, including history, interdisciplinary studies, and the creative arts. This four-year, $600,000 grant funds both faculty mentors working on their research and student research collaborators for six to eight weeks of the summer. A key component of this grant is that it focuses specifically on faculty projects so that student collaborators assist faculty with their own research. With the goal of providing faculty real help, student fellows are guided in the process of research methods and engaged in the actively contested questions of the field. In this panel, co-principal investigators of the grant, Professor M. Soledad Caballero and Professor Amelia Carr will discuss the successes and challenges after our first year’s funding, including our “gearing up” year, which stimulated interest and excitement among students and faculty about this opportunity. We will discuss the “best practices” that emerged from the summer’s collaborations, highlight faculty success in achieving their research goals, and our faculty development programming in the first year. Finally Professor Ishita Sinha-Roy will offer her experience scaffolding her project to include a student collaborator.
Lunch

11:30 a.m. – Grand Ballroom North/Central

Dance Presentation

Dave The Potter
Honoring the History and Creativity of an Exceptional Enslaved Potter David Drake, through painting, poetry, music and dance
A multidisciplinary Project presented by:
Lynnette Overby, P. Gabrielle Foreman, Audrey Wright, Ralph Russell, Glenis Redmond and Vincent Thomas

Dave the Potter is a multidisciplinary Dance/Drama production that includes choreography by Lynnette Overby, Vincent Thomas, and Teresa Emmons, poetry by Glenis Redmond and Gabrielle Foreman with original music by Ralph Russell, surrounded by the paintings of Jonathan Green. This project is based on David Drake’s August 1857 couplet: I wonder where is all my relations/Friendship to all and every nation. Dave’s wondering about his relations under slavery is akin to our wondering about our ancestral links in 2013. Viscerally impacted by the horrors of slavery, Dave found a way to record his story. His I wonder couplet speaks specifically to us about our torn lineage as we strive collectively to piece it together. As artists and academics, we joined artistic and scholarly forces to apply our wondering and to reply to Dave’s query. This project is our direct address to Dave: We are your relations. We feel compelled and driven to preserve and uphold your legacy. We are here.

Concurrent Session 6

1:30 PM – 2:45 PM

Undergraduate Research for Transformation: Assessing the Impact

Two Models to Create an Undergraduate Research Profile: Assessing Undergraduate Research Participation Campus-Wide – Meeting Room 8

Session Type: Interactive Session
Presenters: Kimberly R. Schneider, University of Central Florida
Joe O’Shea, Florida State University

Undergraduate research programs struggle to capture undergraduate research activity and impact. At many universities, especially ones with large student bodies, it is difficult to determine the number of involved students. This session will share two different methods of reviewing and assessing undergraduate research campus-wide. Drawing on a variety of existing instruments, Florida State University has developed a comprehensive undergraduate research survey. This survey was first administered campus-wide in 2013 with nearly 8,000 student respondents. With this information, FSU has been able to capture research and creative activity across campus, to examine trends in participation, and to explore how participation in research affects students. This student survey data is supplemented by modifications to the institution’s faculty reporting portal, through which faculty can indicate student co-authors and supervision of student research. In 2012, the University of Central Florida took another approach through the creation of a database with UCF Institutional Knowledge Management (IKM) starting with their 2009-2010 students. Information for students from known research programs is uploaded into the database, and then cleaned and validated through IKM. Through this database, the UCF populations can be compared to the whole undergraduate population (e.g., gender, progress to degree, majors). Additionally, individual faculty, departments, colleges, as well as specific programs can review their undergraduate research populations. Future plans and uses of this database will be discussed. The development and implementation of both models will be shared, highlighting strengths and weaknesses. When applicable, participants will explain how they capture data on their own student populations.
One of the key challenges in our work as undergraduate research program administrators is to engage in effective outreach to students. On highly decentralized research university campuses, “getting the word out” can make the difference for students who may not envision themselves as researchers but who could greatly benefit from these often transformative, “high impact” learning experiences. Moreover, we know that in telling the story of the benefits of undergraduate research, students are most receptive to hearing directly from their peers rather than administrators. The University of Washington’s Undergraduate Research Leader Program and The Ohio State University’s Peer Research Contacts are two examples of outreach and development programs utilizing existing undergraduate researchers from diverse backgrounds and fields to spread the gospel of undergraduate research. Representatives from these programs will discuss their use of undergraduate student leaders to staff tables at campus events, participate in informational panels, visit Freshmen Interest Groups, talk one-on-one with their peers about their experiences in research, and funnel students to office advising and resources. Through sharing their firsthand testimonies of the challenges, benefits, and true excitement of learning through discovery, undergraduate researchers are impacting the educational trajectories of their peers for the better. Presenters will also discuss what support and rewards are being provided to peer leaders in exchange for their participation, as well as other ways in which undergraduate research students can be utilized on campus. This interactive session will share lessons learned as we believe these programs provide viable models that other administrators may use and adapt to their campus needs.

Connecting undergraduate research efforts with those of national scholarship and fellowship offices provides a synergistic support system for undergraduate students, enabling them to maximize high-impact resources throughout their undergraduate experience. In almost all cases, qualified candidates for nationally competitive scholarships and fellowships must be involved in undergraduate research as a meaningful way of engaging with their discipline, building relationships with faculty mentors, and preparing for graduate or professional school. As a result, they are better prepared to articulate an authentic sense of purpose, capable of taking intellectual risks, and determining meaningful way of engaging with their discipline, building relationships with faculty mentors, and preparing for graduate or professional school. As a result, they are better prepared to articulate an authentic sense of purpose, capable of taking intellectual risks, and determining
Undergraduate Research for the Future: Exploring New Directions

Crowd Sourcing Research: Opportunities for Undergraduates – Meeting Room 12

Session Type: Interactive Session
Presenters: Jon E. Grahe, Pacific Lutheran University
Deborah Harris O’Brien, Trinity Washington University

This interactive presentation will examine the benefits of crowd sourced research for undergraduates. The presenters will focus on strategies designed for students to replicate research so that their class projects might be publishable. Psi Chi, the International Honor Society in Psychology, has been supporting student research by making available protocols of research projects that can be replicated by students. Data will be presented on students’ use of the projects available through Psi Chi’s Collaborative Research and Educational Project (CREP) and the results of the studies completed by student researchers. Another collaborative project, the International Situations Project, using students from Psi Chi and Psi Beta (National Honor Society in Psychology for community and junior colleges) has collected data from over 700 student researchers at 14 US institutions. In addition to the studies completed by students, there will be discussion with the audience about problems the presenters have experienced with this kind of research and possible solutions. Also, a web-based initiative, the Open Science Framework, that allows researchers to easily upload materials and data files and share them publicly, will be demonstrated. The implications of this method of conducting research are profound, especially for online students and students at small institutions who may lack the resources for stand alone research. No matter how small their institution, if they have internet access, students can engage in meaningful research and receive authorship recognition. The uses of this method as a teaching tool to increase participatory learning (e.g. assigning research projects through web-based sources to students) will be discussed also.

A Course-embedded Model for Integrating Undergraduate Research Experiences Throughout the 4-yr Curriculum – Meeting Room 13

Session Type: Interactive Session
Presenters: Clay Runck, Georgia Gwinnett College
David Pursell, Georgia Gwinnett College
Allison D’Costa, Georgia Gwinnett College
Greta Giles, Georgia Gwinnett College
Judy Awong-Taylor, Georgia Gwinnett College
Thomas Mundie, Georgia Gwinnett College
Tirza Leader, Georgia Gwinnett College

The positive impact of undergraduate research on students’ engagement, retention, and success in college is well documented. Direct exposure to undergraduate research stimulates students’ interest in STEM, enhances their understanding in the sciences, and develops critical thinking and research skills. Many colleges and universities provide research experiences but most of these experiences occur in the senior or junior years. At Georgia Gwinnett College (GGC) all majors in the School of Science and Technology (SST) are required to complete either undergraduate research or an internship in their junior or senior years, however, we recognize the importance and need to introduce research experiences much earlier in a student’s educational career. As such, we developed a 4-year Undergraduate Research Experience (4-yr URE) program that allows all SST students to be engaged in authentic research during all four years of matriculation. The 4-yr URE is designed to enhance student engagement and learning in STEM disciplines and to support faculty innovation and leadership. Over the past two years over 40 SST faculty engaged in innovative ways developing or redesigning courses to include course-embedded research experiences in 30 courses, 16 of which were at the freshmen and sophomore levels. We will describe the 4-yr URE model that allows all STEM majors at GGC to be engaged in authentic research during all four years of matriculation. We anticipate this model will generate many questions that can be addressed by smaller group discussions focused on developing or discussing similar models that may work for their disciplines or departments or colleges. Activities will engage participants in developing or redesigning courses to include authentic research experiences, determining specific outcomes related to undergraduate research skills, and integrating different forms of longitudinal assessment to track student learning, their attitudes about science, and self-assessment of their STEM competencies.
Open Re-sourcing: Higher Education Mentoring Handbook – Meeting Room 17

Session Type: Interactive Session

Presenters: Robin S. Lewis, Georgia College and State University
Doreen E Sams, Georgia College & State University
Rosalie Richards, Georgia College and State University
Caitlin Powell, Saint Mary’s College of California
Rebecca McMullen, Georgia College and State University
Jennifer Hammack, Georgia College and State University
Larry Bacnik, Georgia College and State University

This session is targeted to faculty and administrators interested in practical strategies for faculty professional development that includes undergraduates as researcher/scholars. Session goals include (1) sharing best practices and practical strategies to improve faculty mentoring practice, and (2) identifying practices and resources that produce students that are highly competitive in the global workplace. The session will first involve a pre-survey of mentors and potential mentors’ perceptions of their need for mentoring resources. Participants will be provided with an e-handbook of current best practices in undergraduate research mentoring pedagogies. Presenters will facilitate a discussion of these practices and the handbook’s contribution as a progressive resource for moving mentees through a “mentoring third space” into a community of practice. Participants will be invited to share novel pedagogies and make contributions to this open resource.

Background Information: In 2011, a teaching circle of cross-disciplinary faculty at Georgia College embarked on a series of year-long explorations of faculty mentoring of undergraduate researchers. As part of this work, the circle conducted a study to investigate the value-added proposition of a mentorship strategy to a student’s undergraduate educational experience, post-baccalaureate aspirations, and self-efficacy. A mentoring third space model (Richards, 2012) was proposed as an outcome of the circle’s work and was characterized as a zone defined by “explorations of inner intellect, self-efficacy, and metacognition” (Gleibermann, n.d.). The circle developed an interdisciplinary e-handbook to equip faculty mentors with a pedagogical resource to assist mentees develop in the discipline-specific third space community of practice, thereby adding value to the students’ educational experiences.

Mentor Training, Engagement, and Evaluation – Meeting Room 9

Session Type: Interactive Session

Presenters: Linda Blockus, University of Missouri - Columbia
Jessica Brown, California State University - Monterey Bay

Faculty and graduate student mentors are the keystones to a successful undergraduate research experience. They build content knowledge, competences, and confidence; they act as translators and bridges into the research culture and discipline; and they serve as role models and sources of emotional support. Given all that we ask of our undergraduate research mentors, how do we best train, sustain, and provide feedback to mentors at all stages of their careers? At this interactive session, we will introduce models for training graduate student mentors, sustaining faculty mentor engagement, establishing a regional mentoring alliance, and evaluating mentor effectiveness. We will also explore effective communication strategies and developing student learning outcomes through hands-on activities. Participants will come away from this session with practical information and tangible tools to invigorate and sustain their cadre of undergraduate research mentors.

Developing Dynamic Web Resources to Facilitate Undergraduate Research – Meeting Room 14

Session Type: Interactive Session

Presenter: Tim O’Neil, Oklahoma State University

Budget-friendly web services, such as WordPress and Gravity Forms, allow those with average computer skills to create dynamic, intuitive web-based resources to facilitate undergraduate research at institutions of any size and organizational model. With the ability to easily integrate these resources into widely-used social media platforms, such as Facebook and Twitter, institutions can create communities of faculty and student researchers on networks most undergraduates use on a daily basis. At Oklahoma State University, we created just such an “Undergraduate Research Network” [http://ugrnnetwork.okstate.edu] that allows faculty to request undergraduate research assistants and assembles projects into an easily browsable clearinghouse of research opportunities. This interactive presentation explains how to create similar resources for your institution and invites discussion about adapting the OSU model to different institutional and demographic environments. Though largely focused on the pragmatics of web development, my hope is to demonstrate the egalitarian potential of employing web-based platforms to open undergraduate research to ever-more inclusive populations of learners.
Community Driven Research in Detroit: A Campus-community Partnership – Meeting Room 2

Session Type: Interactive Session
Presenter: Jenna E. Steiner, University of Michigan

Housed as part of the Undergraduate Research Opportunity Program at the University of Michigan, the Detroit Community Based Research Program (CBRP) places students in community based organizations working on issues such as urban development, environmental justice, food security, community assessment, and sustainability. Students live and work in Detroit for 10 weeks over the summer on a research project of need for their community organization. This program provides the opportunity for students to gain experience and skills conducting research in a community setting, completing a project that directly benefits the organization and the communities they serve. Many community-based organizations in Detroit are severely under-resourced, leaving them unable to complete basic research tasks that are essential when it comes to writing grants to sustain programmatic funding, a gap this program is able to help them fill. Students also work on and learn about the role of and challenges faced by these community organizations. In conjunction with the research placements, students in the program also attend weekly seminars aimed at developing practical skills for working in a community setting and conducting research. Topics for the seminars include: the role and history of community based research in Detroit, intergroup relations and social identity, qualitative research, professional writing, survey development, organizing for social change, careers in non-profits, and social entrepreneurship. The ability to live and work in the City of Detroit with other program participants, while learning about community-based research and non-profit organizations from community leaders provides students with a highly active and unique learning experience. This in combination with the benefits gained by community partners in an urban center like Detroit makes for a powerful campus-community partnership. The proposed interactive presentation will share the Detroit CBRP model and best practices with those in attendance to promote program replication at other universities.

Museum Practice as Undergraduate Research – Meeting Room 6

Session Type: Panel Session
Presenters: Sara Orel, Truman State University
Amanda Langendoerfer, Truman State University
Michelle Bushey, Trinity University
Marguerite Helmers, University of Wisconsin - Oshkosh
Anna Selle, Truman State University

This panel will present several models that illustrate how students and scholars have collaborated in a variety of museum and museum-like settings to create content, analyze objects and texts, and propagate existing knowledge through innovative digital and other means. The term “museum” will be applied broadly to include the traditionally-understood storehouse or treasure house of cultural artefacts, developing from renaissance and earlier precedents, cultural settings that can be considered loosely as “open air museums” such as a campus quadrangle or a town’s historical center, and other venues such as websites, walking tours, etc., promoting tourism or university recruiting.

