



Network for Academic Renewal

CREATIVITY, INQUIRY, AND DISCOVERY: Undergraduate Research In and Across the Disciplines

**Washington Duke Inn | Durham, North Carolina
November 11-13, 2010**

Welcome to Durham and to the conference, ***Creativity, Inquiry, and Discovery: Undergraduate Research In and Across the Disciplines***. It is a pleasure and an honor for the Association of American Colleges and Universities (AAC&U) and the Council on Undergraduate Research (CUR) to co-host this Network conference. Undergraduate research speaks to the hearts and minds of both students and faculty and also speaks to the full array of essential learning outcomes necessary for work and life in the 21st century—knowledge, skills, social commitments, and integrative capacities. Research activities are especially important in helping students develop the art of questioning, examining, and making sense of day-to-day experiences in an increasingly complex world. It is through engaged research that many undergraduates come to understand the power of self-authorship and make connections between learning and purpose in life, and many of us can tell stories of our own transformations through this powerful activity. We hope you will take the occasion of this rich and diverse conference—working in and across disciplines—to push your thinking about undergraduate research, to advance your understanding of this important high-impact practice, and to reflect on how to bring the value of engaged discovery to every student on your campus.

You will notice that the conference is designed along four tracks:

1. Defining and Assessing Undergraduate Research and Creative Practice
2. Faculty Roles and Rewards
3. Mapping Research Preparation and Practice
4. Implementing, Scaling-up, and Sustaining Programs

If you are here with a team, you may wish to divide your group according to the different tracks. If you are here on your own, you might use the tracks as a guide to select sessions that best fit your goals and interests.

We hope that your experience here will exceed your goals for participating and that you'll find useful and creative models, pedagogies, and strategies for change to take back home.

Nancy Hensel
Executive Officer,
Council on Undergraduate Research

Susan Albertine
Vice President for Engagement,
Inclusion & Success, AAC&U

Terrel Rhodes
Vice President for Quality,
Curriculum & Assessment, AAC&U

PLANNING COMMITTEE

AAC&U extends a special note of appreciation to these individuals and campuses for their many contributions to the conference program.

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FUTURE NETWORK FOR ACADEMIC RENEWAL CONFERENCES

March 3-5, 2011 ♦ Chicago, Illinois

General Education and Assessment 3.0: Next Level Practices Now

March 24-26, 2011 ♦ Miami, Florida

Engaged STEM Learning: From Promising to Pervasive Practices

October 13-15, 2011 ♦ Long Beach, California

Educating for Personal and Social Responsibility

November 3-5, 2011 ♦ Providence, Rhode Island

Bridges To and From the Arts and Humanities

February 23-25, 2012 ♦ New Orleans, Louisiana

General Education and Assessment

For more information, visit www.aacu.org/meetings/network

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Council On Undergraduate Research

www.cur.org

The Council on Undergraduate Research (CUR) and its affiliated colleges, universities, and individuals share a focus on providing undergraduate research opportunities for faculty and students at all institutions serving undergraduate students. CUR believes that faculty members enhance their teaching and contribution to society by remaining active in research and by involving undergraduates in research. CUR's leadership works with agencies and foundations to enhance research opportunities for faculty and students; provides support for faculty development; develops publications and outreach activities designed to share successful models and strategies for establishing and institutionalizing undergraduate research programs; and provides information on the importance of undergraduate research to state legislatures, private foundations, government agencies, and the U.S. Congress.

ACADEMIC PARTNERS

Academic Partners are colleges, universities, associations, or non-profit organizations with missions and programs related to the conference theme. They contribute to the success of the conference in a variety of ways -- developing the program, reviewing proposals, sharing information about the conference with their constituencies, sponsoring a session during the conference, and sharing materials about their organization at the conference.

Association for Integrative Studies

www.units.muohio.edu/aisorg/

The Association for Integrative Studies is an interdisciplinary professional organization founded in 1979 to promote the interchange of ideas among scholars and administrators in all of the arts and sciences on intellectual and organizational issues related to furthering integrative studies. Incorporated as a non-profit educational association in the State of Ohio, it has an international membership.

PKAL: Project Kaleidoscope

www.pkal.org

Project Kaleidoscope (PKAL) is one of the leading advocates in the United States for what works in building and sustaining strong undergraduate programs in the fields of science, technology, engineering and mathematics (STEM). PKAL is an informal alliance taking responsibility for shaping undergraduate STEM learning environments that attract students to STEM fields, inspiring them to persist and succeed by giving them personal experience with the joy of discovery and an awareness of the influence of science and technology in their world. From the work of the extensive PKAL community, resources are available that can be adapted by leaders on campuses across the country working to ensure robust STEM learning for all their students.

LIBERAL EDUCATION AND AMERICA'S PROMISE FEATURED SESSIONS

The LEAP Featured Session designation highlights the innovative work of colleges and universities that are members of the LEAP Campus Action Network (CAN). CAN brings together campuses and organizations committed to liberal education; helps them to improve their efforts to ensure that all students achieve essential liberal education outcomes, and shines a spotlight on educational practices that work. By recognizing CAN examples, AAC&U aims to share promising practices that help students achieve the essential learning outcomes outlined in the 2007 report, *College Learning for the New Global Century*. Stop by the registration desk for information about LEAP or visit www.aacu.org/LEAP.

POSTER 3: Bridging the Divide between Research and Practice in Liberal Studies/Teacher Education

Dominican University of California

POSTER 10: Bridging the Gap: The Life-Health Sciences Internship Program

Indiana University-Purdue University Indianapolis

POSTER 16: Disciplinary Perspectives on Successful Mentoring for Undergraduate Research

University of Wisconsin-Whitewater

CS 12: Looking and LEAPing: Undergraduate Research in the General Education Curriculum

University of South Florida and University of Nebraska, Lincoln

CS 13: Extending Undergraduate Research across the Disciplines

Hope College

CS 16: Research-Based Learning from the Start: Developing Undergraduate Researchers

University of Nevada-Las Vegas

CS 27: Advancing Inquiry and Analysis

Miami University

SCHEDULE AT A GLANCE

Thursday, November 11, 2010

- 10:00 A.M. – 7:00 P.M. **Conference Registration and Membership Information**
- 2:00 – 5:00 P.M. **Pre-conference Workshops** *separate registration and fee required*
- 7:00 – 8:30 P.M. **Keynote Address**
Defining Dimensions of Undergraduate Research
Nancy Hensel—Council on Undergraduate Research
- 8:30 – 9:30 P.M. **Poster Session and Reception**

Friday, November 12, 2010

- 7:45 – 8:45 A.M. **Continental Breakfast**
- 8:00 – 9:00 A.M. **Concurrent Sessions**
- 9:20 – 10:30 A.M. **Plenary**
Undergraduate Research across the Disciplines: Evidence of Impact
Susan Elrod—PKAL, AAC&U; Jillian Kinzie—Indiana University Bloomington; and Elaine Seymour—University of Colorado at Boulder
- 11:00 A.M. - 12:15 P.M. **Concurrent Sessions**
- 12:30 – 2:15 P.M. **Luncheon and Plenary** *separate registration and fee required*
Can Undergraduates Build a Better World?
Robert K. Musil—American University
- 2:30 – 3:45 P.M. **Concurrent Sessions**
- 4:00 – 5:15 P.M. **Concurrent Sessions**

Saturday, November 13, 2010

- 7:45 – 8:45 A.M. **Continental Breakfast**
- 8:00 – 9:00 A.M. **Facilitated Discussions**
- 9:15 – 10:45 A.M. **Concurrent Sessions**
- 11:00 A.M. – NOON **Plenary**
Getting Ready for 2042: Mentoring Students toward Discovery
Carlos Gutiérrez—California State University-Los Angeles

*For Information about Network for Academic Renewal conferences,
please see www.aacu.org/meetings/network or
contact Karen Kalla and Siah Annand at 202.387.3760*

PROGRAM OF EVENTS

THURSDAY, NOVEMBER 11, 2010

10:00 A.M. – 7:00 P.M. CONFERENCE REGISTRATION AND MEMBERSHIP INFORMATION

2:00 – 5:00 P.M. PRE-CONFERENCE WORKSHOPS *(separate registration and fee required)*

Workshop 1: Scaffolding Undergraduate Research into the Arts and Humanities

President's Ballroom I

Although the senior thesis or capstone project is often a staple in the arts and humanities, many faculty have difficulty envisioning other models of integrating undergraduate research throughout their programs. Workshop participants will learn about three innovative models for introducing and incorporating research skills into the arts and humanities, from entry-to senior level.

Jenny O. Shanahan, Director of Undergraduate Research, Bridgewater State University; **Naomi Yavneh**, Associate Dean, Honors and Director, Undergraduate Research, University of South Florida; and **Gregory Young**, Associate Provost, Montana State University

Workshop 2: Fostering Research Methodologies across the Undergraduate Experience

President's Ballroom II

Learn how to engage students in undergraduate research and developmentally integrate research throughout the community college and four-year undergraduate curriculum and co-curriculum. Participants will adapt approaches to their own institutional contexts.

Carol Bender, Director, Undergraduate Research Programs and Related Programs—University of Arizona; **Nancy Hensel**, Executive Officer—Council on Undergraduate Research; and **James Hewlett**, Professor of Biology and Director of Biotechnology—Finger Lakes Community College

Sponsored by Council on Undergraduate Research

Workshop 3: Undergraduate Research Outcomes in the Sciences

President's Ballroom III

This workshop will engage participants in what is known about student outcomes from participating in mentored, hands-on research in the sciences. Participants will consider the impact of UR on increasing the retention of underserved students and how specific program elements contribute to student success. Research findings will guide discussion of how to work effectively with students in ways that authentically support the development of novice researchers.

Anne-Barrie Hunter and **Sandra Laursen**, Co-directors, *Ethnography and Evaluation Research—both of University of Colorado at Boulder*

Workshop 4: Developing and Assessing Interdisciplinary Research

President's Ballroom IV

Within a larger context of interdisciplinary learning, facilitators will discuss how to develop and assess interdisciplinary research opportunities for students. Participants will first examine the outcomes and the specific needs of interdisciplinary general education programs, majors, and courses. They will then turn to developing and assessing interdisciplinary research programs and receive numerous resources.