Examples of Museum Practice will include: (1) Michelle Bushey (Chemistry, Trinity University) will discuss her work with undergraduate students using portable equipment including X-ray spectrometer to examine a marble head of Antinous as Dionysus at the San Antonio Museum of Art and pigments used in the wall fresco at the Alamo. (2) Amanda Langendoerfer (Special Collections, Truman State University) will present on incorporating university museum collections into the curriculum, with a focus on the potential for undergraduate research. (3) Marguerite Helmers (English, UW-Oshkosh) will discuss a research/service study tour to Galway [Ireland] in which students will study the Irish Famine and then engage in 15-20 hours of community service at one of the Irish Workhouse historical and heritage centers near Galway, with the goal to engage students in visualizing the environment of the nineteenth-century famine in Ireland and then represent that environment through publicly-accessible digital products. (4) Anna Selle (undergraduate Communication/Art History major, Truman State University) will present an example of community-engaged research: a blended walking/digital tour of buildings around Truman State University’s Quadrangle. Time will be set aside for discussion of potential museum-based projects at participants’ home institutions. Materials related to the presentation will be available online prior to the conference.
A Curricular Scaffold to Support Research-Ready Students – Meeting Room 4

Session Type: Flipped Session
Presenter: Chris Schaller, College of Saint Benedict/St. John’s University

The College of Saint Benedict/Saint John’s University has implemented a new undergraduate curriculum in chemistry designed in part to better prepare students for research. The chemistry major includes a foundational laboratory sequence designed to train students in skills they are likely to need for success in the research laboratory. In addition, an integrated approach mixing aspects of different sub-disciplines of chemistry is meant to prepare students for the increasingly interdisciplinary nature of research. In the classrooms, a prominent role has been made for problem solving using application problems from modern research topics from current journals. In addition, the curriculum has reduced the number of required upper-division laboratory hours to provide space in student schedules for academic year research projects. Preliminary assessment data will be discussed. This approach further orients students to the types of thought processes that will prepare them to engage in research. Background information on the curricular design and sample case studies will be provided in advance. During the presentation, attendees will discuss applicability to their curriculum, implications for breadth of training and possible assessment approaches.

Scaffolding, Flipping, and IBL: It’s Not Your Dad’s Humanities Curriculum – Meeting Room 3

Session Type: Interactive Session
Presenter: Jenny Olin Shanahan, Bridgewater State University

UR opportunities in the humanities are often limited and highly selective, missing the very students who could benefit most from them. Integrating research in humanities curricula, though, effectively provides all of our students with more equitable access to the benefits of UR and ensures that our work with student-researchers counts in our teaching load. But how do we enhance research assignments in courses that include majors as well as students fulfilling a gen-ed requirement? When students’ abilities to read closely and critically, conduct research, and write clearly vary dramatically within the same class? When heavy teaching loads and large classes make mentoring all those student projects unworkable?

This session lays out ways of reorganizing humanities courses and programs to make incorporating scholarly projects in the curriculum more feasible. Scaffolding curricula builds students’ competencies intentionally and creates coherent programs of study (with some needed flexibility, e.g., for nontraditional and transfer students). “Flipped classrooms” address gaps in students’ levels of preparation, engage a broader diversity of learners, and create space for collaboration and active learning during class time. Such engagement in class is a hallmark of IBL: Inquiry-Based Learning, which uses authentic questions and disciplinary methods to push students to think more deeply, arrive at new understanding, and even translate their knowledge from one context to another. Participants are invited to have in mind a course for which they’d like to create more inquiry-based work. We will brainstorm and share ideas for scaffolding and/or flipping the assignments in order to produce “higher impacts” for our students.

Facilitating In-class Research Via Remotely Operable Microbeam Instruments in the Earth and Life Sciences. – Meeting Room 19

Session Type: Workshop Session
Duration: 1:30 p.m. – 4:15 p.m.
Presenter: Jeffrey Ryan, University of South Florida

Educational use of research instrumentation, a longstanding strategy for bringing research and/or research training into undergraduate science courses, has historically been used sparingly due to limitations on student instrument access. A successful pilot project at the University of South Florida took advantage of remotely operable microbeam instruments (SEM and Electron Microprobe at the Florida Center for Analytical Electron Microscopy in Miami, FL) to build sustainable in-class research activities into two earth/planetary science courses. This workshop, supported by an NSF TUES Expansion grant, seeks to engage participants in the hands-on remote usage of an electron microprobe or scanning electron microscope, both as an in-course instructional tool, and as an easy-to-use analytical resource for facilitating student research. Aside from the opportunity for live instrument usage, the workshop will also provide an overview of microprobe/SEM classroom activities being implemented at our four participating institutions, and foster a brainstorming session among attendees as to other possible in-class applications in support of undergraduate research. Workshop attendees will each have the opportunity to schedule follow-on time on the FCAEM SEM or microprobe instrument to develop in-class activities appropriate to their courses.
National Geographic Young Explorer Grants: Supporting the Next Generation of Field-based Researchers, Explorers, and Conservationists
Ages 18 through 25 – Meeting Room 16

Session Type: CUR-Sponsored Session
Presenters: Rebecca Martin and Chris Thornton, National Geographic Society

National Geographic’s grant-making legacy spans nearly 125 years. With more than 11,000 grants awarded, and it has launched many notable careers. In 2007 National Geographic launched its Young Explorers Grant Program to provide individuals ages 18 through 25 some of their first opportunities to carry out field-based scientific research, exploration and conservation. These individuals might not yet have the credentials to qualify for other grants from National Geographic, but a well-defined and unique project, combined with applicant achievements, has yielded outstanding results.

To date, National Geographic has awarded 335 Young Explorers Grants at a total of $1.5 million for fieldwork in nearly 80 countries. While approximately 75 percent of Young Explorer Grant recipients are from the US, the program is international in scope: it has supported individuals in Africa, Asia and the Pacific, Australia, Europe, and South America. The program is further internationalizing its outreach with support from The Luce Foundation, which is encouraging fieldwork in Southeast and East Asian countries, as well as through special funds established in Northern Europe and in China. Additional support comes from the Billingsleys and The Brinson Foundation.

Young Explorer Grants are capped at $5,000, are reviewed on a rolling basis, and support the following disciplines, exploration-based activities, and related documentation: Anthropology, Archaeology, Astronomy, Biology, Climatology, Conservation, Geography, Geology, Mountaineering, Paleontology, Polar Exploration, Oceanography, Adventure, Photography, Filmmaking and Journalism.

The Young Explorers Program also affords recipients the opportunity to collaborate with National Geographic media who cover their work. In the process, grant recipients are mentored by National Geographic staff on effective communication skills. Grants can lead to work with National Geographic and to securing outstanding jobs elsewhere, as well as admittance to graduate programs.

Break
2:45 p.m. – Foyer of Grand Ballroom North/Central

Concurrent Session 7
3:00 PM – 4:15 PM

Undergraduate Research for Transformation: Assessing the Impact

Session Type: Interactive Session
Presenters: Tirza Leader, Georgia Gwinnett College
Clay D. Runck, Georgia Gwinnett College
Greta Giles, Georgia Gwinnett College
Thomas Mundie, Georgia Gwinnett College
David Pursell, Georgia Gwinnett College
Allison D’Costa, Georgia Gwinnett College
Judy Awong-Taylor, Georgia Gwinnett College

As educators and researchers we know that assessment is a crucial piece of any experimental design, classroom experience, or innovation. However, creating an assessment that successfully and effectively evaluates complex programs that utilize multiple and innovative research designs, as well as the individual classroom experience requires an interdisciplinary skill set and tools. The Georgia Gwinnett College’s STEM initiative includes a 4-year Undergraduate Research Experience (URE) program that was designed to enhance student engagement and learning in STEM disciplines and to support faculty innovation and leadership. Over the past two years over 40 SST faculty redesigned and implemented authentic research experiences for over 1500 students in 30 courses, 16 of which were at the freshmen and sophomore levels. As part of this initiative multiple assessments (e.g., student and faculty attitude surveys, course specific outcome measures) were designed, implemented, and analyzed. The preliminary assessments suggest that incorporating research into classroom experiences increases students’ interest in research, as well as increasing students’ interest in research and their confidence in their ability to engage in research in the future. The presentation will walk through the assessment process created for 4-year URE program at GGC. Strengths and weaknesses of different forms of assessment will be discussed, and examples of successful and less than successful assessments will be provided, explained, and improved during the course of the presentation. Participants of this presentation will learn to integrate different forms of assessment to track student learning, and how to use assessment data to improve and enhance the teaching and learning environment.

Monday, June 30, 2014—3:00 p.m.–4:15 p.m.
The mission of the Office of Undergraduate Research at Drexel University is “to foster student engagement and experiential learning and enrich the educational experience of undergraduate students.” In line with our University’s mission to become “One University,” it is only by leveraging strategic partnerships within our own institution that we, as a two-person office, can meaningfully support faculty-student collaborations in research, scholarship, and creative work and create sustainable undergraduate research opportunities for students. By partnering with faculty in Drexel’s Westphal College of Media Arts & Design, we have been able to cultivate and sustain interdisciplinary research opportunities in such fields as smart textiles and virtual cultural history, leveraging existing faculty partnerships with commercial sponsors and, historical parks and sites. Through our work with faculty in the College of Engineering and the School of Biomedical Engineering, Science, and Health Systems, we are developing collaborations with international research institutes in Germany, Finland, and Brazil, as well as local businesses and organizations such as the Children’s Hospital of Philadelphia. Through our partnerships with faculty in the College of Arts & Sciences and administrators in the Louis Stokes Alliance for Minority Participation, we are able to expand opportunities for underrepresented students and assess the impact of our programs, and through a new collaboration with Drexel’s School of Public Health, we are able to involve undergraduate students in health disparities research, previously available only to graduate students. We propose an interactive panel to discuss more thoroughly the work involved in creating and sustaining these partnerships. We will then provide time for panel attendees to break into small group discussion to identify potential partners within their own institutions to implement more substantive and sustainable undergraduate research opportunities.

The Community College Undergraduate Research Initiative (CCURI) is a NSF TUES Type-III grant focused on the development and implementation of undergraduate research (UR) at community colleges across the United States. The CCURI network consists of 31 partner colleges in 20 states that are in the process of incorporating the CCURI model of UR into STEM courses. The model uses case studies to “hook” students on UR projects during their freshman year. Students are then given opportunities to explore the projects further during subsequent semesters. By engaging students in UR from the moment they enter the classroom the CCURI model promotes deep learning and motivates students to continue their education and career in STEM fields. In the 2012-2013 academic year, CCURI partners provided UR experiences to 2,498 students, 25% of which represented minority groups. As faculty begin the implementation of UR at Community Colleges, they face unique barriers that must be overcome in order to provide productive and successful UR experiences. In 2013, CCURI conducted an analysis of the most prevalent barriers faced by faculty in the CCURI network. During this panel, the CCURI Project Director and two CCURI partner faculty will present this analysis and lead discussion on solutions and best practices when implementing UR at community colleges.

While undergraduate research has been visible in the natural and social sciences at Keene State for years, a culture of undergraduate research has recently flourished within the arts and humanities. Faculty and students have long engaged in forms of undergraduate research and creative endeavors, however, until recently there has been little effort to make these activities central to our self-understanding as a school. This panel will document the first steps in the direction of building a program of undergraduate research through curricular developments in the arts, the expansion of opportunities for students to share their work with a broader, public, audience, and new faculty development opportunities. In the arts, the term “research” casts a wide net. Many of these endeavors are already happening within the curriculum, but the challenge lies in increasing our students’ visibility, expanding their opportunities, and securing funds to further support this work. Music professor Heather Gilligan will elaborate on ways that Keene State has already recognized the arts as research and will address the challenges associated with developing undergraduate research in the arts. The College presents the best of our students’ work at an annual Academic Excellence Conference. The conference is being re-envisioned to give students the opportunity to use their projects as a bridge between their undergraduate work and their professional lives after college. History professor Susan Wade will discuss the development of the new Academic Excellence Conference web-based program as a platform to showcase diverse undergraduate research and creative endeavors in the humanities. History professor Nick Germana will detail efforts to create a summer institute to help faculty develop new assignments and courses and to re-design curricula that are scaffolded around undergraduate research and creative endeavors. Dean Andrew Harris will provide an overview of administrative support for undergraduate research in the arts and humanities.
In an era of declining resources, it becomes critical to accomplish more with less. This session examines the creation of strategic partnerships between academic and student affairs as a means to leverage resources and create a variety of new experiences to enhance undergraduate research. The facilitators will discuss how they have cultivated partnerships at their institutions and lessons learned in the process. Key campus partners include Admissions, Residence Life, the First-Year Seminar, TRIO programs, and Study Abroad. In small groups, participants will identify potential units to partner with on their respective campuses and discuss strategies to initiate and sustain these collaborations. Results will be discussed in the larger group focusing on how partnerships and experiences can translate to institutions of various size and cultures. The goal is to help participants better utilize existing campus resources in ways that enhance student research experiences, augment resources available for research, and increase campus awareness of undergraduate research.
Compensation, Rewards, and Recognition: Supporting Faculty Mentors – Meeting Room 9

Session Type: Interactive Session
Todd Sandrin, Arizona State University West
John F. Barthell, University of Central Oklahoma
Christopher Kim, Chapman University
Sumana Datta, Texas A & M University

While we believe that undergraduate research stands at the juncture of faculty responsibilities for research, teaching and service, our studies of faculty who do not become engaged in undergraduate research indicate that they feel pressured to focus on their own more visible and highly rewarded research and teaching productivity for promotion, tenure and career advancement. As administrators we also worry about “burn-out” when faculty continually engage in mentoring undergraduate researchers but perceive little or no reward or recompense for their efforts. Yet very few of us have budgets plentiful enough to offer substantial monetary rewards or course releases for faculty mentors. In this interactive session, we will share how programs from a variety of types of institutions (R1, comprehensive, small liberal arts, public/private) across the country have chosen to reward and recognize dedication and excellence in faculty members who mentor undergraduates. The most common types of faculty mentor rewards are 1) small awards to one or a few faculty mentors each year, and 2) public recognition of their efforts through website stories, undergraduate research symposium and undergraduate recognition ceremony presentations or announcements and letters to chairs, deans and provosts. A few programs provide more creative inducements for faculty members to become or stay involved in undergraduate research, including a pilot program to award partial teaching credit, and these ideas may be transferable or adaptable to other programs. We will also provide administrators’ points of view as to what types of resources might best be argued for by program directors, how to approach accountability and credit for promotion and tenure packages and brainstorm additional low cost but high impact means of honoring and appreciating faculty commitment to undergraduate research.