Karen R. Moranski, President—Association for Integrative Studies and Associate Vice Chancellor for Undergraduate Education—University of Illinois at Springfield; **Allen Repko**, Director, Interdisciplinary Studies Program—University of Texas at Arlington; and **Rick Szostak**, Professor of Economics—University of Alberta

Sponsored by the Association for Integrative Studies

Workshop 5: Faculty Roles in Undergraduate Research

Ambassador Duke

Workshop participants will explore strategies for moving engaged learning to the center of faculty work. Using undergraduate research as a case study, facilitators and participants will examine expanding mainstream pedagogies to include engaged learning; re-conceptualizing the faculty

role as engaged teacher-scholar; and redefining faculty workloads to include a full array of high-impact experiences.

Susan Elrod, Executive Director of Project Kaleidoscope—AAC&U; **Jeffrey M. Osborn**, Dean, School of Science—The College of New Jersey; and **Elizabeth L. Paul**, Provost and Vice President for Academic Affairs—Stetson University

Sponsored by Project Kaleidoscope

Workshop 6: Creating a Research-Rich Campus: The Role of Academic Leadership

Ambassador Allen

Participants will address if and why undergraduate research matters; how a “research-rich” campus can enhance student learning; and how to create incentives and support for faculty engaged in collaborative or guided research. Facilitators will help participants build their own multi-year plans.

David L. Cleeton, Dean, College of Social Sciences and Joseph W. Luter, III School of Business—Christopher Newport University; **Karen Erickson**, Dean, School of Liberal Arts—Southern New Hampshire University; **Stephanie L. Fabritius**, Vice President for Academic Affairs, Dean of the College and Professor of Biology—Centre College; and **Laura Behling**, Associate Provost for Faculty Affairs and Interdisciplinary Programs and Professor of English—Butler University

Sponsored by American Conference of Academic Deans

7:00 – 8:30 P.M.

KEYNOTE ADDRESS

President’s Ballroom

Defining Dimensions of Undergraduate Research

Undergraduate research is a high-impact learning strategy that prepares students for the complex challenges of today and unknown problems of tomorrow. As colleges and universities increasingly include research as an essential part of the undergraduate experience, faculty and administrators need to consider different dimensions. What do we mean by undergraduate research? Who should participate? What should we expect from students? In this keynote address, Dr. Hensel will examine how campuses are answering such questions and developing research programs that reflect institutional values, culture, and strengths.

Nancy Hensel, Executive Officer—Council on Undergraduate Research

8:30– 9:30 P.M.

POSTER SESSION AND RECEPTION

President’s Gallery

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 1: DO WE CARE: An Integrative Model for Assessing Undergraduate Research Programs

Meaningful assessment is a requirement of accrediting bodies and a key factor in data-driven decision making as programs compete for limited resources. It is no longer sufficient to examine best practices of course-related activities alone, as engagement in out-of-class activities is an integral part the academic experience. However, many program reviews examine effectiveness of a discrete set of objectives based on the specific goals of the investigator or funding source. This focused perspective provides good insight on specific areas of a program but does not supply the data necessary for broad evaluation of impact or necessarily provide direction for program improvement. Participants will see how the DO WE CARE model can be used to comprehensively assess undergraduate research programs. The acronym addresses evaluation in the areas of Demographics, Outcomes, Well-being, Endurance, Communication, Advancement, Recognition, and External Support.

John R. Hoffman, Dean of the College of Business, Health and Sciences—Arcadia University


Defining and Assessing Undergraduate Research and Creative Practice

POSTER 2: College Archives: An Underutilized Resource for Undergraduate Research and Learning

A challenge facing many colleges and universities has been to find engaging ways to help a generation of concrete and hands-on learners develop the ability to think historically; learn the

skills to carry out research, particularly using primary documents; and have the opportunity to discover possible career options in the area of history, society, and cultural studies. This poster will feature a variety of ways colleges and universities can use their archives to engage students in undergraduate research and learning through practica, research papers, and mini projects.

Randy Hanson, Chair, Department of Social Sciences and Education and **Kelli Bogan**, College Archivist—both of Colby-Sawyer College

Liberal Education and America's Promise Featured Session LEAP 

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 3: Bridging the Divide between Research and Practice in Liberal Studies/Teacher Education

The U.S. Department of Education has identified the goal of “recruiting, developing, rewarding and retaining effective teachers” as one of four key areas targeted for educational reform in President Obama’s “Race to the Top” initiative. This poster will depict how undergraduate teacher education programs can better prepare students to be effective teachers by bridging the divide between teaching and research. While teacher-trainers agree that a strong liberal education provides undergraduate students a necessary foundation for effective teaching, original research projects have traditionally been reserved for graduate study in the field of education. A study by the facilitator, however, suggests that the process of designing and implementing an original research project allows undergraduate teacher education students an unparalleled opportunity to develop three of the intellectual and practical skills specified as LEAP essential outcomes for a strong liberal education—inquiry and analysis, critical and creative thinking, and written and oral communication.

Jennifer Lucko, Assistant Professor of Education—Dominican University of California

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 4: Integrating Undergraduate Research and Service-Learning: Promising Models

This poster will highlight ways in which undergraduate research experiences can be connected more effectively with service-learning to provide undergraduates meaningful research experiences while working with community partners. Participants will have the chance to explore questions such as: What student learning outcomes can be developed through the integration of service-learning and undergraduate research? How can we best work across disciplines and across organizational roles to thoughtfully assess the impacts of community-based undergraduate research? The facilitators will describe specific service-learning courses that have effectively integrated a research component and participants will learn about resources for strengthening community-based undergraduate research experiences on their own campuses.

David M. Malone, Faculty Director of the Service Learning Program, **Amy L. Anderson**, Instructor, Program in Education, and **Joan E. Clifford**, Lecturer and Assistant Director of the Spanish Language Program—all of Duke University

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 5: Last-Mile Broadband: A Liberal Arts College and a Community Conduct Research Together

How can a small, private, liberal arts college in a rural community facilitate that community’s completion of last-mile broadband connection? Through a small grant, faculty, students, and community members in Southwest Virginia identified the need to complete last-mile broadband connection in order to increase economic development for the rural area. Faculty worked with students on research projects to map locations for towers, carry out extensive interviews with community members in affected areas, write news articles for community education (including a Spanish language newsletter), and produce a short play based on their findings. This poster will present the fullness of this project, with little external funding, as a rich undergraduate research opportunity that has benefited both campus and rural surroundings.

George Loveland, Associate Professor of Library Science and Public Services Librarian, **Allison Harl**, Assistant Professor of English, and **Fabian Balmori**, Assistant Professor of Spanish—all of Ferrum College

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 6: The Impact of Mentoring on Students' Broader Understandings of Undergraduate Research

Since 2007, Michigan State University has conducted annual surveys of students participating in undergraduate research experiences on campus. This poster will discuss how these data have been used to quantify student experiences, measure student perceptions of their learning, and identify ways to more effectively support undergraduate research. Results include a detailed discussion of the impact of faculty mentoring on students' ability to: (a) understand how research impacts the community and (b) apply classroom knowledge in practical settings. For 2009-2010, the survey instrument was revised to include more specific questions about students' mentoring experiences in group and individual research settings in order to more fully explore the role of mentors in helping students make meaningful connections between their undergraduate research and their experiences outside of the classroom.

Korine Steinke-Wawrzynski, Director of Undergraduate Research, **Cynthia Jackson-Elmoore**, Dean of the Honors College and Professor of Political Science and Social Work, and contributors, not attending, **Juliette Boucher-Niemi**, Graduate Research Assistant, Office of the Associate Provost for Undergraduate Education and Honors College, and **Katy Luchini-Colbry**, Academic Specialist—all of Michigan State University

Defining and Assessing Undergraduate Research and Creative Practice

POSTER 7: Mapping Undergraduate Research and Creative Practice across the Disciplines

Undergraduate research offers many benefits to students, and often to faculty as well. But is it (and the challenges it poses) the same in all disciplines? Although members of the natural sciences faculty at Nazareth College have been involved with undergraduate research for years, interest has been growing in fostering undergraduate student research offerings across the disciplines. This poster will share what the facilitators have discovered about: (a) disciplinary differences in the benefits undergraduate research offers as well as the challenges it poses; (b) approaches to making undergraduate research more visible; and (c) efficient research designs and courses. Participants will identify factors (both disciplinary and institutional) that can influence the nature of the undergraduate research activity, approaches they might use, and strategies for overcoming obstacles in specific disciplines. This poster will be most relevant to participants from comprehensive colleges, small liberal arts, and community colleges.

Diane M. Enerson, Professor of Psychology and Director of Center for Teaching Excellence, **Heidi Northwood**, Professor of Philosophy, **Richard Hartmann**, Associate Professor of Chemistry, and **Kimberly J. McGann**, Assistant Professor of Sociology—all of Nazareth College of Rochester

Faculty Roles and Rewards

POSTER 8: An Undergraduate Research Course: Benefits for Students and a Time-Saver for Faculty

There are many barriers for faculty who supervise undergraduate researchers, including a lack of time, a lack of teaching credit, and often a lack of publications or presentations resulting from the research. To address these barriers, the first facilitator created an undergraduate research course where students worked in teams to analyze an existing dataset. Students were required to write a paper and orally present their research at the end of the semester. In addition, they were encouraged to submit their papers for publication in an appropriate journal as well as submit their work for presentation at a local conference. The benefits of such a course are numerous, including increasing the number of students involved in research, providing teaching credit for the faculty member, and yielding possible publications and/or presentations from the experience. This poster will depict key elements of the undergraduate research course and address the challenges of putting together such a class.

Amy M. Buddie, Associate Professor of Psychology and Faculty Fellow for Advancing Undergraduate Research and, contributor, not attending, **Mckenzi Myers**, Undergraduate Teaching Assistant—both of Kennesaw State University

POSTER 9: Enhancing the Quality and Effectiveness of Undergraduate Research

This poster will describe ongoing efforts to enhance the quality and effectiveness of undergraduate research in Colorado College's department of economics and business. All students in the department are required to complete a thesis during their senior year. The thesis is a rigorous independent research effort supervised by the department's faculty members and requires students to identify a research question, review and critique the relevant literature, develop testable hypotheses, collect and analyze data, and submit a thesis document summarizing the research. This poster will highlight specific curricular changes made to the course to better prepare students to conduct independent research, describe specific models and strategies faculty members have adopted to improve the quality of thesis projects, and share how the department has succeeded in enhancing the rewards for faculty members supervising thesis students. The poster will also describe ongoing efforts to assess the quality of student thesis projects, and show how the assessments have resulted in specific curricular and other kinds of changes. Over the last decade, there have been significant improvements in the quality of the undergraduate research experience, demonstrated not only by assessments but also by the significant increase in the number of student thesis projects being published in refereed journals.

Mark Griffin Smith, Professor of Economics—Colorado College

Liberal Education and America's Promise Featured Session LEAP 

POSTER 10: Bridging the Gap: The Life-Health Sciences Internship Program

The Indiana University-Purdue University Indianapolis (IUPUI) Life-Health Sciences Internship Program is designed to address retention and graduation issues and to improve student learning outcomes for sophomores and juniors in life and health sciences disciplines. Interns work with a faculty or staff mentor during the academic year and attend monthly community-building events, present at an end-of-year poster session, and are eligible to apply for a competitive conference travel grant. This poster will describe the program, which includes two of the high-impact practices identified through AAC&U's LEAP campaign. Specifically, the poster will highlight how the program: (a) introduces students to the related disciplines and prepares them for future research, (b) fosters collaborative work across schools and disciplines within the university, and (c) affects retention, graduation, and LEAP essential learning outcomes of participants. The facilitator will be available to discuss the implications for and applicability to other research universities.

Brandi Leigh Gilbert, Director of Life-Health Sciences Internship Program—Indiana University-Purdue University Indianapolis

POSTER 11: Preparing Undergraduate Students to be Scientific Collaborators: An Integrated Approach

This poster will feature a developmental approach to teaching scientific research skills that culminates in students participating in collaborative research with faculty members. This approach evolved over several years after faculty at Mary Baldwin College participated in a Council on Undergraduate Research (CUR) regional workshop on institutionalizing undergraduate research. Faculty in the departments of biology and chemistry revised curricula and course content to develop a systematic, cross-disciplinary, developmentally-appropriate approach to preparing students to engage with authentic scientific problems as part of faculty-student collaborations. This poster will describe the curricular problems identified, the steps

taken to address them, and remaining challenges. A student whose senior project bridged the biology and chemistry departments will be part of the presentation team.

Paul Deeble, Assistant Professor of Biology, **Karl Zachary**, Assistant Professor of Chemistry, and **Margaret Bivans**, Alumna—all of Mary Baldwin College

Mapping Research Preparation and Practice

POSTER 12: Using Undergraduate Research to Advance Theoretical Research

This poster will propose an approach to undergraduate research that employs capstone and research methods courses as a resource for scholarship. Though many disciplines require research for graduation requirements, most is not published. Additionally, students struggle to find meaningful research topics, causing frustration and loss of time. The facilitator and a colleague from Pacific Lutheran University recently recommended a model where a committee from the American Psychological Association would generate a yearly list of ten “critical questions” each spring. With this list, students could do research that is personally relevant and valuable to their disciplines. Completed data could be submitted to a web-portal that would generate collective data sets available for meta-analysis. Collectively, these data would provide strong generalizable findings to test competing theories. Participants will have an opportunity to consider alternative models of “critical question” selection and discuss strategies for implementation. This poster will be of interest to administrators and faculty from undergraduate institutions seeking to increase the meaningfulness of student–faculty research while advancing theoretical contributions to scientific disciplines.

Jon E. Grahe, Associate Professor of Psychology—Pacific Lutheran University

Mapping Research Preparation and Practice

POSTER 13: Representing the Variety of Student Research in a Senior Research Symposium

Undergraduate researchers in the humanities and arts are often less prepared than their counterparts in the STEM fields to present their research clearly and succinctly to a broader audience. The College of Wooster, for example, has had a strong tradition of poster sessions for students in the sciences, but until recently the campus was less successful in showcasing the research of students in the humanities, arts, and social sciences. This poster will depict the variety of methods for student presentations represented in the college’s senior research symposium. These presentations capture disciplinary differences in how to communicate, as well as a variety of options for students with a range of learning styles. Attendees will be provided with models for including students from all disciplines in research showcases as well as creative venues for representing student work. The display will include examples of student’s digital presentations, poster presentations, and oral presentations.

Heather M. Fitz Gibbon, Dean for Faculty Development—The College of Wooster

Mapping Research Preparation and Practice

POSTER 14: Strategies for Increasing Student and Faculty Participation in Undergraduate Research

At Thompson Rivers University in British Columbia, campus leaders have endeavored to increase participation in undergraduate research by faculty and students. Undergraduate research addresses two institutional strategic goals: student engagement and integration of research and teaching. This poster will highlight the factors that foster student and faculty engagement in undergraduate research and how these link to the institutional strategic plan. Students participate through a range of practices that span the academic years. An annual conference has grown from a small number of projects isolated in a few disciplinary areas into an institution-wide innovation and research conference that included 100 students across 23 disciplinary areas.

Gary A. Hunt, Coordinator, Centre for Teaching and Learning—Thompson Rivers University

Mapping Research Preparation and Practice

POSTER 15: Science vs. Pseudoscience: An Interdisciplinary Gateway to Research

Survey research has been tracking increasing levels of pseudoscientific beliefs among college students as well as in the general public. For example, more people believe in astrology than in evolution. How can colleges adequately address this alarming trend by encouraging students to think like scientists without major restructuring of the curriculum? This poster will present details on an interdisciplinary sophomore-level course, Science vs. Pseudoscience, which emphasizes use of the scientific method as a gateway to individualized research projects during the following semester. The instructor and a student will discuss procedures used in developing the course as

well as course materials. They will also present preliminary survey data on its effectiveness. **Mary M. Buser**, Associate Professor of Psychology and **Natalie Gruenke**, Student—both of University of Wisconsin–Sheboygan

Liberal Education and America's Promise Featured Session LEAP 

Mapping Research Preparation and Practice

POSTER 16: Disciplinary Perspectives on Successful Mentoring for Undergraduate Research

This poster will share the findings and recommendations of a year-long study of undergraduate research mentoring at the University of Wisconsin–Whitewater. Until recently, only a few studies have systematically investigated what best contributes to the success of mentored student research projects. As a result, during the 2009-2010 school year, the Undergraduate Research Program at the University of Wisconsin-Whitewater carried out a series of surveys and campus-wide workshops to explore problems that mentors and students encounter while conducting research, and the strategies they employed, or have suggested, to overcome them. This poster will present the results of this research project and identify practices that are conducive to successful mentoring, different models of mentoring in the disciplines, and how a university undergraduate research program can better support faculty mentoring of student research.

Seth Meisel, Director, Undergraduate Research Program and **Catherine Chan**, Associate Director, Undergraduate Research Program—both of University of Wisconsin-Whitewater

Mapping Research Preparation and Practice

POSTER 17: Not Just for Nerds: The Psychology Thesis Capstone at Westminster College

"I'd never known I was such a nerd. Taking this two-semester class provided me with a basic but thorough understanding of the research process and the merits of good science. It was the best decision of my college career." Preparing students for the research endeavors that they will encounter as graduate students should be an important part of undergraduate preparation. Psychology majors at Westminster College, a small liberal arts college in Missouri, receive preparation for future work as graduate students in a two-semester capstone senior thesis program. This poster will discuss the process of helping students to develop their critical thinking, discussion, writing, oral presentation, and statistical skills; explain the process by which the two-semester course is taught; and offer ideas that can be used in the small school undergraduate environment.

David K. Jones, Professor of Psychology—Westminster College

Mapping Research Preparation and Practice

POSTER 18: Undergraduate Research across the Curriculum: Three Models in the College

Undergraduate research can vary greatly between disciplines, which often makes it difficult for faculty and administrators to equitably promote and support undergraduate research initiatives on a diverse college campus. This poster will describe three successful models of undergraduate research (institutionalized courses, student-driven projects, and faculty-student collaborations) that are used across disparate disciplines in Winthrop University's College of Arts and Sciences.

Dwight Dimaculangan, Director of Undergraduate Research for the College of Arts and Sciences and Professor of Biology—Winthrop University

Implementing, Scaling-up, and Sustaining Programs

POSTER 19: Implementation of Student Research at a Small Liberal Arts College

A group of faculty from the natural sciences, social sciences, and humanities at Albertus Magnus College, a small liberal arts institution, have recently designed and implemented a curriculum that incorporates student–faculty research across multiple academic disciplines. This model of integrative research is based on investigative projects completed in the context of course work, off-campus collaborations with other institutions, practica, and independent studies. Research progress is disseminated through an annual poster session held on campus and through student participation in both regional and national meetings. The conceptual and financial support of the college's administration has been a critical component in the model's success. This poster will

highlight the model, which has transformed faculty and student attitudes towards research as an essential element of a college education.

Hilda Speicher, Associate Professor of Psychology and Coordinator of the Psychology Accelerated Degree Program and **Patricia A. Compagnone-Post**, Associate Professor of Biology—both of Albertus Magnus College

Implementing, Scaling-up, and Sustaining Programs

POSTER 20: Engaging Early-Career Undergraduate Students in Novel Scientific Research

Undergraduate research arguably provides the finest educational experience for science students. Yet providing a large number of early-career undergraduates with developmentally appropriate research projects poses significant challenges at small colleges and research-intensive universities alike. Ideal student outcomes of undergraduate research include reading and discussing primary literature; forming hypotheses; designing, implementing and analyzing experiments; feeling a sense of project ownership; collaboration; and communication and dissemination of findings. This poster will feature a model for engaging large groups of students in original scientific pursuits, along with the transformative impact on students, faculty, and institutions. Nearly 30 institutions are involved in a bacteriophage discovery experience for entering freshmen, sponsored by the Howard Hughes Medical Institute's Science Education Alliance. Participants will be able to explore projects that would be feasible at their own institutions.

Louise Temple, Professor of Integrated Science and Technology—James Madison University; **Sue Carson**, Biotechnology Program Academic Coordinator—North Carolina State University; and **Allison A. Johnson**, Assistant Professor of Biology—Virginia Commonwealth University

Implementing, Scaling-up, and Sustaining Programs

POSTER 21: Coordinating an Undergraduate Research Office: Innovative, Collaborative Program Models

This poster will highlight the implementation of a university-wide undergraduate research office that houses 11 different programs in collaboration with university partners. The poster will focus on two unique undergraduate research programs: (a) a multi-disciplinary fellowship program that pairs a faculty mentor with an undergraduate student and (b) a research mentoring program directed by the graduate school that pairs a doctoral student with an undergraduate student. Strategies for implementing, assessing, and maintaining these types of innovative programs across disciplines will be emphasized, with additional focus on applying similar models at other institutions.