Preparing the Mentors - “How to Get Started” Workshops at Professional Society Meetings – Meeting Room 14

Session Type: Interactive Session
Presenters: Lydia K. Fox, University of the Pacific
Laura A. Guertin, Penn State- Brandywine
Patricia Lee Manley, Middlebury College

The Geosciences Division CUR has a long history of supporting faculty who engage in undergraduate research. The division has held faculty development workshops at national meetings of the GSA, AGU, and AAG for over 15 years. These workshops, designed for new and future faculty, cover all aspects of the enterprise of engaging in undergraduate research, from getting a job (particularly at a primarily undergraduate institution), incorporating research into classes, mentoring independent research projects and identifying sources of internal and external funding. Workshop presenters have included GeoCUR Councilors (current and former) as well as NSF-DUE and Petroleum Research Fund (PRF) program officers. Based on participant surveys, the content of the workshops has evolved over time. Workshop content is also tailored to the particular audience; for example, AGU workshops enroll more graduate students and post-docs and thus the focus is on the ‘job search’ and getting started in undergraduate research. Originally, these workshops were funded through GeoCUR divisional funds and registration income. When the administrative costs to run the workshops increased, we successfully sought funding from the NSF Course, Curriculum, and Laboratory Improvement (CCLI) program. This presentation will highlight the impact of workshops on initiating and sustaining undergraduate research programs as well as strategies for funding professional development. Participants will brainstorm ways that they provide professional development for new and future faculty in other disciplines and other venues.

Undergraduate Research for the Public Good

One Size Does NOT Fit All: Integrative Undergraduate Research and the Public Good – Meeting Room 10

Session Type: Flipped Session
Presenters: Lesley M. Smith, George Mason University
Julie E. Owen, George Mason University
Pamela W. Garner, George Mason University
Duhita Mahatmya, George Mason University

Monitoring beehives in the Peruvian Amazon? Finding yourself as co-author on an academic publication on social-emotional development in young children to help parents and teachers? Learning how to apply participatory video research methods to give voice back to the marginalized? Students in New Century College, the undergraduate integrative studies college at George Mason University, have achieved all these, and more, as researchers. New Century College’s scholars and students are dedicated to integrative learning as a pursuit of knowledge, and knowledgeable praxis, which transcends the boundaries of campus and self. Traditional models of academic research appeal only to a minority of NCC students, and faculty in this small college cannot replicate traditional research program structures. New Century College faculty and students have thus created a mix of undergraduate research paths that marry public need, faculty passions and student aspirations, yet retain coherence through common practices of integrative learning. The proposal for this flipped presentation falls into three parts: 1) Prior to the conference, potential participants in the session will view a polyvocal mini-documentary where NCC students and faculty capture the diversity of undergraduate research undertaken and articulate the transformative impact on active citizenship of entwining common integrative studies practices and undergraduate research. 2) Presenters will workshop with participants: a. ways to interrogate individual professional needs, pedagogical preferences and the individuality of student aspirations to create a diverse menu of undergraduate research opportunities b. ways to build coherence, meta-cognitive competence and civic engagement for undergraduate researchers through the practices of intentional integrative learning. 3) Presenters will conclude with the impact of integrative undergraduate research on curricular renewal: the community-based, research-based, required senior capstone experience, scheduled for roll-out in 2015.
A Seven-Institution Collaboration to Develop Novel Course-Based Research Experiences for Undergraduates – Meeting Room 5

Session Type: Panel Session

Presenters: Catherine Mader, Hope College
Daniel Brabander, Wellesley College

Almost all campuses are located in or near communities with local environmental issues and many 21st century environmental problems transcend the local community and have global impact. Undergraduate research can often contribute to the solution of both types of environmental challenges, and can be particularly engaging to students who get special satisfaction at seeing their research used to help improve the world in which they live. Our interactive panel will begin with presentations by three panelists with applied research programs that inform policy making, including eutrophication of a lake in Holland, Michigan, the consequences of dam removal and legacy contaminants in an urban watershed in greater Boston, and sustainable cooking fuels and indoor air quality in the developing world. We will then give members of the audience an opportunity to describe their undergraduate research programs centered on environmental problems. We will close with a brainstorming session in which we examine some of the challenges and benefits associated with research that links the academy with environmental problem solving.

Tools for Launching Undergraduate Students Into Research: A Partnership at Three Universities – Meeting Room 4

Session Type: Interactive Session

Presenters: Shelley Pressley, Washington State University
Susan Burkett, University of Alabama
Kimberly R. Schneider, University of Central Florida
David Bahr, Purdue University Main Campus
John Lusth, The University of Alabama
Neyda Vanbenekeom, University of Central Florida

Three different models devoted to preparing STEM students early in their academic careers for successful research endeavors are currently being offered at three institutions. The variations include: a semester long seminar, a one week faculty led “boot camp”, and a ½ day peer mentor led short course. One goal of this project is to involve students early in their academic career (freshman/sophomore levels) so they can effectively build upon this experience with sufficient time to gain the most out of subsequent research experiences. Working together to develop the appropriate course modules for dissemination to interested institutions, the team is preparing a set of best practices and evaluating the pros and cons associated with each format. A pre- and post-test, in the style of a concept inventory, has been developed to help with evaluation of the project. Initial results show similar gains in conceptual awareness between each format and at each institution. This suggests that the educational models may be transferrable and easily adopted by other institutions. Focus group discussions indicate that students are pleased with the programs and consider them useful, especially for students preparing to conduct research. To date, the team has impacted over 500 students and a web site has been developed to disseminate information. This interactive presentation will involve a brainstorming session for participants to develop a list of topics that should be covered during a research preparatory course (e.g., resume building, finding a faculty mentor, etc.). The idea of a concept inventory will be presented and participants will be put into groups in order to develop “test bank” questions and then groups will share their ideas.

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

Session Type: Panel Session

Presenters: Edward Hansen, Hope College
Veronique A. Delesalle, Gettysburg College
Sandra White, North Carolina Central University
Bettye Sue Hennington, Tougaloo College
Gerald Griffin, Tuskegee University
Nancy Staub, Gonzaga University
John Lusth, The University of Alabama
Daniel Brabander, Wellesley College

This panel focuses on the development and implementation of new Course-based Research Experiences (CREs) for undergraduates. Panelists, STEM faculty from seven diverse institutions, will share details about CRE course models developed for introductory biology, engineering, chemistry, mathematics and environmental science courses. They will also share their insights on the professional development programs created by the collaboration and the challenges faced through the implementation process. The benefit of working as a multi-institution and multi-discipline collaboration throughout this process will also be addressed. This CRE development project is a collaboration of STEM faculty from Gettysburg College, Gonzaga University, Hope College, North Carolina Central University, Smith College, Tougaloo College, Tuskegee University. In the first year of the collaboration, the leadership team held a workshop for faculty interested in developing new CRE model courses. At the workshop, faculty shared ideas for course topics as well as specific activities they would use in these courses. Institutional plans for assessment of the courses were developed. Since that workshop, over a dozen new courses have been developed and taught. The panel will consist of workshop participants and course developers. The collaboration is also working together to assess the impact of not only the CREs on the students, but of the professional development program on the faculty. Preliminary findings from the assessment program will also be shared. The goal of this panel is to demonstrate the successes, challenges, and advantages of teaching laboratory classes infused with CREs as well as the benefits of working in the multi-institutional collaboration.
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Poster Session II
4:30 p.m. – Foyer of Grand Ballroom North/Central

Plenary II
6:00 p.m. – Grand Ballroom North/Central

Plenary: “Catalyzing Translational Innovation”, Christopher Austin, Director, National Center for Advancing Translational Science, National Institutes of Health

Banquet Dinner & CUR-Goldwater Scholars Faculty Mentor Award Recognition
7:00 p.m. – Grand Ballroom North/Central

Tuesday, July 1, 2014

Breakfast
7:30 a.m. – Foyer of Grand Ballroom North/Central

NSF Meet and Greet Breakfast
During this breakfast session, program officers from NSF will be on hand to meet and greet during small roundtable discussions.

Concurrent Session 8
8:30 AM – 9:15 AM

Undergraduate Research for Transformation: Assessing the Impact

Perceptions of Library Value From Undergraduate Research Coordinators – Meeting Room 8
Session Type: Interactive Session
Presenters: Stephanie R. Davis-Kahl, Illinois Wesleyan University
Merinda Kaye Hensley, University of Illinois at Urbana-Champaign

Libraries have recognized that Offices for Undergraduate Research and coordinators for such efforts are appearing on campuses nationwide. While librarians are working on several fronts to improve library services to meet the specific needs of students participating in formal undergraduate research programs, there has been no systematic study of the types of support provided and how that support is perceived by those administering such programs. In 2012, we conducted a targeted survey \( n=775, 37\% \) response rate to establish a benchmark of current library practices in relation to formal undergraduate research programs [article forthcoming in College and Research Libraries, 2014, preprint available at http://crl.acrl.org/content/early/2013/02/06/crl13-458.full.pdf]. In 2013, we administered a follow up survey of the administrators of undergraduate research programs \( n=764, 40\% \) response rate in order to gauge how they perceived and valued library support for such programs. Our presentation will discuss the major findings from this study, discuss case studies and examples of model partnerships and speculate – with the audience—on how libraries might better support the faculty, students and staff involved in undergraduate research programs. We will work with the audience to brainstorm ideas for closer collaboration and alignment between undergraduate research programs and libraries.
Using COEUR to Advance the Institutional Culture of Undergraduate Research – Meeting Room 16

Session Type: Flipped Session
Presenters: Roger S. Rowlett, Colgate University
           Susan J. Larson, Concordia College - Moorhead
           Linda Blockus, University of Missouri

In 2012, CUR released “Characteristics of Excellence in Undergraduate Research” (COEUR) to qualitatively identify elements that contribute to highly successful undergraduate research programs. In this session, we invite individuals to share with others how they have used (or might envision using) COEUR to enhance the undergraduate research environment on their campus or school. This session will be moderated by the authors of COEUR.

Mentoring STEM Multi-cultural Students: Lessons & Stories from the Pacific – Meeting Room 10

Session Type: Interactive Session
Presenters: Moana Ching, University of Hawaii at Hilo-Research Experience
           Lisa Canale, University of Hawaii at Hilo

Effective mentorship is a proven strategy for successful graduation and continued advancement of undergraduate students, specifically underrepresented minority students in STEM disciplines. Increased participation of an ethnically diverse undergraduate student population in STEM fields has required research and faculty mentors to seek out additional training and expertise in identifying, understanding, and supporting multi-cultural students in all research experiences. The Pacific Internship Programs for Exploring Science (PIPES) based at the University of Hawaii at Hilo has coordinated over 300 undergraduate-level experiential learning opportunities through its summer internship programs and has provided mentor training for all host agency partners and faculty members since the program’s inception in 1994. Through their interaction with undergraduate students representing numerous ethnic and cultural populations in the dynamic and diverse Pacific region over the last 20 years, the PIPES staff has developed a comprehensive mentor training to equip faculty and research partners with strategies which address the challenges of mentoring multi-cultural students. The cultural and social subtleties of Pacific Island groups are very unique and as a result a full understanding of how and when those dynamics interface within experiential learning opportunities inside academic settings, and the implications of those interactions, greatly influence the outcomes of an undergraduate research experience. In this presentation, the PIPES program and University of Hawaii mentors will highlight specific components of the overall internship program which demonstrate learned successes of mentorship of the growing multi-cultural demographic and will provide the opportunity to engage with the larger audience to draw experiences from other coordinators and researchers.

Funding for Undergraduate Research: Finding and Leveraging Resources

Expanding Opportunities for Undergraduate Research Through Federal Work Study – Meeting Room 11

Session Type: Interactive Session
Presenters: Denise W. Nazaire, George Mason University
           Bethany M. Usher, George Mason University

The Students as Scholars initiative at George Mason University is designed to be inclusive, encourage students from all disciplines and all academic levels to participate. Based on our assessment, we identified two campus groups that were not participating in our programs: 1) economically disadvantaged students, and 2) faculty who do not normally see undergraduate students as being significant contributors to research. To address both of these issues, we collaborated with the Office of Financial Aid in Spring 2013, to pilot a program using Federal Work Study funds to support undergraduate research assistant positions. This program expanded opportunities for students to be introduced to the concept of scholarship and to learn the research or scholarly methods in their field. Faculty was given “free” research assistance, with the understanding that they would involve students in research discussions and regularly evaluate them. In the 2013-2014 academic year we expanded this program to support 30 positions. This presentation will highlight the diversity of disciplines and students, demonstrate how to overcome some of the challenges that are inherent to working on a project such as this, and show the student outcomes from both student and faculty perspectives.
As the world has become more accessible through the internet, we and our students have found opportunities to utilize and develop resources that provide information and research options in ways that have not been previously available. This changing way of accessing information has led to the development of the category of inquiry and dissemination that has come to be called “Digital Humanities.” The digitizing of non-digital materials, utilization of data sets through computer analysis, and curation of both digitized content and that which is “born-digital” are all a part of this emerging field. This session will feature discussion of the way that a selection of current projects reflect the generation of new knowledge and increasing the accessibility of material to undergraduates and other researchers, both within U.S. institutions and throughout the world. Presentations include: John Pennington: a theoretical discussion of how digital humanities projects promote collaborative scholarship in the humanities, using his work with students on creating an Omeka archive for the journal North Wind: A Journal of George MacDonald Studies and the George MacDonald Society's newsletter Orts as an example. Ahmed Mansour (via Skype): the Bibliotheca Alexandrina's Writing Studies and Scripts Center's progress in developing an accessible digital archive of ancient inscriptions (both hieroglyphic and Arabic) and a bilingual website where a student may work on learning hieroglyphs, Cyrus Mulready: the process of preparing a digital exhibition of materials from local history, which was done by students in an honors seminar.