Patrick M. Green, Director and Clinical Instructor of Experiential Learning, **Jessica Horowitz**, Assistant Dean of the Graduate School, and **Kelly Christopher**, Undergraduate Research Coordinator—all of Loyola University Chicago

Implementing, Scaling-up, and Sustaining Programs

POSTER 22: Supporting and Scaling Up Undergraduate Research: Institution-Specific Considerations

This poster will describe elements of institutional structure and culture that facilitate or inhibit the development and expansion of undergraduate research programs. Materials will include a matrix that accounts for elements such as the connection between institutional mission and undergraduate research, administrative structure, faculty engagement, curricular configurations, and other institutional characteristics. The poster will depict the particular processes and structures that have evolved at a small, single-sex, liberal-arts college to demonstrate both one model of an integrated and intentional undergraduate research program, and the utility of considering multiple institutional variables in analyzing program development processes and capacity. Participants will examine the potential and challenges of undergraduate research initiatives at their respective institutions.

Catharine O'Connell, Vice President for Academic Affairs and Dean of the College and **Lydia Petersson**, Director of Sponsored Programs and Undergraduate Research—both of Mary Baldwin College

Implementing, Scaling-up, and Sustaining Programs

POSTER 23: Implementing Undergraduate Research at a 'New' University

Mount Royal University, a two-year college for the last 99 years, recently made the jump to a four-year undergraduate-only university. With a vision of remaining teaching-focused while embracing faculty research activities, undergraduate research has emerged as a natural fit with the institution's aspirations. This poster will focus on the practical problems of retooling an institution to one with undergraduate research as a centerpiece. The poster will describe the multi-year process of developing undergraduate research champions, creating the environment for undergraduate research implementation, and the first successes of the program. It will also look at integration into university-wide learning outcomes, integration into general education, and a 'campaign' approach to selling undergraduate research campus-wide.

Trevor Davis, Associate Vice President for Research—Mount Royal University

Implementing, Scaling-up, and Sustaining Programs

POSTER 24: Launching an Undergraduate Research Initiative

In 2008, Santa Clara University launched an undergraduate research Initiative designed to expand research opportunities for undergraduates, foster a culture supportive of undergraduate research, and develop an infrastructure for undergraduate research. The initial five components of the initiative involve: (a) web-based resources, including a searchable project database; (b) pilot projects exploring various approaches for recognizing the mentorship of undergraduate research in a faculty member's teaching load; (c) marketing materials, including videos, to highlight current campus undergraduate research activities; (d) research celebration events; and (e) new funding streams for both undergraduate research and conference travel. The undergraduate research initiative is administered by the office of research initiatives with the provost's office. Evaluation results from the first two years of the initiative will be presented.

Amy Shachter, Associate Provost for Research Initiatives—Santa Clara University

Implementing, Scaling-up, and Sustaining Programs

POSTER 25: Issues in Recruiting Underrepresented Minority Business Majors for Research

Many institutions face an ongoing problem related to the difficulty of engaging undergraduates in professional programs (e.g., business, architecture, education) in research opportunities. This poster will feature a study of underrepresented minority business majors at one doctoral/research-extensive university. The study identified three major student-identified issues that contribute to the lack of business students in undergraduate research: communication, intimidation, and misconceptions. Communication issues arose from understanding the nature of research, its benefits, and the availability of research opportunities. Intimidation was a factor both in doing the research itself and in approaching faculty to request a research experience. Misconceptions included the perception that research was an activity to be done in graduate school and that a research experience would not be beneficial to their careers. The identification of these obstacles to student recruitment has led Texas A&M to initiate approaches to encouraging underrepresented minority students to participate in undergraduate research.

Sumana Datta, Assistant Dean of Undergraduate Research and Associate Professor of Biochemistry and Biophysics and **Carlton Mathis**, Graduate Student of Sociology—both of Texas A&M University

Implementing, Scaling-up, and Sustaining Programs

POSTER 26: Building a Community of Scholars among Multiple Summer Programs

Summer programs are increasing in popularity among students and institutions as a way to increase the number of students engaging in research. At the University of Missouri-Columbia, there are a number of National Science Foundation-REU (Research Experiences for Undergraduates) programs, campus and departmental sponsored programs, and many students with no ties to any formal educational or social programming funded by faculty grants. Peer relationships are critical to student development and learning, and the undergraduate research experience presents another opportunity to build these peer relationships. For the past 20 years, campus leaders have been collaborating among programs to create an economy of scale for implementing activities and to bring together students for educational and social activities. This

poster will describe joint activities, how these activities (approximately 40 each summer) are scheduled into a nine-week program, results from student evaluations, and the variety of participants.

Linda Blockus, Director of Undergraduate Research—University of Missouri-Columbia

Implementing, Scaling-up, and Sustaining Programs

POSTER 27: Building the Research Community at a Hispanic-Serving Institution

This poster will provide participants with the opportunity to examine the methods utilized by a medium-sized private university to implement, scale up, and sustain undergraduate research programs. The session will present practical programs that work, engaging both faculty and students in the culture of scholarship. Several models employed by University of the Incarnate Word will offer participants multiple approaches suitable for their own institutional settings. These models include: (a) an externally funded, institutionally based program (Ronald E. McNair Post-baccalaureate Scholars Program); (b) an internally funded, institutionally based program (honors program); (c) core curriculum requirements to provide basic research competencies; (d) capstone research experiences linked to major curriculum requirements; and (e) individual research experiences connected to institutional research centers.

Kevin B. Vichcales, Dean of Graduate Studies and Research and Roberta M. Leichnetz, Director of the McNair Scholars Program—both of University of the Incarnate Word

Implementing, Scaling-up, and Sustaining Programs

POSTER 28: Training 21st Century Scientists: An Undergraduate Research Program in System Biology

Virginia Commonwealth University (VCU) has built a transformative undergraduate research, education, and training program in systems biology to better educate science majors and prepare them for careers in the life sciences. VCU's Summer Scholars Program in Systems Biology will be highlighted as a novel approach to a summer undergraduate research program. The program aims to engage students in systems-based research and expose them to a systems view of life sciences. Students learn about the field through classroom sessions with a hands-on activity, generally computational, that allows them to practice a systems approach to data analysis. Mentored research projects teach students a systems approach to scientific research. This poster will describe the impact of this undergraduate research program on the student experience and education at VCU.

Allison A. Johnson, Assistant Professor of Biology—Virginia Commonwealth University

FRIDAY, NOVEMBER 12, 2010

7:45 – 8:45 A.M.

CONTINENTAL BREAKFAST

Rotunda & President's Gallery

Participants may visit the continental buffet and take their breakfast to the session of their choice during the 8:00 – 9:00 a.m. time frame.

8:00 – 9:00 A.M.

CONCURRENT SESSIONS

Defining and Assessing Undergraduate Research and Creative Practice

CS 1: Assessment Strategies for Cross-Disciplinary Undergraduate Research Programs

President's Ballroom III & IV

Cross-disciplinary or campus-wide undergraduate research programs provide opportunities for students in disciplines that have diverse methodologies, presentation formats, and goals for research as a mode of discovery. As a result, these programs are often administered by faculty or directors who are not directly providing the learning experience, and assessment of learning outcomes, in particular, presents challenges to the administrators of these programs. In this discussion, the facilitators will present a model for assessment being used at Meredith College, North Carolina and provide worksheets for participants to develop assessment strategies for their own campus-wide programs. The discussion will allow participants to clarify learning outcomes

and identify assessment tools relevant to their own cross-disciplinary undergraduate research programs.

Francie Cuffney, Director of Undergraduate Research, **Pam Steinke**, Director of Research, Planning and Assessment, **Ai-Vy Riniker**, Junior Biology Major, and **Kristen Gallagher**, Sophomore Art Major—all of Meredith College

Defining and Assessing Undergraduate Research and Creative Practice

CS 2: Implementing Team-Based Undergraduate Research in All Disciplines

Ambassador Duke

Beginning in 2005, Clemson University implemented the Creative Inquiry (CI) program as a means of making research experiences accessible to all students, in all disciplines. More than 300 CI Teams have been formed, each consisting of two to twenty students guided by one or more members of the Clemson faculty. Each team identifies an open-ended research question that the students pursue over the course of several semesters. This session will begin with an overview of Clemson's CI program, including the results of student and faculty assessments. Session participants will then engage in an open discussion of the challenges and benefits of campus-wide and team-based undergraduate research. Specific topics to be addressed include: (a) methods for garnering faculty and departmental support; (b) relevance to academic curricula and learning outcomes; (c) financial support models; and (d) program management and accountability. Participants will be invited to share information from similar programs at their institutions.

Barbara J. Speziale, Associate Dean of Undergraduate Studies and Professor of Biological Sciences and **David K. Knox**, Director of Institutional Assessment—both of Clemson University

Faculty Roles and Rewards

CS 3: Faculty Roles and Rewards for Mentoring: Hiring Contracts, Annual Reports, and P&T Guidelines

Forest

Many studies show that discovery-based learning through undergraduate research produces excellent educational and career development outcomes for students. However, mentorship within undergraduate research is dependent upon a willing faculty. It remains unclear how faculty are to be recognized for such work in institutional reward systems. In this session, the facilitators will frame discussion around a series of questions. What would it take to develop hiring contracts, annual faculty activity reports, and promotion and tenure (P&T) guidelines that enable faculty to: (a) become mentors for undergraduates, (b) contribute to the assessment of these activities through annual reporting, and (c) be rewarded in the P&T process? Is mentorship a service or teaching activity? Does the recruiting of mentors differ across disciplines? Is the mentoring of early undergraduates versus declared majors different? Participants will assess how their own institutions have progressed with respect to these questions and are encouraged to bring a copy of relevant documents from their campuses. Additional references and links will be provided to assist the participants in building institutional support for faculty mentorship in undergraduate research.

Svetlana T. Karpe, Director of Undergraduate Research Scholars Program—University of Wisconsin-Madison; **George T. Barthalmus**, Director of Office of Undergraduate Research, and **Betsy E. Brown**, Vice Provost for Faculty Affairs—both of North Carolina State University

Mapping Research Preparation and Practice

CS 4: Promoting Undergraduate Research in Freshman Interest Groups

Academy

Integrating basic undergraduate research principles into a residential Freshman Interest Group (FIG) can introduce first-year students to notions of creativity, inquiry, and discovery. Such a residential FIG program recognizes first-year students in their new role as independent thinkers, reinforces this role, and combines both interdisciplinary and inquiry-based instructional perspectives. In this session, the facilitator will provide a brief overview of the basic components of a residential FIG program and share a model that integrates undergraduate research activities into each course and features active and collaborative learning experiences. Participants will learn how to: (a) identify potential FIG courses that promote analytical thinking, critical thinking,

and communication skills appropriate to undergraduate research; (b) promote more meaningful and visible connections between academic learning and student life; and (c) make undergraduate research learning objectives more explicit.

Gerald Lee Ratliff, Associate Vice President for Academic Affairs—State University of New York College at Potsdam

Mapping Research Preparation and Practice

CS 5: Creating a Culture of Research: Developing Strategic Partnerships

President's Ballroom I & II

Creating opportunities for student participation in activities known to enhance academic success and personal growth is a “hot topic” on campuses today and is a central part of AAC&U’s LEAP initiative. In this session, participants will examine how undergraduate research program leaders can develop strategic partnerships and leverage resources to enhance research opportunities, with the ultimate goal of creating a vibrant culture of research across the institution. The facilitators will highlight research programs developed across student affairs and academic affairs offices at two very different institutions (a public research university and a small liberal arts college), each at different stages of program development but with similar program goals. Participants will explore how such partnerships can connect students’ experiences outside the classroom with their work in the lab or in another form of mentored research. Participants will also be encouraged to share program examples, concepts, and ideas.

Asheley Schryer, Assistant Director, Office of Undergraduate Research and **Julie Morris**, Director, Office of Undergraduate Research—both of University of South Carolina; **Heather M. Fitz Gibbon**, Dean for Faculty Development and Professor of Sociology and **Cathy McConnell**, Director of the Lilly Project and the Educational Planning and Advising Center—both of The College of Wooster

Mapping Research Preparation and Practice

CS 6: Developing a Credit-Based Course to Introduce and Engage Students in Research

Vista

This session will examine the place and format of an introductory research course for first-year students and sophomores at two universities. The two model courses that will be featured seek to provide a curricular portal to research for students. One course approaches the topic through the philosophy of science and exposes students to a diversity of research, assisting students in identifying interests and crafting a plan for future research participation. The second course is a rigorous introduction to research participation through a sequential process of research procedures, along with the ethical and social aspects of the research enterprise. Participants will explore the introductory research course in the context of general education, curriculum and co-curriculum development, and student vocational and social development, and as an alternative to discipline-specific courses.

Gary M. Talarchek, Senior Program Manager—Tulane University; and **Janet Branchaw**, Researcher, Center for Biology Education—University of Wisconsin-Madison

Implementing, Scaling-up, and Sustaining Programs

CS 7: Learning by Doing: Models for Undergraduate Research in the Liberal Arts

Ambassador Allen

Evidence shows that guided independent research promotes development of critical and creative thinking, a highly desired outcome of a liberal arts education. Good models for undergraduate research in the sciences abound; less common are models that work well for other liberal arts disciplines. In this session, faculty and student facilitators will share an approach that supports a range of flexible options for student research in the humanities, social sciences, and arts, as well as in the sciences. The approach is marked by four key characteristics that will be explained in detail: (a) institutional support for research activity; (b) courses that develop students’ research skills; (c) flexible options for timing and structure of guided independent research; and (d) public acknowledgment of effort and outcomes that fosters a campus climate of intellectual inquiry.

Participants will be invited to share their own ideas and successful models for undergraduate research for non-science disciplines, in particular.

Julie Woodzicka, Associate Professor of Psychology, **Genelle Gertz**, Assistant Professor of English, **Art Goldsmith**, Jackson T. Stephens Professor of Economics, **Margaret Paul**, Undergraduate Student, and **Christian Roden**, Undergraduate Student—all of Washington and Lee University

9:20 – 10:30 A.M.

PLENARY

President's Ballroom

Undergraduate Research across the Disciplines: Evidence of Impact

How do we know that student engagement in research actually leads to the many outcomes it claims? How is research positioned in the undergraduate curriculum as a critical bridge to success for non-traditional students? Three nationally recognized researchers will share findings about the ways in which undergraduate research advances students' abilities to integrate knowledge and tackle unscripted problems.

Susan Elrod, Executive Director of Project Kaleidoscope—AAC&U; **Jillian L. Kinzie**, Associate Director, National Survey of Student Engagement—Indiana University Bloomington; and **Elaine Seymour**, Director Emerita of Ethnography and Evaluation Research—University of Colorado at Boulder

11:00 A.M. – 12:15 P.M.

CONCURRENT SESSIONS

Defining and Assessing Undergraduate Research and Creative Practice

CS 8: Leveraging Assessment and Evaluation to Institutionalize Undergraduate Research

President's Ballroom III

The Undergraduate Research Opportunity Program (UROP) at the University of Michigan was developed in 1998 to increase the retention of underrepresented minority students. UROP uses various strategies to ensure the academic success and retention of its students and has proven to be effective in these areas. In this session, the facilitators will: (a) discuss specific, research-based programmatic elements that support diverse students' transition to college and learning (e.g., research seminars, peer advising, and presentations at symposia) and (b) share evidence of program effectiveness. Participants will spend most of the session brainstorming elements of their own plans for evaluating and assessing undergraduate research programs, including the identification of research questions and collaborative partners and the modification of existing quantitative and qualitative data instruments. Each participant will be given a packet with assessment instruments, previous research on UROP effectiveness, and an annotated bibliography on UROPs.

Angela M. Locks, Assistant Professor, Student Development in Higher Education Program, **Francisco Castillo**, Health Professions Advising Office Coordinator, Student Access to Science and Math Center, and **Diliana Peregrina**, Graduate Student, Student Development in Higher Education Program—all of California State University-Long Beach; and **Sandra R. Gregerman**, Director, Undergraduate Research Opportunity Program—University of Michigan

Faculty Roles and Rewards

CS 9: Integrating Faculty Development, Scholarship, and Undergraduate Research Mentoring

Forest

In this session, participants will explore a number of obstacles to and strategies for developing a robust undergraduate research program, using a case study about a private, liberal arts university. Organized by roles—administrators, program directors, and faculty—workshop participants will work with the case, individually, in homogenous role-based groups, and in heterogeneous role-based groups to: (a) identify opportunities and challenges, (b) develop strategies for strengthening programs and addressing challenges, and (c) generate a skeleton three-year plan for programmatic development. Participants' work will be guided by a set of questions/heuristics designed both to focus attention on key factors and to uncover important issues, differences, and tensions that arise out of the different roles of key constituents.

Participants will leave the workshop having gained a set of generalizable program development strategies through hands-on, interactive, contextualized program/institutional analyses and synthesis, whole-group facilitated discussion, and presentation from workshop leaders.

Maureen Vandermaas-Peeler, Director of Honors and Professor of Psychology, **Paul Miller**, Director of Undergraduate Research and Professor of Exercise Science, **Tim Peeples**, Associate Provost of Faculty Affairs, **Maurice Levesque**, Associate Dean of Arts and Sciences and Professor of Psychology, **Michael Carignan**, Associate Director of Honors and Associate Professor of History, and **Cindy Fair**, Associate Professor and Chair of Human Service Studies—all of Elon University

Mapping Research Preparation and Practice

CS 10: Preparing Minority Students for Research Careers in the Biomedical Sciences

Academy

The Department of Biology at North Carolina Agricultural and Technical State University has implemented a pipeline model that exposes students to research early on, introduces them to research-based careers, and incorporates research into the undergraduate educational experience. This pipeline begins as early as high school to tap into students' research potential while helping them balance research with academic performance. The model includes enrichment programs, workshops, seminars, and site visits to adequately prepare students for terminal degree programs and eventual research careers in the sciences. In this session, the facilitators will share the impetus for the model, current implementation, and suggestions for involving minority students in research.

Goldie Smith Byrd, Nathan F. Simms Endowed Professor, **Dedra Eatmon**, University Lecturer, and **Dana R. Taylor**, Program Coordinator—all of North Carolina Agricultural and Technical State University

Mapping Research Preparation and Practice

CS 11: First-Year Experiences and Beyond That Build Undergraduate Research Skills

Ambassador Allen

First-year students often arrive at college without a clear understanding of undergraduate research and the potential such activity holds for their college education. Instead of waiting until well into the students' majors before engaging in undergraduate research, campuses are beginning to integrate undergraduate research in the freshman year. The facilitators will share: (a) how to create unique, developmentally appropriate experiences that expose students to undergraduate research early and that continue across all four years; (b) first-hand accounts about developing, teaching, and administering experiences that are anchored across campus operations; (c) systematic assessment of students' learning based on the outcomes that undergird undergraduate research; and (d) supporting research with limited resources.

Gail Summer, Dean of Academic Programs and Faculty Development—Ferrum College; and **Diana Ridgwell**, Director of Student Development and Director of the Undergraduate Research Institutes—Virginia Polytechnic Institute and State University

Liberal Education and America's Promise Featured Session LEAP 

Mapping Research Preparation and Practice

CS 12: Looking and LEAPing: Undergraduate Research in the General Education Curriculum

Ambassador Duke

This session will introduce two innovative models for incorporating undergraduate research within a research university's general education program. Facilitators will explain how they have successfully integrated research into large lecture classes and into general education requirements of the major and also discuss issues surrounding the implementation of each model. Through guided, small-group discussions, participants will brainstorm strategies for adapting these models to create general education courses that foster critical thinking and the

creation of new knowledge through inquiry-based learning. The session will conclude with a question-and-answer session, addressing potential challenges and methods of assessment. **Naomi Yavneh**, Associate Dean of Honors and Director of the Office of Undergraduate Research, **Karla Davis-Salazar**, Associate Professor of Anthropology, and **Janet L. S. Moore**, Associate Dean of Undergraduate Studies—all of University of South Florida; and **Laura Damuth**, Director of Undergraduate Research—University of Nebraska, Lincoln

Liberal Education and America's Promise Featured Session LEAP 

Implementing, Scaling-up, and Sustaining Programs

CS 13: Extending Undergraduate Research across the Disciplines

Vista

Undergraduate research is a high-impact educational practice that adds value to students' learning and career preparation. Undergraduate research strengthens many of the essential learning outcomes identified by LEAP (AAC&U, 2008), including inquiry/analysis, critical/creative thinking, and teamwork/problem solving, and at builds students' tolerance for obstacles, readiness for more research, and self-confidence. These outcomes are important for all students, but most colleges and universities have struggled to institutionalize undergraduate research beyond the sciences. Fewer still have created models for interdisciplinary undergraduate research—helping students think beyond the silos created by attitudes, cognitive styles, and shared behaviors of single disciplines. This session will present models for broadening participation in undergraduate research and developing interdisciplinary approaches. Participants will work in groups to identify strengths and weaknesses of their undergraduate research programs, identify barriers to institutionalizing this pedagogy across campus, and develop action plans for improving interdisciplinary collaboration.