Managing the Mentoring Workload: Evidence-Based Mentoring as a Tool for Improvement – Meeting Room 9

Session Type: Interactive Session
Presenters: Nicole Perry, University of Kansas
John Augusto, University of Kansas

While many mentors invest significant amounts of time and energy into their mentoring, few systematically document this practice. Evidence-based mentoring is a process wherein mentors explicitly identify learning and research outcomes for their students, aiding in communication and the ability of mentors to continually refine their practices to increase research productivity and student learning. Evidence-based mentoring highlights the role of the mentor, helps mentors be more strategic in their investment, and enables students to understand expectations and articulate their learning gains. This presentation will have two goals. First, we will outline the basics of evidence-based mentoring as prescribed by various national agencies and facilitate a discussion about how to best incorporate this practice into your mentoring routine. Second, we will offer some examples from our Center about how to incorporate evidence-based mentoring into campus programs. This approach has led not only to the increased visibility of this model of mentoring on our campus, but also has provided us with metrics by which to evaluate the success of our programs. Participants will work in groups to identify a program on their campus that could incorporate evidence-based mentoring and leave the session with a plan of action.

IT Support for Undergraduate Research Journals – Meeting Room 19

Session Type: Workshop Session
Duration: 8:30 a.m. – 10:45 a.m.
Presenters: Sumana Datta, Texas A & M University
Rob Walsh, Scholastica

Undergraduate research journals are a popular way to highlight student achievements, provide an outlet for student writing (particularly in the humanities where faculty rarely co-author publications and there are few professional journals that consider work by undergraduate students), educate students about the publication process and integrate research into the classroom experience. Where the number of potential student authors and artists outstrips the ability of the journal to publish them all, or the office wishes to maintain a certain level of quality control, it is essential to include some sort of review process prior to choosing articles or pieces for publication. Addition of extra layers of journal management can result in a headache as administrators and faculty attempt to keep track of submission, review, editing, re-submission and acceptance flows for multiple articles and artistic pieces. We have worked with the founders of Scholastica, a simple, user-friendly web-based platform for open-access journals, over the last year to help them adapt their initial vision for the review and publication of undergraduate research journals to the review and publication of undergraduate research. Scholastica is now the home for almost 100 online journals ranging from law journals based at Harvard, Berkeley and Michigan to international journals focused on religion, leadership, humanities, environmental politics and ecology. This workshop will introduce you to Scholastica and how it manages submission, review and publication decisions so that you can decide if it will benefit your work flow. This will be a hands-on workshop, so we encourage participants to bring a tablet or laptop.
Undergraduate Research for the Public Good

Snap! Putting Photography to Work with Service Learning – Meeting Room 15

Session Type: Performance/Display Session
Presenter: Benita R. VanWinkle, High Point University

How can you use art and photography in service learning? Sending students out to do photographic work with community partners is an interesting way to make sure that everyone involved learns something new about where they are living. Photography has the ability to touch every aspect of daily living by recording physical locations, people and concepts of what it means to be a part of a community. Sharing these images with the neighborhood and the world at large is another aspect of this type of learning and research that is incredibly challenging and rewarding. In High Point, NC, the furniture capital of the world, students learned about the furniture industry from the inside out, visiting furniture factories, individual furniture makers, industrial work sites, and the international furniture market. Their documentary work and research culminated in an exhibition of photographs shared with their community partners, the local historical museum, and the Furniture Hall of Fame located in High Point. This work also will serve as a photographic archive to be used for future research of the furniture industry complete with museum archiving files to be digitally transferred to the web for anyone to use. How can this model be used for other projects? Benita VanWinkle, a photography teacher for over 30 years, will present ideas and problem solving techniques to be used when working with visual art that will ultimately benefit students, community members, museums, and other research and archiving institutions.

Scaffolding Experiences that Prepare Students for a Required Senior Research Project: Case Studies in the Humanities, Social Sciences, and Natural Sciences. – Meeting Room 17

Session Type: Interactive Session
Presenters: Lee Coates, Allegheny College
Aimee C. Knupsky, Allegheny College
M. Soledad Caballero, Allegheny College

Since its founding in 1815, Allegheny College has had a senior capstone requirement for graduation. This senior experience has evolved into the senior project, an independent research project all students complete in their major field(s) of study. In the proposed interactive session we will first provide a brief overview of the logistics of the capstone, considering the challenges faced by students and faculty advisors, the unique campus culture created by this requirement, and what we consider its key benefits and educational outcomes. We will also describe the ongoing development of both institution-wide and departmental assessment measures for the capstone. Our observations were informed by our participation as one of four institutions in the Teagle-funded project The Senior Capstone: Transformative Experiences in the Liberal Arts. Completed in 2012, this analysis gives us a unique perspective from which to summarize the capstone’s value and the structures necessary to create a successful experience for students and faculty.

Next, we will describe campus-wide structures and programs that provide scaffolding for our capstone, including a first-year and sophomore course sequence emphasizing speaking and writing and a junior seminar that many departments use as a senior project preparatory course. Finally, we will share three case studies of how departments or faculty from different disciplines structure scaffolding that prepare students to succeed in the capstone senior project. Lee Coates will provide a summary of the Biology department’s sophomore-level investigative laboratory course and junior seminar courses that focus on developing laboratory and research skills along with discipline-specific communication skills. Aimee Knupsky will describe how she uses a bi-weekly research meeting and peer-to-peer mentoring to prepare students for their capstone experience in Psychology. Lastly, by highlighting a recent departmental self-study, Soledad Caballero, will describe her efforts at integrating research opportunities in mid-level English courses.

First Steps: Helping Freshmen Begin to Develop Undergraduate Research Skills – Meeting Room 4

Session Type: Interactive Session
Presenter: Gail L. Summer, Ferrum College

Undergraduates cannot be skilled researchers, even in the senior year, without developmental steps along the way. This is particularly important to understand when working with unprepared and underrepresented populations. Participants in this session will experience what one four-year campus has created in The Freshman Conference, which involves ALL freshmen on a small, private liberal arts campus. Freshmen engage in a curriculum-based project in their freshman seminar class which culminates in a poster session at the end of the semester. Often, the work represented has also included community-based projects/research. While the session will begin with an explanation of what has been accomplished and sharing how the same might be accomplished on another campus, participants will also discuss what the developmental stages of undergraduate research might include so that participants might return to their own campus with a developmental framework to implement in unique ways given each campus’ needs and student body. To assure implementation, once some ideas about developmental stages are suggested, participants will also be invited to brainstorm how to create opportunities for freshmen to exercise beginning skill so that they begin to view themselves as future “researchers.” The ability to begin to imagine oneself in the undergraduate research role is especially crucial for those who arrive to college not fully prepared—without a change in their image for themselves, students would be less likely to seek out undergraduate research experiences. The approach shared has potential to open the undergraduate research doors for all—not just those who arrive already desiring to engage in undergraduate research.
**Flipped Research Courses: Expanding Undergraduate Research Opportunities in UMBC's College of Natural and Mathematical Sciences**  
*Meeting Room 5*

**Session Type: Interactive Session**  
Presenter: William R. LaCourse, University of Maryland Baltimore County

The Dean of the College of Natural and Mathematical Sciences will share the pilot experience of a three-credit, client-based, “flipped” team-based undergraduate research course in analytical chemistry that he has guided as the instructor. He will invite attendees to share their insights and suggestions on this pilot course and other ways to expand high quality undergraduate research opportunities where students can build their resumes and corporate/industrial relationships as they apply the knowledge base garnered in the classroom. The “flipped” research experience is intended to be taught to a group of up to 12 students as a hybrid course that meets once weekly for a three-hour guided session with the instructor and then requires participants to work a minimum of 42 hours in teams on projects provided by clients from outside of the university. Clients, who have been secured via contracts in the prior semester, provide funding to support the research investigation that would be equivalent to supporting one intern ($5,000 to $10,000). This model of expanded research allows the university to build relationships with corporations, industrial, and agencies. It also allows course professors to guide the students in the project and ensure the quality of the experience for both the students and the clients. As an upper-level course, the flipped experience can be offered to both undergraduates and graduate students to increase external research opportunities for a broader group of students. Based on the requirements of the research investigations, content experts will be invited to visit the weekly course sessions as specialists to provide support to the student researchers. The course will feature a series of milestones and will culminate with oral presentations and written reports to the clients. Course assessments given to the students and clients during the last course session will help guide future flipped research course offerings.

**Break**

9:15 a.m. – Foyer of Grand Ballroom North/Central

**Concurrent Session 9**

9:30 AM – 10:45 AM

**Undergraduate Research for Transformation: Assessing the Impact**

*Meeting Room 8*

**Session Type: Workshop Session**

Presenters: Jill Singer, State University of New York- Buffalo State  
Elizabeth L. Ambos, Council on Undergraduate Research

SUNY-Buffalo State and the Council on Undergraduate Research are leading a community-building project to refine and disseminate a successful model for evaluating undergraduate research. The model is based on improving student outcomes by incorporating evaluation into the undergraduate research process. The evaluation is structured so perceptions are explored in a systematic manner. Both the student and faculty mentor use a detailed rubric to rate 11 outcome categories and then meet to discuss their survey scores. This session will provide a project update and seek input about what resources institutions might require to implement the undergraduate research evaluation model on their campus.

**Undergraduate Research for All! Ensuring Access to High Quality Opportunities**

*Meeting Room 7*

**Session Type: Flipped Session**

Presenter: Peter Civetta, Northwestern University

The phrase “undergraduate research” is often a confusing and intimidating one for students. Largely, they don’t know how research is conducted in various fields and don’t know how to get started. Developing accessible materials designed to provide foundational information for students is crucial if we are to get more students involved, particularly those from non-lab based fields (humanities and creative arts) and those new to the college experience. This session will focus on new resources recently developed at Northwestern that are publicly available. They are highlighted by a 7-episode comic web series called “The Adventures of Grant Man,” designed to show students how to get started developing their ideas into projects heading all the way to proposal writing. It also includes a series of videos with faculty exploring about how research is conducted in various disciplines and how students can get started. These “Research In...” videos allow students to search and assess what might be the best methodological approach for them to take. By viewing the resources before the conference (as a flipped session), we will be able to devote the session time to discussions around this project, programs/ideas from other schools, and ways that we can share resources to promote undergraduate research.
Student-Driven Initiatives in Undergraduate Research – Meeting Room 10

Session Type: Interactive Session
Presenters: Nichole J. Fazio-Veigel, University of Tennessee at Knoxville
Melissa A. Lee, University of Tennessee at Knoxville
Mark Remec Pavlin, University of Tennessee at Knoxville

Student-driven initiatives have been central to the establishment of a culture of undergraduate research at the University of Tennessee (UT). This session aims to encourage dialogue about the impact undergraduates have on promoting and encouraging a thriving culture of undergraduate research. It takes as exemplary three student initiatives at UT including the student-led and produced undergraduate research journal, Pursuit, UT’s annual Undergraduate Research Symposium, and the Undergraduate Research Students’ Association. All three efforts have been successful in fostering an ‘undergraduate research movement’ at UT and have created a significant foundation from which the university will establish a more comprehensive undergraduate research program with an aim toward creating new opportunities, integrating into the curriculum, providing sustained support, and allowing students to lead and promote the value of undergraduate research at the UT.

This interactive discussion focuses on three primary areas relevant to CUR member institutions: (1) the value of undergraduate initiative and innovation for the purpose of building a community of peer support, (2) the role of student engagement in developing and supporting formal undergraduate research programs, and (3) the capacity for student initiatives to maximize the potential impact of undergraduate research on institutional goals. The session, co-facilitated by two leading undergraduate researchers at UT, will be an occasion to discuss opportunities, challenges, unique perspectives, and new ideas. They will share ideas for harnessing the capacity of students who are committed to the value of undergraduate research, in an effort to support each other and celebrate the achievements of undergraduate researchers and mentors.

Community College Research Programs: Bridging the Present and Future while Discovering the World of Research! – Meeting Room 2

Session Type: Workshop Session
Presenter: Catalina Ormsby, University of Michigan - Ann Arbor

The purpose of this session is to share successful strategies from two initiatives to engage community college students in research at the University of Michigan. The programs are tailored for recruiting and retaining a diverse student population, including women and historically underrepresented students as well as first generation college students and students from socioeconomically disadvantaged backgrounds. This workshop will provide information about best practices used through the creation of programs for both current community college students (UROP Community College Summer Research Fellowship Program) and matriculated community college transfer students during their first term at the UM (Changing Gears – academic year program). The presentation will include a discussion of program impacts as well as more qualitative data about the impact of the program (over 76% of our summer fellows transfer to UM and 92% graduate). The format of the presentation will be interactive with the presenter sharing strategies and program components. Participants will be exposed to evidence based on current research and programming. The latter included hands-on research experience, mentoring by peer advisors and faculty sponsors, research seminars, and research skill building workshops connecting students to resources and building community. The presenter will also lead a discussion for strategies and initiatives that could be applied at the participants’ institutions.

Funding for Undergraduate Research: Finding and Leveraging Resources

Creative Funding Sources for Undergraduate Research: It’s Not Just About Grants – Meeting Room 11

Session Type: Panel Session
Presenters: Michael P. Castellani, Marshall University
David Brakke, James Madison University
Marilyn Hart, Minnesota State University, Mankato
Mark L. Biermann, Wartburg College
Robert F. Rycek, University of Nebraska at Kearney

This panel will explore funding sources to support undergraduate research both from the outside and from internally generated support beyond typical institutional funding. Student funded sources, working with your Foundation and Board of Trustees/Governors to raise funds from alumni and business for immediate use and for building endowments, the use of in-kind and indirect cost recovery, grants aligning with campus strategic initiatives, and leveraging building projects to support undergraduate research will be discussed. The importance of faculty recognition, marketing, and discussing ideas with others across campus will also be presented. The panel hopes to facilitate a discussion with the audience about generating other non-traditional sources of funding.
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Undergraduate Research for the Future: Exploring New Directions

Anticipating the Perfect Storm: Undergraduate Research in an Age of Systemic Crisis – Meeting Room 17

Session Type: Interactive Session
Presenter: Glen David Kuecker, DePauw University

The 21st century will be defined by a perfect storm of global, large-scale, interconnected, and synchronous systemic crisis. Some argue we are entering an age of systemic collapse. This interactive presentation invites participants to explore what forms of knowledge—new and old—will be needed for humanity to weather the perfect storm. The presentation will define the contours of the systemic crises, especially the interconnections between climate change, energy transition, food and water insecurity, demographic change (growth, aging, and urbanization), pandemics, economic stress, and ecological degradation. The presentation will define epistemological challenges presented to educators by the perfect storm, with a focus on the instability within existing structures of knowledge. From this foundation, the presentation makes two core arguments for our consideration. First, it argues that the perfect storm will lead us away from the modern epistemological emphasis on problem solving and take us toward predicament thinking, the ways that we make decisions about solutions that do not offer good answers to the problems we face. Second, the presentation argues predicament thinking will rely heavily upon complexity and systems analysis, which need to become the core critical reasoning skills we need our students to master through undergraduate research. Participants are invited to creatively think about what forms of undergraduate research are best suited for education in an era of systemic collapse? Given the scarcity of social and financial capital, which of the crises merit research priority? Given the technical nature of the crises, what role do the humanities and social sciences play in the future of undergraduate research? How do we understand the relationship between citizenry and the perfect storm as we develop a 21st century undergraduate research pedagogy?

Crossroads Connect: Interdisciplinary Student Designed Interactive Digital Indiana History Textbook – Meeting Room 14

Session Type: Interactive Session
Presenters: Ronald V. Morris, Ball State University
Linda M. Hensell, Ball State University
Hayden Shaw, Ball State University
Adrianna A. Martin, Ball State University

The need for this project arose from the realization that current textbooks do not meet the modern learning needs of today's children. Youth desire technology. Following the trends in one-on-one educational practices institutions enhance technological interactions through personal devices. Our goal was to create a textbook in order to engage 4th graders as well as assist in their learning through tablet technology.

University students performed content research to gather a clear representation of Indiana's history from pre-history to present day. Research came from both primary and secondary sources in print and digital form. Researchers came from distinct areas of study, history, anthropology, English, and telecommunications, resulting in an interdisciplinary experience. In order to assess the accuracy and representation of research, we have met with community partners representing cultural institutions and elementary school teachers throughout the state for peer review. Information has been included from the areas of archeology, geography, economics, and civics. In order to express this gathered research we have incorporated images, videos, games, and other interactives to fully engage children into the learning experience. The significance of our work is exhibited in our textbook. Students, instructors, and partners alike discern untouched directions in Indiana history exhibited by deep explorations of controversial issues and substantive conversations about issues important to minorities and women. Assessment is enhanced through interpretation through Spanish, accommodations for the visually impaired, and audio features. Above all, this project has been significant because it is the first digital Indiana textbook to be written.

Undergraduate Research for Mentors: Support and Sustenance

Igniting a FYRE: Integrating Diversity, Ethics, and Research into First Year Experience Classes and Learning Communities – Meeting Room 13

Session Type: Flipped Session
Presenters: Anne Boettcher, University of South Alabama
Nicole T Carr, University of South Alabama

This Flipped Session will focus on development of First Year Experience classes and Learning Communities specifically focused on diversity, ethics, and research. Early introduction and exploration of diversity and ethics within the college curriculum have both been tied to improvements in student learning, intellectual engagement, moral reasoning, and critical thinking. Diversity, ethics, and research are taught in sequence because they provide scaffolding that supports students’ development of complex thinking. The first element of this approach, diversity, allows students to use a concept they are familiar with to begin to define and address differences and bias. Grappling with diversity and difference leads students to ask questions about the reasons and justification for disparities. Ethics offers strategies to address these issues. Decision making related to disparities requires students to gather information, digest the information and use it to develop an ethical solution, act on the solution, and then reflect on and evaluate the outcome. Both the first and last steps in this process require research. Research underpins this process, and indeed supports some of the same elements as diversity and ethics, including critical thinking and problem solving. Pre-conference, participants will be asked to view a short video describing our approach, and will ask to bring their syllabi or learning objectives to the session. Although our approach is focused on students in a biology learning community, we will share ideas for approaches across disciplines.
The Mentored Undergraduate Research Program and Faculty Development at Norwich University: A Symbiotic Transformation of Campus Culture – Meeting Room 9

Session Type: Interactive Session

Presenters: David S. Westerman, Norwich University
Karen E. Andresen, Norwich University
Travis Morris, Norwich University
Amy Woodbury Tease, Norwich University

This panel will explore the impact of establishing a well-supported undergraduate research program on the simultaneous evolution of faculty development. We will explore questions about how such programs can develop in parallel, what constitutes success, and how that success can be assessed. Activities will include breakout periods with participants exploring, among other things, a range of modes for overcoming obstacles to success. Over the past decade, the research culture at Norwich University has been transformed as faculty now identify themselves as active teacher-scholars with personal expectations of producing peer-reviewed products. This transformation has been intentional, and has been driven in part by creation of a faculty-mentored Undergraduate Research (UR) program in 2003. In addition to all the traditional good reasons for providing students with opportunities to be both producers and consumers of knowledge, the Norwich UR program was established to nurture a campus-wide climate of research consistent with the institution’s size and resources. In 2013, the program had 27 internally and 15 externally funded UR projects, up from the two internal and two external fellowships of the first year. Concurrent investment in faculty development has included establishing an office of academic research staffed full time by an academic vice president for research, an academic grant writer/manager, and an administrative assistant. The Trustees, the President, and the Chief Academic Officer have given UR and faculty development their full support by directing that specific endowment income be used to supplement support derived from external grants. A competitive quarter-time research release program for faculty has been in place for seven years, with nearly a quarter of eligible faculty supported each year. Critical support has been made available for faculty participation in the CUR Institutes, Dialogues, national meetings, and business meetings across academic disciplines.

Applications of Excellence: Initiatives from COEUR Year 2 – Meeting Room 16

Session Type: Panel Session

Presenters: Sandra K. Webster, Westminster College
Amy M. Buddie, Kennesaw State University
Kathy Sexton-Radek, Elmhurst College
Scott Bates, Utah State University

This panel will present examples of new initiatives on Undergraduate Research that were inspired by the Characteristics for Excellence in Undergraduate Research (COEUR; Rowlett, Blockus, & Larson, 2012) and how these initiatives have fared in the second year since COEUR was published. The initiatives address student-centered issues such as access to research opportunities and training, dissemination, recognition, and peer mentoring. Faculty-focused initiatives address faculty development, resource allocation, and attitudes of faculty toward the barriers and benefits of Undergraduate Research for faculty members. A third focus is the use of COEUR for institutional assessment of Undergraduate Research through audits, interviews, focus groups, and surveys of students and faculty members. After the panelists present the initiatives, a discussant will tie them together, making connections and leading the panel audience in an interactive discussion of other ways that COEUR can be used to implement institutional initiatives for improving Undergraduate Research. The panel members represent four different geographic regions and different approaches to applying the COEUR at an institutional level. The first panelist serves on the college Undergraduate Research Advisory Council and has led in assessment activities based on COEUR including an institutional audit, interviews of senior administrators, focus groups of faculty committees, and faculty and student surveys. One outcome has been an institutional workshop on the place of undergraduate research in the tenure and promotion system. The second panelist serves as the Associate Director of Undergraduate Research/Creative Activity and has implemented a number of initiatives based on the COEUR, including increasing student accessibility to undergraduate research (through an Undergraduate Research Club), increasing publicity about undergraduate research (through a newsletter), and creating a community of scholars (through a faculty/student learning community focused on publishing undergraduate research). The third panelist will discuss the utility of COEUR excellence points in reviewing the faculty student research activity.
Prairie Club Excursions and the Genesis of Grassroots Conservation: Creating the Citizens of Tomorrow through Immersive Learning – Meeting Room 3

Session Type: Panel Session
Presenter: Christopher Baas, Ball State University

Immersive learning is the hallmark of a Ball State University education, and pulls together interdisciplinary student teams guided by expert faculty to create unique, high-impact learning experiences that result in real-world solutions. The Prairie Club was a group of Chicago professionals and intellectuals. The club is best known for its field trips—rural excursions into Chicago's hinterlands to hike, photograph, and paint. Prominent club members included Jens Jensen, Frank V. Dudley, Henry Chandler Cowles, and the first director of the National Park Service Stephan Mather. The rarity and fragileness of the dunes landscape had already been documented in Cowles’ seminal writings on plant succession when 330 members of the club took their first trip to the Indiana dunes via the South Shore Railroad. The dunes immediately became the members’ favorite destination, and they were instrumental in efforts to preserve the region as a national park. Indiana Dunes State Park and the Dunes National Lakeshore are the legacies of the club's grassroots efforts to conserve and celebrate this renowned landscape. In Spring of 2014 an interdisciplinary team of Ball State undergraduates will document the significance of the dunes landscape and the Club's grassroots preservation efforts. They will partner with the Indiana Department of Natural Resources to produce a series of film and animation shorts, art work, and a 4th grade history book. The goal of this panel is to present the university’s framework for immersive learning projects [participation, funding, challenges, and products], and present the results for Prairie Club Excursions project. The project's community-based emphasis relates to the conference's Public Good theme, its interdisciplinary focus supports the theme of Research for All, and Ball State's model of immersive learning is an example of Exploring New Directions.

Down to Earth: Engaging the Community with Undergraduate Research on Sustainable Agriculture – Meeting Room 18

Session Type: Performance/Display Session
Presenters: Andrea Powell Wolfe, Ball State University
Allison Reed, Ball State University
Alyssa Hartman, Ball State University

This session will present the research and community work that my students did in a 15-credit hour, interdisciplinary, and student-led seminar on sustainable agriculture that I taught in the fall of 2013. The 14 students enrolled in the seminar began the research process by interviewing such figures as Joel Salatin and Will Allen, leaders in the sustainable farming movement; Indiana Senator Joe Donnelly, who serves on the Senate Committee on Agriculture, Nutrition, and Forestry, and representatives from American Farm Bureau Federation and other national agricultural organizations. The seminar group then focused on the efforts of individual farmers as a way of investigating practical aspects of sustainable agriculture. Through this type of journalistic research as well as more traditional research methodology, the students concluded that small-scale, organic farming can provide healthy food for local populations, increase the economic health of communities, and, perhaps most importantly, mitigate the environmental harm caused by other forms of agriculture and regenerate our soil and waterways. Several community-centered products emerged from the seminar, including an educational program that the students implemented at a community center, a petition aimed toward lifting our city's ban on urban chickens, and, most impressively, a documentary film. The film, entitled Down to Earth: Small Farm Issues in a Big Farm World, reports the work of one small-scale farming family who utilize sustainable practices to raise vegetables and food animals and documents the difficulties that small-holder farmers face, as well as the many benefits that come along with pursuing sustainable agriculture. Two students from the seminar will join me during this session, helping to describe the ways that the seminar worked to engage students with the research process and the efforts that students made to involve the community with their research and projects. We will then screen segments of the film.

Exploring Freshman Interest Groups (FIGS) As a Model to Promote Undergraduate Research – Meeting Room 4

Session Type: Interactive Session
Presenter: Gerald L. Ratliff, State University of New York- Potsdam

Designing interactive Freshman Interest Groups (FIGS) to promote undergraduate research is essentially a creative exercise in making explicit connections between selected academic disciplines in an instructional partnership that enriches the intellectual life and sense of community for first-year students. From both an epistemological and pedagogical perspective, FIG models provide an invaluable strategic blueprint to foster both an academic and social context for active learning. The session explores the essential principles to model in designing interactive FIGS and offers participants an opportunity to relate their own pedagogies or share strategies that address an introduction to undergraduate research for first year students. The interactive session will share the results of a recent $1.6 million dollar U.S. Department of Education Strengthening Institutions Grant to promote undergraduate research across-the-curriculum in learning communities that prepare students—traditional as well as non-traditional—to function intellectually as well as socially in a one-world environment. The model will also present opportunities for participants to actively engage in designing curriculum that enhances first student student living-and-learning experiences that are part of a learning community “humanistic” worldview. Small group work will include an exploration of relevant courses and themes related to first-year learning communities and project-based activities that complement first-year learning communities.
Stetson University, a private comprehensive university with primary emphasis on undergraduate programs, has mandated an undergraduate research capstone in its College of Arts and Sciences for over 30 years. However, because students benefit from a more thorough introduction to the pedagogies and variant methodologies of undergraduate research well before the senior year, a planned series of experiences and opportunities for mentorships heightens student achievements in undergraduate research. For example, our students present at local, regional, and national conferences, and in some fields, students co-publish with faculty mentors. To sequence the learning process required, Stetson developed and implemented two new general education requirements: writing-intensive, research-enabled seminar experiences positioned at key points in the general education curriculum. The first year seminar (FSEM) introduces students to college level writing and essential research skills; the interdisciplinary junior seminar (JSEM) hones and refines research methods. Students conclude their four years at Stetson with a senior capstone/research project that is typically guided by a faculty mentor. All students are strongly encouraged to participate and present in the annual Stetson Showcase, a campus-wide symposium of projects ranging from first year honors to senior research. Moreover, Stetson University offers funded opportunities for undergraduate research in the summer throughout SURE grant program, and students in our Roland George Investment Program use extensive research to invest real dollars in real time. This panel will cover the mechanics of constructing and implementing a curriculum that introduces research, writing and presentation skills at all levels of the college experience. Our panel presentation will be interactive, with each presenter directly addressing the audience as well as other members of the panel. We hope that audience members will contribute significantly to our understanding of what is possible and what works.