Lorna Hernandez Jarvis, Professor of Psychology, **Christopher Barney**, Professor of Biology, and **Curtis Gruenler**, Associate Professor of English—all of Hope College

Implementing, Scaling-up, and Sustaining Programs

CS 14: Transformative Research: Working with Undergraduates to Chart New Research Paradigms

President's Ballroom IV

Undergraduate research has been shown to be not only an effective form of learning, but also a way to help faculty stay engaged in teaching and scholarship and make significant original contributions to their disciplines. Recently, however, the national conversation has begun to focus on whether undergraduate research can also be “transformative.” Session facilitators will present their views on the need for transformative research including: (a) lessons learned from a summit on this topic and subsequent research done by the Council on Undergraduate Research (CUR); (b) how transformative research can impact student learning, faculty engagement, the institution, and the larger community; (c) how private foundations can shape research activities at undergraduate institutions; and (d) ways in which individuals and institutions can overcome the challenges of doing research that can potentially change paradigms and address major contemporary problems. The session will include case studies that highlight models of transformative undergraduate research, and participants will discuss challenges to conducting transformative research and ways to overcome these barriers.

Diane W. Husic, Immediate Past President, Council on Undergraduate Research and Chair and Professor of Biological Sciences—Moravian College; **Silvia Ronco**, Program Officer—Research Corporation for Science Advancement; and **Moses N. F. Lee**, Professor and Dean of Natural Sciences—Hope College

12:30 – 2:15 P.M.

LUNCHEON ADDRESS

(separate registration and fee required)

President's Ballroom I & II

Can Undergraduates Build A Better World?

In this luncheon plenary, Bob Musil, author of *Hope for a Heated Planet: How Americans Are Fighting Global Warming and Building a Better Future*, draws on his experience as head of Physicians for Social Responsibility and as a nationwide campus consultant and lecturer to show how inspiring undergraduate research and community projects at colleges and universities are often in the forefront of tackling critical social and environmental problems and creating innovative solutions. He will examine the ways in which students are asking and tackling the truly big questions while acting as involved and ethical advocates.

Robert K. Musil, Senior Fellow, Adjunct Professor, The Center for Congressional and Presidential Studies—American University and former CEO—Physicians for Social Responsibility, an organization that won the 1985 Nobel Peace Prize

2:30 – 3:45 P.M.

CONCURRENT SESSIONS


Defining and Assessing Undergraduate Research and Creative Practice

CS 15: Interdisciplinary Implementation of Rubrics to Assess Undergraduate Student Research

Ambassador Duke

In this session, faculty will discuss the implementation of rubrics for assessing undergraduate student research that focus on theory-driven research, logical arguments and hypotheses, effective and appropriate research design and analysis, and suitably interpreted conclusions. Session facilitators will highlight how the rubrics were developed (including similarities and differences across disciplines), the utility of using rubrics (both for student self-assessment in developing/revising their project and for faculty assessment of the project), and common challenges encountered in student research projects. Participants will work with the facilitators in small groups to develop rubrics specific to their undergraduate research goals.

Shevaun Stocker, Assistant Professor of Psychology, **Jennifer Christensen**, Assistant Professor of Teacher Education, **Monica Roth Day**, Assistant Professor of Social Work, and **Eleni Pinnow**, Assistant Professor of Psychology—all of University of Wisconsin-Superior

Liberal Education and America's Promise Featured Session LEAP 

Mapping Research Preparation and Practice

CS 16: Research-Based Learning from the Start: Developing Undergraduate Researchers

Forest

For students to be receptive to full-blown undergraduate research experiences, they need to develop critical foundational skills beginning in the first year. This session will describe a faculty institute that was created at the University of Nevada, Las Vegas (UNLV) to engage a cohort of faculty in designing research-based assignments exposing a large number of students in the general education curriculum to the content-embedded research skills needed to pursue independent inquiry. Focused on LEAP essential learning outcomes of information literacy and inquiry and analysis, the institute was based on a model of the research process that conceptualizes levels of skill development aligning with newly redesigned student learning outcomes and general education requirements at UNLV. In addition to sharing the institute curriculum and impact data, the facilitators will work with participants to assess the need and potential collaborators for intentionally integrating the development of research skills into the curriculum at their institutions.

Jennifer L. Fabbi, Special Assistant to the Dean of Libraries and Interim Assistant for Academic Programs, Office of the Vice Provost for Academic Affairs, and **Anne Zald**, Head of Instruction for University Libraries—both of University of Nevada-Las Vegas

Implementing, Scaling-up, and Sustaining Programs

CS 17: Supporting Departmental Distinctiveness within Undergraduate Research

Ambassador Allen

This session will highlight how Duke University's Trinity College has supported different departmental approaches to undergraduate research. One size does not fit all, and thus the

facilitators will address: (a) the challenges encountered in funding wide-ranging departmental needs and (b) how Trinity was able to fine-tune departmental funding to support specific program development while preserving Duke's mission to provide a superior liberal education. The facilitators will share examples of specialized program development in the departments of chemistry, evolutionary anthropology, and psychology and neuroscience, and participants will consider how elements of these programs might be adapted to their own institutional contexts.

Lee D. Baker, *Dean of Academic Affairs, Trinity College of Arts & Sciences*, **Leslie J. Digby**, *Director of Undergraduate Studies, Department of Evolutionary Anthropology*, **Richard A. MacPhail**, *Co-Director of Undergraduate Studies, Department of Chemistry*, **Bisa Meek**, *Administrative Assistant*, and **David L. Rabiner**, *Director of Undergraduate Studies, Department of Psychology and Neuroscience*—all of Duke University

Implementing, Scaling-up, and Sustaining Programs

CS 18: Undergraduate Student Research at a Minority-Serving Community College

Vista

Queensborough Community College is committed to involving first- and second-year students in science research. A constituent campus of the City University of New York and a minority-serving institution, Queensborough has devoted considerable effort to obtaining necessary resources to provide opportunities for students to engage in research. In this session, the facilitators will describe the efforts by faculty to institutionalize undergraduate student research at Queensborough. Participants will learn about: (a) how the institution addressed impediments to such efforts; (b) how to secure funding; and (c) how to engage students in research inside and outside the classroom. Time will be devoted for participants to discuss individual projects and share their own experiences and strategies for institutionalizing undergraduate research.

Diane Call, *Provost and Senior Vice President for Academic Affairs*, **David Lieberman**, *Professor and Chairperson of Physics*, and **Paul Marchese**, *Assistant Dean for Academic Operations*—all of Queensborough Community College

Implementing, Scaling-up, and Sustaining Programs

CS 19: Embedding Research Centers in Departments for Sustainable Undergraduate Research

President's Ballroom IV

In 1995, the U.S. Air Force Academy began embedding research centers in academic departments. What began as three centers in aeronautical engineering, chemistry, and physics with \$2 million in external funding has grown to thirteen centers in ten departments with funding of \$50 million, providing a richly interdisciplinary research environment for students and faculty. This session will engage participants in translating and adapting the embedded research center strategy to implement, grow, and sustain the high-impact educational practices of undergraduate research and capstone courses/projects for their institutions. The facilitators will highlight key strategy elements and share practical examples of its successes and benefits in promoting students' deep, integrative learning. Participants will explore: (a) possible benefits and approaches to translating and adapting this strategy to their institutions; (b) potential challenges and roadblocks they could expect to encounter in implementing, scaling-up, or sustaining embedded research centers; and (c) ways to overcome these challenges.

Rex R. Kiziah, *Permanent Professor and Head of Physics*, and **Rolf C. Enger**, *Director of Education*—both of United States Air Force Academy

Implementing, Scaling-up, and Sustaining Programs

CS 20: Institutionalizing Undergraduate Research across the Disciplines

President's Ballroom III

This session will describe the efforts of liberal arts faculty at a comprehensive university to integrate undergraduate research across disciplines and colleges. Mercer University is currently institutionalizing an undergraduate research program, and the facilitators will draw on their own experiences to guide participants in addressing the following questions: How does administrative support factor into the development of an undergraduate research program? How do students disseminate their work? How might undergraduate research be integrated into the curriculum and pedagogy? How can faculty assess the effectiveness of the program? Session activities will

help participants conceptualize a holistic program of undergraduate research for their own institutions.

John Thomas Scott, Professor of History, **Kevin M. Bucholtz**, Assistant Professor of Chemistry, **Fletcher H. Winston**, Associate Professor of Sociology, and **David A. Davis**, Assistant Professor of English—all of Mercer University

Implementing, Scaling-up, and Sustaining Programs

CS 21: Liberal Education and America's Promise (LEAP): Turning Ideas into Action with AAC&U Resources

Academy

LEAP is a national initiative that champions the value of a twenty-first-century liberal education—for individual students and for a nation dependent on economic creativity and democratic vitality. Through LEAP, hundreds of campuses and several state systems are making far-reaching educational changes to help all their students—whatever their chosen field of study—achieve a set of essential learning outcomes fostered through liberal education and through a number of high-impact practices, including undergraduate research. In this session, participants will discuss how their institutions can get involved and use the LEAP initiative as a resource to help guide educational planning and practice.

Terrel Rhodes, Vice President, Office of Quality, Curriculum & Assessment, **Nancy O'Neill**, Director of Integrative Programs and the LEAP Campus Action Network, and **Bethany Zecher Sutton**, Chief of Staff and Coordinating Director, LEAP—all of AAC&U

4:00 – 5:15 P.M. CONCURRENT SESSIONS

Defining and Assessing Undergraduate Research and Creative Practice

CS 22: Immersive Learning and Undergraduate Research

Ambassador Allen

In this session, faculty will describe their university's decision to expand and enrich the traditional practice of undergraduate research by making interdisciplinary, collaborative, community-based research—"immersive learning"—the signature element of its strategic plan. Members of the panel will explain the connections between immersive learning and undergraduate research and provide brief case studies of the practice in the sciences, social sciences, and performing arts. They will also provide data to illustrate the annual progress of the university's endeavor to increase the number of students participating in immersive learning projects and to embed immersive learning in the university's 47 departments by 2012. Syllabi and websites will be provided.

Joe Trimmer, Director, Virginia Ball Center for Creative Inquiry, **John McKillip**, Associate Professor of Biology, **Melinda Messineo**, Associate Professor of Sociology, and **Jennifer Blackmer**, Associate Professor of Theater and Dance—all of Ball State University

Faculty Roles and Rewards

CS 23: Supporting Faculty Involvement in Undergraduate Research: The Graduate Student Role

Ambassador Duke

This hands-on session will address the design of programs to involve graduate students as "coaches" for undergraduate researchers in otherwise conventional courses and as mentors for individual research projects in all disciplines. Assessments of the importance of these activities for over 1,000 graduate student participants (with associated data for faculty and undergraduates) provide a rich resource for workshop participants as they consider what might work on their campuses. Participants will focus on changes that could be made in courses to make them more inquiry-based with the assistance of graduate students who coach but do not evaluate student work. Participants will also consider strategies to prepare and support graduate students to be effective mentors and to recognize them appropriately for their involvement.