**Closing Plenary**

11:00 a.m. – Grand Ballroom North/Central

Closing Plenary: “Seeking the “Real Stuff”: Undergraduate Research and the Smithsonian Institution” Richard Kurin, Undersecretary for History, Art, and Culture at the Smithsonian Institution

12:00 p.m. – Closing Remarks: Julio Rivera, CUR Immediate Past-President

12:15 p.m. – Conference Ends, Attendees encouraged to visit Smithsonian museums

From FSEM to Capstone: Incorporating Undergraduate Research into a Four Year Program – Meeting Room 5

**Session Type:** Panel Session

**Presenters:** Kimberly D. S. Reiter, Stetson University  
John Pearson, Stetson University  
Megan O’Neill, Stetson University
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Poster Session I – Sunday, June 29, 2014 at 5:45pm

Undergraduate Research for Transformation: Assessing the Impact

Course-based Research Experiences (CREs) Retain Students in STEM Majors and Encourage their Application to Graduate School, Poster # 1
Mark E. Lee, Spelman College

Early Access: Promoting and Sustaining a Culture of Undergraduate Research among Chemistry Majors, Poster # 2
Rosalie A. Richards, Georgia College and State University
Chavonda Mills, Georgia College and State University
Julia Metzker, Georgia College and State University

Can we assess undergraduate research without rubrics? Using NVivo for Essay Analysis, Poster # 3
Julie Lyon, Roanoke College
Jennifer M. Blaney, Roanoke College
Kimberly Filer, Roanoke College

Broadening Participation: The Impact of Exposure to Undergraduate Research on Academically At-Risk First Year Students, Poster # 4
Leah J. Olson-McBride, University of Wisconsin - Eau Claire
Holly Hassemer, University of Wisconsin - Eau Claire

Undergraduate Research for All! Ensuring Access to High Quality Opportunities

The Undergraduate Research Scholars Program at North Carolina Agricultural and Technical State University, Poster # 5
Shirley Hymon-Parker, North Carolina A&T State University
Paula Elleen Faulkner, North Carolina A&T State University

Developing a STEM Pipeline in Central Texas, Poster # 6
John P. Idoux, Tarleton State University

Research and Creative Achievement Week: Showcasing Research in all Disciplines and at all Levels, Poster # 7
Mary Farwell, East Carolina University

Broadening the UR Experience at a Rural, Minority-Serving Institution, Poster # 8
D. Tulla Lightfoot, University of North Carolina at Pembroke

Early Career Undergraduate Research Experience (eCURe) at Pasadena City College, Poster # 9
Jared Ashcroft, Pasadena City College
Jillian Blatti, Pasadena City College
Veronica Jaramillo, Pasadena City College

SUNY Orange Achievements in Research and Scholarship Conference: Preparing Community College Students for Transfer and Beyond, Poster # 10
Michele F. Iannuzzi Sucich, Orange County Community College

Moving from Student to Scholar: An “Adaptation-to-Investigation” Seminar Series to Promote Research Skills, Poster # 11
Michael A. Reiter, Bethune Cookman University

Progressive Course Writing Assignments as a Way to Promote Undergraduate Interest in Pursuing Research in the Biological Sciences, Poster # 12
Gary M. Lange, Saginaw Valley State University

Mammalian Tissue Culture Provides High Quality Opportunities for Undergraduate Students to Engage in Biological Research, Poster # 13
James W. Cosgrove, Montgomery College
Ryan A. Alvarez, Montgomery College
Adrian M. Eiden, Montgomery College
Nicole M. Mercer, Montgomery College
Alex Estrada, Montgomery College
Enhancing Undergraduate Research Through Campus-wide Collaborations, Poster # 14
Diana Adams Elrod, University of North Texas

Boston University Pre-Majors Program (BU Pre-Map): Promoting Diversity through First-Year Undergraduate Research, Poster # 15
Andrew A. West, Boston University

Funding for Undergraduate Research: Finding and Leveraging Resources
Shontay Kincaid, Council on Undergraduate Research

Creating Engaged-Learning Partnerships: Undergraduate Research and Student Affairs, Poster # 17
Julie Morris, University of South Carolina - Columbia
Ashley Schryer, University of South Carolina - Columbia

How (not) to Establish an Undergraduate Research Grant Program, Poster # 18
M. G. Aune, California University of Pennsylvania

Undergraduate Research for the Future: Exploring New Directions
Establishing and Expanding Interdisciplinary, Inter-institutional Teaching-research Networks Through Virtual Collaboration, Poster # 19
Pamela Hanson, Birmingham-Southern College
Laura Stultz, Birmingham-Southern College

Providing Undergraduate Research Experience in Psychology Through Replication, Poster # 20
Katherine S. Moore, Elmhurst College
Ryan Donohue, Elmhurst College

Interdisciplinary Research - Success! Poster # 21
Carolyn K. Cuff, Westminster College

The National Science Foundation Geosciences Directorate's First Pre-Service Teacher Research Experience for Undergraduates (REU), Poster # 22
Mark J. Abolins, Middle Tennessee State University

Blending Teacher Education Method Courses into STEM Research Opportunities, Poster # 23
Vicki-Lynn Holmes, Hope College

Undergraduate Research for Mentors: Support and Sustenance
Lets Hunt for Genes: Introduction of Genome Annotation into Undergraduate Research, Poster # 24
Karobi Moitra, Trinity Washington University

Incorporating Bioinformatics and Real-research Experience into a Molecular Biology Laboratory, Poster # 25
Luiza A. Nogaj, Mount Saint Mary's College

Development of Quality Enhancement Projects to Motivate Student Interest in Undergraduate Research in Engineering, Poster # 26
Barry Hojatzie, Valdosta State University

The Research Apprenticeship in the Teacher Education Curriculum: A Model for Building Interdisciplinary Investigative Teams, Poster # 27
Ruth J. Palmer, The College of New Jersey

Fostering a Community of Scholarship in Humanities Undergraduate Research: A Modest Exercise, Poster # 28
Cynthia Burton, Allegheny College

Group Research: An Experiment in Efficiency, Poster # 29
Louise M. Temple-Rosebrook, James Madison University
Scaffolding the Development of Student Research Skills Within the Curriculum: A Multi-disciplinary Approach, Poster # 30
Donna Chamely-Wiik, Florida Atlantic University
Patricia Heydet-Kirsch, Florida Atlantic University

CUR Fellows, Poster # 31
Carol Bender, University of Arizona

Conservation Biology Research Projects Through Service Learning, Poster # 32
Patty B. Smith, Tulsa Community College - West Campus

The Perils and Promise of Community Partners in Undergraduate Research, Poster # 33
Kathleen Morgan, Wheaton College
Joanne D. Altman, High Point University

Effects of Varied Materials on Heat Dissipation and Thermal Perception of Heat in the Soles of the Feet in Exercising Individuals, Poster # 34
Dena Garner, The Citadel
Albert Hammett, The Citadel

Global Perspectives of School Dropout, Poster # 35
Ronica Arnold, Jackson State University
Michelle Brown, Jackson State University

An Online Hub for Undergraduate Research: Leveraging an Institutional Repository to Engage Students and Disseminate Research, Poster # 36
Suzanna K. Conrad, California State Polytechnic University - Pomona

Enhancing a Traditional Senior Civil Engineering Water Analysis Laboratory with Public Education, Poster # 37
Mónica Palomo, Cal Poly Pomona

Integrating Research into the Earth and Environmental Science Program at Unity College, Poster # 38
Kevin M Spigel, Unity College

Generalizing the Unique: How to Inspire Busy Students to Finish their Proposals, Poster # 39
Jennifer Seitzer, Rollins College

Teaching Graduate Students and Postdoctoral Fellows to Mentor Undergraduate Science Researchers: A Workshop Series, Poster # 40
Margaret A. Lynch, Harvard University

(De)Constructing the Undergraduate Research Experience in an Environmental Geochemistry Lab, Poster # 41
Christopher Kim, Chapman University

Undergraduate Research Programs at The University of Toledo, Poster # 42
Thomas Kvale, University of Toledo

Transforming A Research Project into a Resource in Undergraduate Science Teaching– The Case of a Field-Based Learning in Ecological Sustainability, Poster # 43
Changwoo Ahn, George Mason University
### Undergraduate Research for Transformation: Assessing the Impact

<table>
<thead>
<tr>
<th>Poster</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Mining Institutional Data for its Maximum Potential in Writing Proposals</td>
<td>Jennifer L. Cubeta, University of Arizona</td>
</tr>
<tr>
<td>#2</td>
<td>Preliminary Impact Assessment of Participation in Undergraduate Research Activities on Cumulative GPA</td>
<td>MaryLynn T. Quartaroli, Northern Arizona University; Danielle Hedegard, Northern Arizona University</td>
</tr>
<tr>
<td>#3</td>
<td>Michigan Research Community: Impact of a Residential Undergraduate Research Program</td>
<td>Jennifer Maltby, University of Michigan - Ann Arbor</td>
</tr>
</tbody>
</table>

### Undergraduate Research for All! Ensuring Access to High Quality Opportunities

<table>
<thead>
<tr>
<th>Poster</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>Expanding the Culture of Undergraduate Research to New Disciplines and Underserved Student Groups</td>
<td>Catherine Chan, University of Wisconsin - Whitewater; Simone DeVore, University of Wisconsin - Whitewater</td>
</tr>
<tr>
<td>#5</td>
<td>Effects of Biodiesel on Engine Performance and Emissions</td>
<td>Haowei Wang, California State University - Fullerton</td>
</tr>
<tr>
<td>#6</td>
<td>Collaborative Partnerships: Increasing Awareness of Undergraduate Research among First- and Second-Year Students</td>
<td>Megan Shannahan, Michigan State University; Korine Steinke Wawrzynski, Michigan State University</td>
</tr>
<tr>
<td>#7</td>
<td>Various Efficient Modes of Fostering Undergraduate Mathematics and Math Education Research</td>
<td>Haseeb A. Kazi, Trine University</td>
</tr>
<tr>
<td>#8</td>
<td>A Campus-wide Conference of Scholarship Excellence: Engaging Low-income, First-generation College Students</td>
<td>Ava R. Howard, Western Oregon University; Ethan McMahan, Western Oregon University; Bryan Durton, Western Oregon University; Janeanne Rockwell-Kincanon, Western Oregon University</td>
</tr>
<tr>
<td>#9</td>
<td>The New Undergraduate Research Program at Tennessee Technological University</td>
<td>Ed C. Lisic, Tennessee Technological University</td>
</tr>
<tr>
<td>#10</td>
<td>Using What You Already Have to Support Undergraduate Research, Creative and Scholarly Activities</td>
<td>Karen T. Lee, University of Pittsburgh - Johnstown Campus</td>
</tr>
<tr>
<td>#11</td>
<td>Exposure to Research for Science Students (EXPRESS): An NIH IMSD Program at the University of Missouri</td>
<td>Linda Blockus, University of Missouri - Columbia</td>
</tr>
<tr>
<td>#12</td>
<td>The Valley Humanities Review: Collaborative Student/ Faculty Learning in the Humanities</td>
<td>Laura Gail Eldred, Lebanon Valley College</td>
</tr>
</tbody>
</table>

### Funding for Undergraduate Research: Finding and Leveraging Resources

<table>
<thead>
<tr>
<th>Poster</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>#13</td>
<td>Maximizing Opportunities in Research Promotes interest in Science, Technology, Engineering and Mathematics Careers (MORE- STEM),</td>
<td>Marcia F. Williams, North Carolina A&amp;T State University; Juanda Johnson-Taylor, North Carolina A&amp;T State University</td>
</tr>
<tr>
<td>#14</td>
<td>FRIPS: Freshmen Research in Plant Sciences, An NSF Broader Impacts Activity</td>
<td>Linda Blockus, University of Missouri - Columbia</td>
</tr>
</tbody>
</table>
CREATING THE CITIZENS OF TOMORROW: Undergraduate Research for All

Undergraduate Research of the Future: Exploring New Directions

**Walsh University’s Nursing Majors Conducting Research in Chemistry Focusing on Growth Inhibition of Cancer Cells, Poster # 15**
Amy J. Heston, Walsh University
Michelle L. Colopy, Walsh University
Alyssa M. Zimmer, Walsh University

**Fostering Undergraduate Research Opportunities, Poster # 16**
Stefanie Ebeling, University of California - Berkeley

**PIC Math – Undergraduate Research Partnering with Business, Industry, and Government, Poster # 17**
Michael Dorff, Brigham Young University

**Fine Focus: A New International Journal for Undergraduate Microbiology Research, Poster # 18**
John Clarence Hesser, Ball State University
Samantha Grace Schwartz, Ball State University
Grey Harris, Ball State University

**Action Research in an Interdisciplinary Undergraduate Research Project, Poster # 19**
Elinor M. Madigan, Penn State- Schuylkill
Darcy Medica, Penn State- Schuylkill

Undergraduate Research for Mentors: Support and Sustenance

**Professional Development Workshops for Summer Research Students at Trinity University, Poster # 20**
Claudia W. Scholz, Trinity University

**Undergraduates Online Professional Development Builds Networking, Writing, and Career Exploration Skills, Poster # 21**
Melinda E. Lowy, American Physiological Society
Brooke Bruthers, American Physiological Society
Marsha Lakes Matyas, American Physiological Society

**Using Conference Participation as a Pedagogical Strategy, Poster # 22**
Jacqueline Smith – Mason, Virginia Commonwealth University
Faye Prichard, Virginia Commonwealth University

**UNIV 495: An Interdisciplinary Research Seminar, Poster # 23**
Rebecca M. Jones, George Mason University

**Undergraduate Research Engagement: A Continuum of High-Impact Learning and Mentorship, Poster # 24**
William H. Dees, McNeese State University
Janet R. Woolman, McNeese State University
Justine A. Gunnell, McNeese State University
Joyce D. Patterson, McNeese State University
Jeanne M. Daboval, McNeese State University
Lyle Hardee, McNeese State University
Hannah Fogg, McNeese State University

**Introduction to Scientific Inquiry: Science by Immersion! Poster # 25**
Michele K.H. Malotky, Guilford College
Melanie J Lee-Brown, Guilford College

**Authentic Large-Scale Undergraduate Research Experiences (ALUREs): Engaged Adoption Through an Australian National Leadership Project, Poster # 26**
Kirsten Zimbardi, The University of Queensland
S. Rowland, The University of Queensland
G. Lawrie, The University of Queensland
JTH Wang, The University of Queensland
Paula Myatt, The University of Queensland
P Worthy, The University of Queensland

Monday, June 30, 2014—4:30 p.m.
The Ecological Research as Education Network: Intercollegiate Collaborative Ecological Research that Engages Students, Poster # 27
Jeffrey A. Simmons, Mount Saint Mary’s University

Large Scale Implementation of Undergraduate Research Projects in Lower Division STEM Courses, Poster # 28
Greta Giles, Georgia Gwinnett College
Clay D. Runck, Georgia Gwinnett College
Judy Awong-Taylor, Georgia Gwinnett College
Thomas Mundie, Georgia Gwinnett College
David Pursell, Georgia Gwinnett College
Allison D’Costa, Georgia Gwinnett College
Tirza Leader, Georgia Gwinnett College

Overcoming Boredom, Inspiring Investment, Poster # 29
Sakina Laksimi-Morrow, Mercy College

Nanochemistry for Noob: An Explicit Science Research Training & Mentoring Program, Poster # 30
Philip S Lukeman, St. John’s University NY

A Comprehensive System for Program Promotion, Analysis, Evaluation, and Reporting for Undergraduate Research Programs, Poster # 31
Matthew Knatz, University of Arizona

Undergraduate Research for the Public Good

Undergraduate Research Projects Monitor the Chemical Health of the Quinnipiac River, Poster # 32
Harry M. Pylypiw, Quinnipiac University

Cartography in the Grassroots: Fostering Research through Community-based Mapping, Poster # 33
Christopher Magno, Gannon University

CEDC: Serving the Developing World; Developing the Students that Serve, Poster # 34
Jennifer H. Ogle, Clemson University

3D printing of Low-cost Adaptive Devices for Children with Severe Motor Limitations, Poster # 35
Jon P. Mehlferber, University of North Georgia

J. Douglas Sterrett, University of Tennessee at Martin
Nicholos K. Rakestraw, University of Tennessee at Martin

Exploring the Benefits of a Community of Research for Undergraduate Students with Divergent Career and Educational Goals, Poster # 37
Laurie Gould, Georgia Southern University
Laura E. Agnich, Georgia Southern University
Christina N. Policastro, Georgia Southern University

Educating Wonder Away: How Dickens and Carroll Attack the Victorian Education System, Poster # 38
Kolbie Anne Astle, Utah State University

Posters on the Hill, Poster # 39
Michael Jackson, Central Washington University
Larry E. Wimmers, Towson University

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

Fostering Faculty Development Through Collaborative Research: A Model for Primarily Undergraduate Teaching Institutions, Poster # 40
Lynda Szymanski, St. Catherine University
Alan Silva, St. Catherine University

The Mentor and the MUSe: Engaging Faculty in Undergraduate Student Publishing, Poster # 41
Robyn Hall, MacEwan University

Monday, June 30, 2014—4:30 p.m.
Creating the Citizens of Tomorrow: Undergraduate Research for All

CUR Fellows Award Recipients

Mark R. Brodl, Ph.D.
Associate Vice President for Academic Affairs
George W. Brackenridge Distinguished Professor of Biology
Trinity University

Mark R. Brodl, the George W. Brackenridge Distinguished Professor of Biology at Trinity University, has established a national reputation for his work in support of student-faculty research, particularly work with an interdisciplinary focus. One of Dr. Brodl’s former students noted, “In my long career in educational research institutions, I have met and interacted with many different professors, scientists and researchers, and Mark clearly distinguishes himself from all the others as a superlative educator, exceptional communicator, talented researcher, and as someone who is completely dedicated and devoted to his students.”

Dr. Brodl’s own research, during his career at Knox College from 1987 through 2001 and since then at Trinity University, has focused on exploring cellular and molecular aspects of heat stress responses in plant secretory cells. He has received more than $5 million in funding from the National Science Foundation, as well as grants from other government agencies and private funders. Yet over the past 25 years, he also has served as a research mentor for more than 200 students, including 37 who completed honors theses. At least 17 students have been co-authors with Dr. Brodl on peer-reviewed publications. More than 45 percent of his students have entered PhD, MD, or MD/PhD programs.

External funding for his work has directly supported students in his laboratory, equipped his lab with modern instrumentation, and led to curricular innovations incorporating original research experiences. In addition, many of Dr. Brodl’s funded projects have included faculty collaborations that have resulted in transformative experiences for faculty and students. His own education included a BA in biology from Knox College in 1981, an MS in plant biology from the University of Illinois, and PhD in plant biology from Washington University in St. Louis in 1987.

Dr. Brodl’s service to Trinity has included co-chairing a capital campaign that secured support for interdisciplinary programs in the sciences and led to the building of a new $127 million science facility that embodies interdisciplinary science education. His service to the scientific community in support of undergraduate research has been similarly outstanding. He has served in many leadership roles in CUR, including from 1999 to 2008 coordinating biology department external reviews. He himself has completed 22 external reviews to date.

He is an elected Fellow of the American Society of Plant Biologists and is active in that organization, including serving as its treasurer from 2001 to 2009. In 1996 Dr. Brodl founded the Plant Biologists at Primarily Undergraduate Institutions networking group, a forum for promoting research.

A frequent speaker at meetings and institutions across the country, Dr. Brodl also has served on numerous grant-review panels for government and private funders. From 2009-11, he served as a program director for Integrative Organismal Systems in the Biology Directorate at NSF.

Dr. Mitchell Malachowski
Professor of Chemistry
University of San Diego

Mitchell Malachowski’s career-long drive for excellence has been recognized many times during his career as a professor of chemistry at the University of San Diego, where he has won several distinguished service and teaching awards. According to a colleague, “Mitch is beloved by students here not just because he is an outstanding and dedicated teacher, but especially for his infectious enthusiasm for making molecules in the lab.” Students engaged in research with Dr. Malachowski receive in-depth exposure to advanced, extramurally funded projects focused on preparing functional materials that mimic biological systems and compounds, leading to an impressive 21 publications with 40 student co-authors. Indeed, his passion for undergraduate research is evident from his ongoing efforts to integrate teaching, scholarship, and student mentoring. He has mentored more than 100 undergraduate researchers since arriving at USD in 1983 after a year teaching at Gettysburg College. Earlier he received his PhD in organic chemistry from the University of North Carolina at Chapel Hill and a BA in chemistry from Rhode Island College.

Dr. Malachowski’s impact as a teacher/mentor/researcher is equaled by his advocacy and devotion to the undergraduate research community. His role as a nationally recognized voice for undergraduate research spans more than two decades. He has been active in CUR since the early 1990’s, holding several leadership positions and serving as President in 2002-2003. He is a regular CUR Quarterly contributor, served as the Coordinator of CUR institutes from 1997 to 2003, and was instrumental in moving CUR to develop divisions that embrace faculty from all disciplines. He has also prepared and coordinated more than 40 CUR-sponsored (NSF-funded) weekend workshops on undergraduate research issues, attended by more than 2,000 faculty and administrators from 400 institutions. Accurately described as “a provocateur,” Dr. Malachowski is fondly known for asking penetrating questions that stimulate deeper thought and discussion about the enterprise of undergraduate research.

His other high-impact activities include a key role in shaping the research culture of six state systems and consortia (affecting 80 institutions) through an NSF-funded initiative. He has also served on numerous on-site chemistry department reviews and has given more than 100 invited talks at institutions and national meetings on issues related to undergraduate research.

While his widespread contributions provide a tangible model of the effective teacher-scholar, arguably his lasting legacy rests with his undergraduate researchers, whose letters of support for his nomination as a CUR Fellow all remarked on his warmth, generosity, and enormous continuing influence on their careers. As one former student commented, “...he continues to be the compassionate mentor and leader I came to know during my years in undergraduate research.” That neatly describes Dr. Malachowski’s devotion to developing lasting connections with his students that go well beyond the confines of the classroom and research laboratory.
Speaker Biographical Statements

Liz Lerman

Liz Lerman is a choreographer, performer, writer, educator and speaker. Described by the Washington Post as “the source of an epochal revolution in the scope and purposes of dance art,” her dance/theater works have been seen throughout the United States and abroad. Her aesthetic approach spans the range from abstract to personal to political.

She founded Liz Lerman Dance Exchange in 1976 and cultivated the company’s unique multi-generational ensemble into a leading force in contemporary dance until 2011, when she handed the artistic leadership of the company over to the next generation of Dance Exchange artists. Now she is pursuing new projects with fresh partnerships, beginning with a semester spent at Harvard University as an artist-in-residence. Other projects involve Jawole Willa Jo Zollar, of Urban Bush Women; an investigation of the impact of war on medicine; and comic book structures as applied to narration in performance. Hiking the Horizontal: Field Notes from a Choreographer, Liz’s collection of essays, was published last year by Wesleyan University Press.

Liz has been the recipient of numerous honors, including a 2002 MacArthur “Genius Grant” Fellowship and a 2011 United States Artists Ford Fellowship. Her work has been commissioned by the Lincoln Center, American Dance Festival, Harvard Law School, and the Kennedy Center among many others. Her newest performance, The Matter of Origins, examined the question of beginnings through dance, media and innovative formats for conversation.

Muriel Howard

Dr. Muriel A. Howard was named president of AASCU in April 2009. She is the first African-American to lead one of the six presidentially based higher education associations in Washington, D.C. She is also AASCU’s first female president.

As AASCU president, Dr. Howard is an advocate for public higher education at the national level, working to influence federal policy and regulations on behalf of member colleges and universities; serving as a resource to presidents and chancellors as they address state policy and emerging campus issues; developing collaborative partnerships and initiatives that advance public higher education; directing a strategic agenda that focuses on public college and university leadership for the 21st century; and providing professional development opportunities for presidents, chancellors, and their spouses.

Her professional and scholarly interests include educational leadership, women and minorities in the academy, and a long-standing personal commitment to public service. Dr. Howard serves on a number of boards including Air University (Chair-Elect), the Nonprofit Leadership Alliance; National Advisory Board of the National Survey of Student Engagement; Merchants Insurance Company; and Association Mutual Health Insurance Company.

Formerly the president of Buffalo State College, State University of New York from 1996 to 2009, Dr. Howard led a campus of more than 11,000 students, approximately 1,700 faculty and staff, and a financial operation of more than $214 million. Prior to joining Buffalo State, she was the vice president for public service and urban affairs at the University at Buffalo, State University of New York, where she served in various leadership capacities over a 23-year period.

Christopher Austin

In September 2012, Christopher P. Austin, M.D., was appointed the first permanent director of the National Center for Advancing Translational Sciences (NCATS) by NIH Director Francis S. Collins, M.D., Ph.D.

Austin, who served as director of the NCATS Division of Pre-Clinical Innovation since the creation of the Center in December 2011, is leading NCATS in its mission to catalyze the generation of innovative methods and technologies that will enhance the development, testing and implementation of diagnostics and therapeutics across a wide range of human diseases and conditions. Austin is applying his experience across the spectrum of translational research to identify commonalities among diseases and implement a system-wide approach to accelerating the translational science process, thus speeding the delivery of interventions that improve human health.

Austin came to NIH in 2002 from Merck, where his work focused on genome-based discovery of novel targets and drugs. He began his career at NIH as the senior advisor to the director for translational research at the National Human Genome Research Institute, where he initiated the Knockout Mouse Project and the Molecular Libraries Roadmap Initiative. Other NIH roles have included serving as director of the Therapeutics for Rare and Neglected Diseases program as well as the NIH Chemical Genomics Center and as scientific director of the NIH Center for Translational Therapeutics.
Richard Kurin serves as the Smithsonian’s Under Secretary for History, Art, and Culture, responsible for the oversight of most of its national museums and educational programs. These include, among others, the American History, American Indian, American Art, and African American History and Culture museums and the National Portrait Gallery. Trained as a cultural anthropologist, he is a former Fulbright fellow who earned his Ph.D. from the University of Chicago and taught at the Johns Hopkins School of Advanced International Studies. For two decades he directed the Smithsonian’s Center for Folklife and Cultural Heritage which produced major events on the National Mall, Smithsonian Folkways recordings and other products that earned Academy, Emmy and Grammy awards. He is the author of several books, including *Hope Diamond: The Legendary History of a Cursed Gem*, *Reflections of A Culture Broker*, *Saving Haiti’s Heritage*, *Smithsonian Folklore Festival: Culture Of, By, and For The People*. His latest book is *The Smithsonian’s History of America in 101 Objects*. Kurin’s scholarship and museological work have been recognized by the International Council of Museums, UNESCO, and Harvard’s Peabody Museum. Awarded the Smithsonian Secretary’s Gold Medal for Exceptional Service, he serves as the Smithsonian’s liaison to the President’s Committee on the Arts and the Humanities, the White House Historical Association and numerous other boards.

**Provosts’ Panel Biographical Statements**

Dr. Ellen Junn recently became Provost and Vice President for Academic Affairs at California State University, Dominguez Hills. Historically founded in 1960 to serve communities in need in the South Bay of Los Angeles, CSUDH has 14,760 students, 87% of whom are minority students, and 59% from economically disadvantaged households, who aspire to obtain their degrees and return to give back to their communities.

She has 30 years of experience in higher education, with 28 years within the CSU. Her many past accomplishments have included: creating new undergraduate research initiatives, drafting university and academic strategic plans, expanding research and scholarly support for faculty, establishing funds for departmental and faculty innovation to improve student success and graduation rates; founding a comprehensive faculty development center, and bringing in $3.18M in Title V Hispanic Serving Institution funds.

Dr. Junn graduated cum laude from the University of Michigan with High Honors in Psychology and earned a Ph.D. and M.A. in Cognitive and Developmental Psychology from Princeton University. While at Michigan, she participated in their honors program requiring undergraduate research resulting in a publication that she credits with paving her path to success at Princeton and beyond, and solidified her commitment to supporting undergraduate research.

As Provost and Senior Vice President for Academic Affairs, Philip Rous is responsible for the delivery of the academic program, including instruction, research, academic support services, and enrollment management, including admissions and financial aid. He provides leadership as UMBC continues to build excellence among the faculty, student body, and staff. Dr. Rous oversees the campus planning process, working collaboratively with Vice Presidents and Deans to coordinate planning and budgeting for the campus.

Dr. Rous was appointed Provost and Senior Vice President for Academic Affairs on July 1, 2012. He joined the UMBC community in 1990 and holds the rank of professor in the Department of Physics. Prior to his appointment as Provost, Dr. Rous served as Dean of the College of Natural and Mathematical Sciences. As Dean, he provided leadership in creating the College’s Active Science Teaching and Learning Environment (CASTLE), which is focused on new pedagogical models for actively engaged student learning. Dr. Rous played a leadership role in shared governance on campus as Faculty Senate Vice President and then as Faculty Senate President. Dr. Rous was granted a Ph.D. in theoretical physics from the Imperial College of Science & Technology in the United Kingdom and conducted postdoctoral research at Imperial College, the University of California, Berkeley and the University of Cambridge. His research is in the field of theoretical condensed matter physics, and he has contributed to the fundamental understanding of the crystallography of surfaces, the dynamics and structure of negative ion states at surfaces, and nanophysics. Dr. Rous has a strong interdisciplinary background and the results of his research have been published extensively in materials science, physics and chemistry journals. Most recently, Dr. Rous has played a leadership role in supporting research into innovative models supporting student success, through the HHMI National Experiment in Undergraduate Science (NEXUS), the NSF Innovation through Institutional Integration award, and a planning grant from the Gates Foundation.
Kathryn Westcott

Kathryn M. Westcott is serving as the Interim Provost at Juniata College for the 2013-2014 academic year. During her time at Juniata, she also has served as Assistant Provost and as director of the James J. Lakso Center for the Scholarship of Teaching and Learning. She earned a magna cum laude bachelor’s degree in psychology from The Ohio State University and a master’s and doctorate in school psychology from the University of Cincinnati. Before starting her academic career, Dr. Westcott worked as a school psychologist in a variety of public school districts serving children and families from preschool to high school. As a faculty member, Dr. Westcott has been actively involved in undergraduate research. She has mentored a wide array of student research projects, which have led to a number of national and regional conference presentations for her students.