Patricia J. Pukkila, Professor of Biology and Director of the Office for Undergraduate Research—University of North Carolina at Chapel Hill; and **Janice DeCosmo**, Associate Dean of Undergraduate Academic Affairs—University of Washington-Seattle

CS 24: Cultivating and Supporting High-Impact Learning across the College Years

President's Ballroom I

Undergraduate research is a high-impact learning experience that encourages students to apply classroom knowledge to real-life settings. To reap the advantages of such experiences, institutions need to scale up programs to provide research opportunities across the disciplines and to reach students with varying backgrounds, experiences, and skill sets. This session will highlight three different undergraduate research programs that work with students with differing academic abilities, teach research skills, and demonstrate the connections between research and society. One interdisciplinary program provides an introduction to the research process and prepares students for future research activities. Another emphasizes inquiry-based learning in an applied public policy seminar that encourages students to take part in developing future economic policies. A third program focuses on entrepreneurial STEM research development and commercialization. Through small and large group discussions, participants will examine the challenges, benefits, and feasibility of implementing similar programs on their campus. .

Korine Steinke-Wawrzynski, Director of Undergraduate Research, **Cynthia Jackson-Elmoore**, Dean of the Honors College and Professor of Political Science and Social Work, and **Bryan Ritchie**, Professor of Political Economy and Director of the Entrepreneurship Network—all of Michigan State University

CS 25: Art and Big Questions: How a First-Year Seminar Can Develop Reflective Thinking Habits

Forest

Part of preparing first-year students for original, meaningful research involves cultivating an imaginative, reflective thinking disposition necessary for intellectual growth and insightful research. The First-Year Seminar at Columbia College Chicago assumes that critically and creatively engaging with “big questions” that explore civics, ethics, and identity through arts and media can both guide students to cultivate the habits of heart and mind of engaged and literate citizens and simultaneously empower them with the reflective thinking dispositions necessary for good research. This session will explore how these goals converge in the seminar, whose stated learning outcomes are questioning, exploring, communicating, and evaluating in ways that avoid “hasty, narrow, fuzzy or sprawling” thinking. Participants will collectively explore the pedagogical and curricular implications of this approach and identify ways that it might lend itself to mapping research practices at participants’ home institutions during, and beyond, the first year.

Miranda Zent, Assistant Director of the First-Year Seminar, and **Robert C. Lagueux**, Director, New Millennium Studies, The First-Year Seminar—both of Columbia College Chicago

CS 26: Research Service Learning: Making the Academy Relevant Again

President's Ballroom IV

The Sanford School of Public Policy at Duke University has a rich legacy of providing leadership development courses and experiences for undergraduates that integrate research, policy analysis, and service to communities. This session will present a case study of the school's efforts to develop buy-in among tenured and tenure-track professors and to “mainstream” innovative research service learning/leadership pedagogy into the core curriculum for undergraduate majors. The facilitators will explore the opportunities and challenges of scaling up a sequenced research service learning program that builds robust participation among students, faculty, and community partners and achieves powerful results in student learning outcomes.

Alma G. Blount, Director, Hart Leadership Program; Lecturer in Public Policy, **Kristin A. Goss**, Assistant Professor of Public Policy and Political Science, **Bruce R. Kuniholm**, Dean of Sanford School of Public Policy and Professor and Chair of Public Policy, Professor of History—all of Duke University

Implementing, Scaling-up, and Sustaining Programs

CS 27: Institutionalizing Undergraduate Research: Bottom Up, Top Down, and Inside Out

President's Ballroom III

In this session, participants will develop strategies for capitalizing on existing opportunities for initiating, scaling up, or sustaining undergraduate research programs. The facilitators will present strategies for building programs from the “bottom up,” through grass roots efforts by committed faculty, as well as strategies for implementing programs from the “top down,” through the leadership of cabinet-level administrators. Finally, participants will explore strategies for connecting the efforts of faculty and top-level administrators by coordinating and transforming existing institutional structures and systems at the mid-level. At each stage of the workshop, the facilitators will provide examples from their own campus to illustrate how grass roots initiatives, institutional planning, and the day-to-day operations of the institution are gradually being brought into alignment to support and sustain undergraduate research. Through structured exercises, participants will work in small groups to apply strategies and examples to their own roles and institutional contexts.

Anne E. Blackhurst, *Dean of Graduate Studies and Research*, **Marilyn Hart**, *Director of the Undergraduate Research Center*, and **Dawn Albertson**, *Chair of the Undergraduate Research Conference*—all of Minnesota State University, Mankato

Liberal Education and America's Promise Featured Session LEAP 

Implementing, Scaling-up, and Sustaining Programs

CS 28: Advancing Inquiry and Analysis

President's Ballroom II

Finding strategies for advancing undergraduate research across a range of majors and levels of student development is always a challenge. Given the complexity of our students and our institutions, a one-size-fits-all model rarely works. This session will demonstrate that with a more flexible model of learning, institutions of various types can promote inquiry among diverse sectors of students and educators and without a significant influx of new resources. The facilitators will summarize a framework for advancing inquiry and describe multiple pathways geared toward diverse groups of students that have been created or revised specifically to advance the LEAP outcome related to inquiry and analysis. Participants will engage in hands-on activities to revise the framework to advance undergraduate inquiry at their institutions.

Kari Taylor, *Associate Director of Honors Program* and **Joyce Fernandes**, *Associate Professor of Zoology*—both of Miami University

SATURDAY, NOVEMBER 13, 2010

7:45 – 8:45 A.M.

CONTINENTAL BREAKFAST

Rotunda & President's Gallery

Participants may visit the continental buffet and take their breakfast to the session of their choice during the 8:00 – 9:00 a.m. time frame.

8:00 – 9:00 A.M.

CONCURRENT SESSIONS

Defining and Assessing Undergraduate Research and Creative Practice

CS 29: Developing a Research Symposium at Teaching Colleges: A Mentor-Based Approach

Ambassador Duke

In colleges that lack an infrastructure for undergraduate research, the role of the faculty mentor is especially critical. Faculty/student collaboration presents both challenges and rewards. Employing disciplinary perspectives and the experience of two teaching-centered colleges, the facilitators will share ideas and strategies aimed at developing successful mentor/student relationships in the context of an undergraduate research symposium. Both colleges set out to create new learning opportunities for students and have the symposium act not only as a celebration of undergraduate research, but also as a catalyst for it. Also discussed will be some of the challenges encountered with such an approach, for example, negotiating questions about

authorship and meeting the goal of serving inexperienced students while maintaining the academic integrity of the event. The aim of the session is thus to present and generate discussion on these topics, providing participants methods for developing undergraduate research events at non-research-based institutions that have limited resources for promoting and supporting undergraduate student research.

Jack Barnhardt, Associate Professor of Psychology, **Jeffrey K. Gibson**, Associate Professor of English, **Jessica S. James**, Associate Professor of History—all of Wesley College; **Diane E. Johnson**, Associate Professor of Political Science, and **Grant Taylor**, Assistant Professor of Art and Art History—both of Lebanon Valley College

Defining and Assessing Undergraduate Research and Creative Practice

CS 30: Application-Based Service Learning: Redefining Undergraduate Research, Fostering Collaborations

President's Ballroom III

In this session, the facilitators will describe an Application-Based Service Learning (ABSL) model that couples novel undergraduate research with service learning within structured courses. The session will highlight the various ways ABSL has been implemented and assessed at different kinds of institutions and across different disciplines. One goal of ABSL is to teach students what research is really like by immersing them in all aspects of novel research (e.g., learning and trouble-shooting lab techniques, technical writing, communication, and collaborative projects) related to a little-studied problem while also providing them with direct experience with the problem through community service. The ABSL model fosters collaborations by engaging many different courses, faculty, institutions, non-profit organizations, and individuals all in the same project. The facilitators will describe the Feral Cat Project, which was the first research and community problem developed using the ABSL model. Participants will be involved in brainstorming about future ABSL collaborations, projects, and assessment issues.

Nancy J. Trun, Associate Professor of Biological Sciences—Duquesne University; **Gail E. Rowe**, Professor of Biology—La Roche College; and **Susan M. Seibel**, Instructor of Humanities and Social Sciences—Butler County Community College

Mapping Research Preparation and Practice

CS 31: The Power of Inquiry as a Way of Learning

Ambassador Allen

Since the publication of the 1998 Boyer report, *Reinventing Undergraduate Education*, inquiry-guided learning has been very much “in the air.” Twelve years later, however, confusion still exists about what it really is. This session will introduce a framework and repertoire of tools for implementing inquiry-guided learning anywhere in the undergraduate curriculum. The approach acknowledges the developmental level of students by balancing challenge and support in inquiry and of instructors depending upon their assumptions about teaching and level of comfort with inquiry as a way of learning. Participants will engage in an actual inquiry, consider selected examples of courses that use inquiry-guided learning, and experiment with adapting semester-long patterns of inquiry to one of their own courses. The approach described in this session builds on an inquiry-guided learning initiative at North Carolina State University, described in *Teaching and Learning through Inquiry: A Guidebook for Institutions and Instructors*, which has been used widely on campuses to stimulate discussion about inquiry-guided learning and undergraduate education reform.

Virginia S. Lee, Principal and Senior Consultant—Virginia S. Lee and Associates

Mapping Research Preparation and Practice

CS 32: Researching Back: A Decolonizing Methodology to Work in Indigenous Contexts

President's Ballroom IV

Indigenous scholars point to research as a significant site of struggle between Western interests in constructing “the Other” and the interests of the Other in resisting Western scholarly construction. In this session, the facilitators, a professor of education and women’s studies and a first-year honors student from Nepal, will explain how this struggle between the interests of the researcher and the researched might be used to problematize the teaching and learning of

Western research methods at the undergraduate level. As this indigenous student and his Western feminist professor collaborated to design a socially critical action research study of educational opportunity and access in Doti District, Nepal, a number of ethical dilemmas surfaced. To provide an account of the ethical dimensions of this collaboration, the facilitators will address: (a) doing undergraduate research outside the valorized Western research paradigm; (b) how and why an indigenous student perspective develops; (c) institutional obstacles to telling an indigenous student's counter-story; (d) research design and indigenous cultural protocols and values; and (e) tools for navigating Western discourse about the Other. Participants will explore the institutional implications and possibilities of adopting a "decolonizing methodology" to frame the preparation of both indigenous and non-indigenous students, in any discipline, to do research in indigenous communities.