Matthew Reed

Dr. Matthew Reed is the Vice President for Academic Affairs at Holyoke Community College, and the author of InsideHigherEd’s popular blog “Confessions of a Community College Dean.”

His book, Confessions of a Community College Administrator, is aimed at helping the next generation of college leaders navigate the changing higher ed landscape.

Dr. Reed received his B.A. in political science at Williams College, and his Ph.D. in political science from Rutgers University. He has also taught and “deaned” at DeVry University and the County College of Morris [NJ]. He lives with his wife and two children in Feeding Hills, Massachusetts.

Undergraduate Research for High-impact Learning: Scaling Up and Scaffolding

Undergraduate Research for Mentors: Support and Sustenance

Undergraduate Research for Transformation: Assessing the Impact

Undergraduate Research for the Public Good

Undergraduate Research for the Future: Exploring New Directions

Undergraduate Research for All! Ensuring Access

Funding for Undergraduate Research: Finding and Leveraging Resources
Index

Abolins, Mark J., 57
Agnich, Laura E., 61
Aguirre, Karen, 27
Ahn, Changwoo, 58
Altman, Joanne D., 58
Alvarez, Ryan A., 56
Ambos, Elizabeth L., 5, 9, 21, 50
Anderson, Amanda, 10
Andresen, Karen E., 53
Andrews, Kris, 12
Andresen, Karen E., 53
Andrews, Kris, 12
Arnold, Ronica, 58
Astle, Kolbie Anne, 61
Auchincloss, Lisa, 28
Augusto, John, 48
Aune, M. G., 57
Austin, Christopher, 7, 46, 64
Awong-Taylor, Judy, 27, 37, 41, 61
Bachman, Robert, 16
Bacnik, Larry, 38
Bahr, David, 45
Baird, Abbey, 17
Barsky, Lauren Elyse, 24
Bart, Michelle, 17
Bates, Scott, 5, 53
Bautista, Maria, 42
Beard, Aileen T., 16
Beaty, Lara Margaret, 29
Beighley, Steve, 24
Bender, Carol, 58
Bettley, Rachel, 12
Biermann, Mark L., 51
Blaney, Jennifer M., 56
Blatti, Jillian, 56
Blockus, Linda, 38, 47, 59
Bock, Heather, 42
Boettcher, Anne, 52
Brabander, Daniel, 45
Brakke, David, 51
Brod, Dr. Mark R., 6, 29, 62
Brohawn, Lauren, 36
Brown, Jessica, 38
Brown, Michelle, 58
Brothers, Brooke, 24, 60
Buddie, Amy M., 53
Burkett, Susan, 45
Burkhart, JoAnn, 20
Burton, Cynthia, 57
Bushey, Michelle M., 11, 18, 39
Byrd, Sherrill K., 27
Caballero, M. Soledad, 34, 49
Canale, Lisa, 47
Carr, Amelia J., 34
Carr, Nicole T., 52
Carroll, Leah Anne, 16
Castellani, Michael P., 16, 51
Chamely-Wik, Donna, 58
Chan, Catherine, 59
Chen, Wei R., 26
Childress, Herb, 15, 28
Ching, Moana, 47
Civetta, Peter, 50
Clark, David L., 12
Clemo, Lorrie, 31
Coates, Lee, 49
Collins, Deborah, 24
Colopy, Michelle L., 60
Connors, Bernadette, 33
Conrad, Suzanna K., 58
Cooper, Micah, 32
Cosgrove, James W., 56
Coulter, Fred, 20
Cubeta, Jennifer L., 59
Cuff, Carolyn K., 57
Cweren, Helene, 30, 36
D’Costa, Allison, 37, 41, 61
Daboval, Jeanne M., 60
Datta, Sumana, 48
Davis-Kahl, Stephanie R., 46
Davis, John E., 12
DeCosmo, Janice, 11, 34
Dees, William H., 60
Delesalle, Veronique A., 45
DeLisle, Peter, 14,
Dellipizzi, Annmarie, 33
DeVasto, David M., 23
DeVore, Simone, 19, 59
DiFiori, Russell, 11
Dolan, Erin, 28
Donohue, Ryan, 57
Dorff, Michael, 60
Downs, Katy, 31
Drawdy, Kymberly, 19
Dripps, Weston R., 18
Druegeler, Melvin L., 16
Duke, Don, 22
Dupertuis, Ruben, 26
Dutton, Bryan, 59
EHelung, Stefanie, 60
Echols, Ann, 17
Eiden, Adrian M., 56
Eldred, Laura Gail, 59
Elrod, Diana Adams, 57
Endicott, Beverly K., 26
Estrada, Alex, 56
Farwell, Mary, 56
Faulkner, Paula Elleen, 56
Fazio-Veigel, Nichole J., 36, 51
Fehler, Timothy, 26
Feldhaus, Heather, 22
Fernandes, Joyce J., 20
Filer, Kimberly, 56
Fogg, Hannah, 60
Foreman, P. Gabrielle, 34
Fortner, Sarah K., 15
Fox, Lydia K., 44
Frederick, Kimberley, 16, 18
Garner, Pamela W., 44
Garner, Dena, 58
Germama, Nick, 42
Ghee, Medeva, 24
Giles, Greta, 37, 41, 61
Gilligan, Heather, 42
Gould, Laurie, 61
Gould, Stephanie, 14
Gourley, Bridget L., 19
Grahe, Jon E., 15, 37
Griffin, Gerald, 45
Guertin, Laura A., 44
Gunnell, Justine A., 60
Haas, Kelaine, 14
Hall, Robyn, 61
Hammack, Jennifer, 38
Hammett, Albert, 58
Hammons, Laura, 32
Hansen, Edward, 45
Hanson, Pamela, 20, 57
Hardee, Lyle, 60
Harris, Jennifer, 34, 36
Harris, Andrew T., 42
Harris, Grey, 60
Hart, Marilyn, 51
Hartman, Alyssa, 54
Hassemer, Holly, 56
Havholm, Karen G., 21
Hazel, Stephanie, 10, 13,
Hedegaard, Danielle, 59
Heger, Kenneth, 11
Helmers, Marguerite, 39
Hennington, Bettye Sue, 45
Hensell, Lisa M., 52
Hensley, Merinda Kaye, 46
Henson, Pamela, 11
Hesser, John Clarence, 60
Heston, Amy J., 60
Heydet-Kirsch, Patricia, 58
Hojaite, Barry, 57
Holmes, Vicki-Lynn, 57
Howard, Ava R., 59
Howard, Muriel, 63
Hug, Alyssa-Rae, 11
Hymon-Parker, Shirley, 56
Iacullo-Bird, Maria T., 22
Iannuzzi Sucich, Michele F., 56
Idoux, John P., 56
Imamichi, Tomoaki, 29
Ivanov, Plamen, 32
Jackson, Michael, 61
Jacob, Nitya, 20, 27
Jaramillo, Veronica, 56
Johnson-Taylor, Juanda, 59
Johnson, Andre', 14
Jones, Rebecca M., 21, 60
Junn, Ellen, 29, 64
Karukstis, Kerry K., 21
Kazi, Haseeb A., 59
Kealey, Jarrett, 19
Kercher, Stephen, 11, 22
Kim, Christopher, 44, 58
Kuecker, Glen David, 52
Kurin, Richard, 55, 64
Kvale, Thomas, 58
LaCourse, William R., 50
Laksimi-Morrow, Sakina, 61
Larson, Sharon, 22
Larson, Susan J., 47
Lawrie, G., 60
Leader, Tirza, 37, 41, 61
Lee-Brown, Melanie J., 27, 60
Lee, Mark E., 56
Lee, Karen T., 59
Lerman, Liz, 63
Lewis, Robin S., 38
Li, Nan, 19
Lightfoot, D. Tulla, 56
Lisic, Ed C., 59
Lockaby, Dorothy C., 13
Lowy, Melinda E., 24, 60
Lukeman, Philip S., 61
Lusth, John, 45
Lynch, Margaret A., 58
Lyon, Julie, 56
MacKenzie, Duncan S., 32
Mader, Catherine, 45
Madigan, Elinor M., 60
Magno, Christopher, 61
Magrovan, Serena, 12
Mahatmya, Duhita, 44
Malachowsky, Dr. Mitchell, 21, 29, 62
Malotky, Michele K. H., 60
Malthy, Jennifer, 59
Manak, Jennifer, 25
Manley, Patricia Lee, 44
Mansour, Ahmed, 48
Marcey, David, 27
Marshall, Mark D., 18
Martin, Rebecca, 41
Martin, Adrianna A., 52
Martyn, Margie A., 25
Matyas, Marsha Lakes, 24, 60
McClurken, Jeffrey, 15
McGlynn, Janet Louden, 19, 25, 30
McMahan, Ethan, 59
McMullen, Rebecca, 38
McRae, Vanessa, 14
Medeiros, Darcy, 60
Mehliferber, Jon P., 61
Meisel, Seth, 33
Merritt, Kathleen, 58
Morris, Julie, 30, 43, 57
Morris, Ronald V., 52
Morris, Travis, 53
Mulready, Cyrus, 48
Mundie, Thomas, 37, 41, 61
Munk, Dennis, 19
Myatt, Paula, 60
Natanson, Barbara, 11
Nazaire, Denise W., 47
Nixon, Cheryl L., 22
Nogaj, Luiza A., 57
Nyerges, Tracy, 36
O’Brien, Deborah Harris, 37
O’Neill, Tim, 38
O’Neill, Megan, 55
O’Shea, Joe, 35
Ogle, Jennifer H., 61
Olson-McBride, Leah J., 56
Orel, Sara, 39, 48
Ormsby, Catalina, 51
Osborn, Jeffrey M., 21
Overby, Lynnette Y., 24, 35
Owen, Julie E., 44
Palmer, Ruth J., 19, 57
Palomo, Mónica, 11, 58
Patterson, Joyce D., 60
Pavl, Mark Remec, 51
Pearson, John, 55
Pennington, John, 48
Perry, Nicole, 13, 48
Policastro, Christina N., 61
Powell, Caitlin, 38
Pressley, Shelley, 45
Prichard, Faye, 60
Provost, Joseph, 15
Purseell, David, 37, 41, 61
Pylypiw, Harry M., 61
Quartaroli, MaryLynn T., 59
Rakestraw, Nicholas K., 61
Ratliff, Gerald L., 54
Redmond, Glenis, 34
Reed, Allison, 54
Reed, Matthew, 29, 65
Reiter, Kimberly D. S., 55
Reiter, Michael A., 56
Resendes, Karen K., 20, 27
Richards, Rosalie A., 38, 56
Rivera, Julio, 55
Robinson, Aspen, 28
Rocheleau, Suzanne E., 42
Rockwell-Kincanon, Janeanne, 59
Ronco, Silvia, 16
Roney, Deb, 17
Rous, Philip, 29, 65
Rowland, S., 60
Rowlett, Roger S., 11, 47
Roy, Ishita Sinha, 34
Runck, Clay D., 37, 41, 61
Russell, Ralph, 34
Ryan, Jeffrey, 31, 40
Rycek, Robert F., 16, 51
Safford, Susan E., 20, 27
Sams, Doreen E., 38
Sand, Alexa, 33
Sandrin, Todd, 44
Schaller, Chris, 40
Schildbach, Joel, 27
Schneider, Kimberly R., 10, 30, 35, 45
Scholz, Claudia W., 60
Schryer, Ashley, 43, 57
Schultz, Jo El, 24
Schwartz, Samantha Grace, 60
Seiter, Jennifer, 58
Selle, Anna, 39
Sexton-Radek, Kathy, 53
Shanahan, Jenny Olin, 26, 40
Shanahan, Megan A., 30, 43, 59
Sharbat, Ali, 11
Shaw, Hayden, 52
Sherman, Tammiss, 32
Shields, George C., 21
Silva, Alan, 61
Simmons, Charlotte K., 26
Simmons, Jeffrey A., 61
Singer, Jill, 31, 50
Smith-Mason, Jacqueline, 60
Smith, Lesley M., 44
Smith, Patty B., 58
Snelling, Catherine A., 28, 32
Souders, Brian V., 25
Spellman, Bill, 15
Spencer, Diana, 42
Spigel, Kevin M., 58
Staub, Nancy, 45
Stavnezer, Amy Jo, 23
Steiner, Jenna E., 39
Sterrett, J. Douglas, 61
Studer, Mary Ann, 20
Stultz, Laura, 57
Summer, Gail L., 49
Sutphin, Kathy Lee, 30
Szymanski, Lynda, 61
Taylor, Jeremy, 20
Tease, Amy Woodbury, 53
Temple-Rosebrook, Louise M., 20, 57
Thomas, Vincent, 34
Thornton, Chris, 41
Usher, Bethany M., 10, 13, 47
van Arnhem, Jolanda-Pieta, 21
Vanbennekom, Neyda, 10, 45
VanWinkle, Benita R., 49
Wade, Susan W., 42
Walsh, Rob, 48
Wang, Haowei, 59
Wang, JTH, 60
Wawrzynski, Korine Steinke, 30, 43, 59
Webster, Sandra K., 53
West, Patricia, 13
West, Andrew A., 57
Westcott, Kathryn, 29, 65
Westerman, David S., 53
White, Sandra, 45
Williams, John L., 14
Williams, Marcia F., 59
Willison, John, 18, 28, 32
Winters, Larry E., 61
Wolaver, Amy, 22
Wolfc, Andrea Powell, 54
Wolyniak, Michael J., 15
Wood, Thomas C., 33
Woolman, Janet R., 60
Worthy, P., 60
Wright, Audrey, 34
Yeliseyev, Dana, 24
Zimberi, Kirsten, 60
Zimmer, Alyssa M., 60

AP Capstone™ is an innovative new program that promotes high school student engagement in independent research and equips students with the collaboration and communication skills valued by colleges.

Learn more: collegeboard.org/apcapstoneHEd
Available for the first time

How to Get Started in Arts and Humanities Research with Undergraduates

Special Rates
Broadening Participation in Undergraduate Research:
Fostering Excellence and Enhancing the Impact: $32.00

Developing & Sustaining a Research-Supportive Curriculum:
A Compendium of Successful Practices: $22.00

OTHER TEXTS 10% OFF
Offers Valid On-site Only