Wendy Brandon, Associate Professor of Education and Women's Studies, and **Raghavendra KC**, Student—both of Rollins College

9:15 – 10:45 A.M. CONCURRENT SESSIONS

Defining and Assessing Undergraduate Research and Creative Practice

CS 33: Integrating Intellectual Inquiry and Writing/Communication into Undergraduate Research

President's Ballroom I & II

Studies confirm that disciplinary thinking, which is considered higher-order thinking, is often facilitated by writing in combination with other learning approaches, such as undergraduate research. Too often, however, undergraduate research is thought of only in terms of the traditional twenty-page paper, which doesn't necessarily facilitate discipline-specific critical thinking, engaged writing, or intellectual inquiry. In this session, the facilitators will present four disciplinary models that have helped students at different institutions mobilize their intellectual engagement and develop professional skills as researchers and writers. These approaches include: (a) the development of a sequenced departmental plan for communicating in the major using a holistic, contextualized approach to thinking about undergraduate research; (b) a formative and summative assessment tool for undergraduate theses in the sciences; (c) a model for designing, implementing, and assessing collaborative research writing; and (d) the development of learning outcomes centered on intellectual passion within disciplinary conventions and students' reflection on their role as public writers. Following a description of projects in chemistry, biology, sociology, and history, the facilitators will involve participants in articulating specific educational goals associated with an research-based writing/communication assignment in their discipline and considering how assessments might be used with that assignment.

Jennifer Ahern-Dodson, Instructor in Writing and Curricular Civic Engagement Consultant—Duke University; and **Laura Muller**, Associate Professor of Chemistry, **Lisa Lebduska**, Associate Professor of English and Director of College Writing, and **Mason Brown**, Research and Instruction Librarian for the Sciences—all of Wheaton College

Defining and Assessing Undergraduate Research and Creative Practice

CS 34: Using AAC&U VALUE Rubrics and e-Portfolios to Assess Student Learning

Ambassador Duke

In this hands-on session, participants will learn about the University of Delaware's use of two AAC&U VALUE rubrics (Inquiry and Analysis and Creative Thinking) to assess student learning in undergraduate research through the Sakai e-Portfolio structure. In the first part of the workshop, the facilitators will discuss preliminary assessment results from a 10-week summer scholars program with students from arts, humanities, and sciences disciplines. The program included a series of prompts that asked students to reflect on their learning and (when appropriate) upload to an e-Portfolio system evidence of their work (e.g., a revised abstract of their research, a video clip of their presenting their work, or a written reflection documenting their research process). The facilitators will then lead a norming session in which participants assess artifacts using the VALUE rubrics. Finally, they will guide participants in designing context-specific prompts for use with an e-Portfolio system. This workshop is for faculty, academic advisers, and administrators

who have experience with outcomes assessment and wish to gain knowledge about using rubrics and e-Portfolios to assess students' artifacts and reflections.

Meg Meiman, Coordinator of Undergraduate Research Program, **Lynnette Overby**, Professor of Theater and Faculty Director of Undergraduate Research Program, and **Kathleen Langan Pusecker**, Director of Office of Educational Assessment—all of University of Delaware

Defining and Assessing Undergraduate Research and Creative Practice

CS 35: Assessing Student Learning as a Result of Undergraduate Research Experiences

President's Ballroom III

Because undergraduate research holds promise for increasing student learning, retention, graduation rates, and entrance into graduate programs, campuses across the country are providing more undergraduate research experiences for students. This session will first provide participants with an overview of the literature related to measuring student learning as a result of undergraduate research. The facilitators will then report preliminary findings from their own institutions regarding assessment of general learning outcomes related to undergraduate research, such as critical thinking and information literacy, and talk with participants about how their institutions could adopt these assessment methods. Lastly, the facilitators have queried colleagues at a wide variety of institutions to identify additional ongoing efforts to assess student learning as a result of undergraduate research. They will provide participants with an overview of these studies and the contact information of appropriate personnel.

Mary L. Crowe, Director, Office of Undergraduate Research—University of North Carolina at Greensboro and **David F. Brakke**, Dean, College of Science and Mathematics—James Madison University

Faculty Roles and Rewards

CS 36: A Multi-Threaded Approach for Linking Teaching and Research to Benefit Student Learning

Forest

McGill University, a research-intensive university, named integrating faculty research into teaching as a strategic goal four years ago. Teaching and Learning Services (TLS) responded with a multi-threaded approach, each thread made up of distinct professional development activities. These threads are complementary, weaving together to promote the links between teaching and research to benefit student learning. During this session, the facilitators will describe these threads: (a) a faculty network whose members examine the alignment of student learning outcomes with instructional activities and assessment strategies; (b) a documentary profiling professors who engage undergraduate students with research in a variety of disciplinary contexts; (c) a website that includes profiles of professors who include a research component in their undergraduate courses; (d) university-wide symposia focused on faculty and student experiences in research; and (e) a faculty steering committee who grapple with the conceptual and practical challenges of advancing this issue on campus. Session participants will consider the adaptability of this multi-threaded approach to their own contexts and brainstorm further strategies to promote the teaching-research nexus at all levels of their institutions.

Marcy Slapcoff, Educational Developer, Teaching and Learning Services—McGill University

Mapping Research Preparation and Practice

CS 37: Guiding Students to Perform Interdisciplinary Research

Ambassador Allen

To conduct interdisciplinary research, students must first learn the steps involved in an interdisciplinary research project and strategies for performing these steps. They must also become familiar with the distinctive challenges of writing an interdisciplinary research paper. Faculty, too, must become proficient in evaluating interdisciplinary research and writing. Each of the facilitators has taught courses based on the premise that students are best able to master these steps and strategies by applying them to their own research projects. The courses combine instruction in these steps and strategies with instruction in interdisciplinary writing along with discussions of which strategies are best suited to the particular challenges students face in their own research projects. In this session, participants will experience the approach the

facilitators take in these courses. Specifically, the facilitators will outline the steps and strategies involved in interdisciplinary research and writing and share a newly-developed rubric for evaluating student interdisciplinary research papers. In small groups, participants will address particular challenges related to performing interdisciplinary research. The goal is for participants to consider how students can develop their interdisciplinary research and writing skills by first recognizing the challenges inherent in particular interdisciplinary research projects and then drawing on best-practice strategies to overcome these challenges. The session is geared toward faculty involved in senior capstones as well as interdisciplinary majors and general education.

William Newell, Executive Director, Association for Integrative Studies (AIS) and Professor of Interdisciplinary Studies—Miami University; **Allen Repko**, Vice President for Relations, AIS and Director, Interdisciplinary Studies Program—University of Texas at Arlington; and **Rick Szostak**, Board Member, AIS and Professor of Economics—University of Alberta

Sponsored by the Association for Integrative Studies

Implementing, Scaling-up, and Sustaining Programs

CS 38: Ingredients of Undergraduate Research Offices at Doctoral-Granting Institutions

Vista

Many research-intensive universities have established a campus-wide undergraduate research office (URO) to coordinate undergraduate research opportunities, while others have UROs that focus on specific disciplines. Facilitators will discuss similarities and differences among representative UROs, allowing participants to consider which components may be most appropriate for their institutions. Topics will include different organizational models for undergraduate research program directors, and benefits and drawbacks of combining a new position with other responsibilities. This session will focus on low-cost activities that have the greatest impact on undergraduate research. Outcomes will include: discovering areas of convergence and divergence among UROs; facilitating communication networks among colleagues; and exploring opportunities for improving the effectiveness of UROs nationally.

Linda Blockus, Director of Undergraduate Research—University of Missouri-Columbia; and **Allison A. Snow**, Director of the Undergraduate Research Office and Professor of Biology—The Ohio State University

Implementing, Scaling-up, and Sustaining Programs

CS 39: Translating a Patchwork of Research Experiences into Innovation-Based Curricula

President's Ballroom IV

Research is an invaluable educational tool that fosters critical analysis, self-reliance, communication, and creativity—habits that underpin innovation. The most efficient and productive means to engage large numbers of undergraduates in these activities may be the creation of research-centered curricula spanning multiple semesters. The facilitators will introduce: (a) rationale for embedding contiguous semesters of research, design, and creative practice within undergraduate curricula, (b) barriers to doing so, and (c) sample approaches for fostering and leveraging undergraduate research. Participants will work with the facilitators and their colleagues to draft research-centered curricula within the context and academic requirements of their home institutions. The goal is to envision realistic strategies where research becomes the focus of the educational experience rather than an extracurricular activity, and simultaneously buoys the scholarly productivity of the university.

William H. Guilford, Associate Professor of Biomedical Engineering—University of Virginia; and **Sarah Spence Adams**, Associate Professor of Mathematics and Electrical & Computer Engineering—Franklin W. Olin College of Engineering

Implementing, Scaling-up, and Sustaining Programs

CS 40: An Intercollegiate Partnership for Undergraduate Research in the Arts, Humanities, and Humanistic Social Sciences

Academy

The Appalachian College Association-University of North Carolina at Asheville Partnership for Undergraduate Research develops leadership and institutional expertise in undergraduate research in the arts, humanities, and humanistic social sciences—areas that historically have

received less attention and fewer resources than the natural sciences. The program has involved more than 10 colleges and universities in capacity-building through a faculty institute, institutional awards, and resource-sharing. This session will share resources and lessons learned from the program and highlight the experiences of one member institution with a high proportion of first-generation students. Participants will learn about strategies for: (a) clarifying the role and meaning of undergraduate research; (b) creating common ground for discussion among faculty; (c) addressing student readiness to participate in research; and (d) initiating and sustaining undergraduate research in a small college setting.

Mark L. Harvey, Associate Professor of Psychology and Director of Undergraduate Research Program, **Edward Katz**, Associate Provost—both of University of North Carolina at Asheville; **Bettie C. Starr**, Vice President for Academic Affairs, **Lori Sargent**, Professor of Art and Associate Dean, and **David Goguen**, Associate Professor of Journalism—all of Lindsey Wilson College

11:00 A.M. – NOON CLOSING PLENARY

President's Ballroom I & II

Getting Ready for 2042: Mentoring Students toward Discovery

Demographers predict that by 2042, there will be no majority group in the U.S. Will we be able to deliver on the promise of democracy to develop talent across all American populations? Mentoring students toward discovery helps them to build motivation and skills for scientific invention and economic and social well-being. Dr. Gutiérrez will examine the role of undergraduate research in developing leaders for a multicultural society. Are we doing it right? What else should we intentionally be doing?

Carlos Gutiérrez, Professor of Chemistry, School of Natural and Social Sciences—California State University-Los Angeles

Washington Duke Inn Floor Plan

