BUILDING PATHWAYS & PARTNERSHIPS in STEM for a Global New York

October 1-2, 2015
Albany Marriott
The State University of New York (SUNY) Office of Diversity, Equity and Inclusion (ODEI) was established in August of 2007. The office, which is headed by the Chief Diversity Officer and Senior Associate Vice Chancellor for Diversity, Equity and Inclusion and reports to the Provost and Executive Vice Chancellor, provides leadership and strategic direction to all SUNY campuses for developing and implementing a portfolio of diversity programs.

In close collaboration with campuses, ODEI enhances academic excellence by promoting the integration of diversity-related instruction and policy-oriented research. The link between academic excellence and diversity is indispensable in the modern university. Recent studies show that diversity in thought increases organizational strength, creativity, innovation and productivity—and there is significant evidence that people’s identity groups matter when it comes to diversity in thinking.

Through the creative marshaling of resources, strategic investments and consultation with chief diversity officers system-wide, ODEI develops a focused approach to enhance access, success, diversity and academic excellence at SUNY. The fundamental academic mission of ODEI is to help SUNY fulfill its responsibility to create knowledge that will benefit society and prepare a new generation of public and corporate leaders, as well as a highly skilled and technically proficient workforce, that can work effectively in a culturally diverse environment.

ODEI administers four programs that were enacted by the state legislature almost twenty years ago to promote access, equity and diversity at SUNY: the Faculty Diversity Program, the Graduate Diversity Fellowship Program, the Empire State Diversity Honors Scholarship Program and the Native American Initiative. These programs were designed to help SUNY realize its mission of providing a quality education “with the broadest possible access, fully representative of all segments of the population.”

Office of Diversity, Equity and Inclusion
State University Plaza, 10th Floor
Albany, New York 12246
(518) 320-1189
Dear Friends and Colleagues,

Welcome to our fourth biennial STEM conference “Building Pathways & Partnerships in STEM for a Global New York!” We are excited about this year’s event and hope that it will turn out to be our most attended and significant to date. Our country continues to struggle with attracting, retaining and graduating diverse students in such an important area, largely recognized as driving societal economic growth due to innovation. Together we will help address ambitious but complementary goals in the preparation of a diverse STEM workforce needed for an ever-increasing competitive global economy. We sincerely hope we have been successful in creating an environment of collegiality allowing for essential networking opportunities so that we can learn from each other and promote promising practices.

You will notice that our program has 19 workshops that include important topics such as STEM higher education reform to effective grant writing and inspiring the next generation of STEM leaders in NYS. Our plenary sessions focus on two critical areas: “Undergraduate Research Experiences across SUNY” and the “Empire State Learning Network Regional Hubs.” Both Dr. Jill Bargonetti and Dr. Freeman A. Hrabowski, III are our highly engaging featured keynote speakers. I believe you’ll agree that the formula for a conference platform that will help to inform practice and promote scholarship in STEM has been assured.

We know that the numbers of graduates proficient in a wide array of professions in skilled occupations falls far short of the opportunities projected for the next 10 to 20 years. We also know the earning potential of graduates with a bachelor’s degree in STEM makes a logical case for degree completion. But these reasons alone may not propel students toward either a STEM occupation or degree completion. Making STEM a realistic choice for the many students who begin their undergraduate studies at both our two and four-year colleges and universities requires dedicated outreach and support.

This conference will help us continue to explore promising practices that engage students in learning how to increase their determination to become scientists, engineers, researchers or work in a hi-tech industry through creating meaningful partnerships.

SUNY’s partnerships with industry have helped students recognize that there is a place they can learn and grow to become part of the knowledge economy, through inquiry-based training, investigation and the application of critical thinking skills. Indeed, creating a student who can apply an innovative solution to a problem continues to reshape the way students are taught. As we learn from each other at this year’s conference, it is my hope that we embrace the work ahead knowing that we can change the lives of students. Hopefully, the takeaways from this conference will inspire new collaboration, adaptation and even greater success for the future of our state and nation.

Enjoy!

Carlos N. Medina
Chief Diversity Officer and Senior Associate Vice Chancellor for Diversity, Equity and Inclusion
The State University of New York
October 1, 2015

Dear Participants,

On behalf of the Planning Committee, we are pleased to welcome you to the 2015 SUNY STEM Conference: “Building Pathways & Partnerships in STEM for a Global New York.” Based upon the foundation established at previous conferences, this fourth edition of our biennial symposium fulfills our ambition to assemble STEM education pioneers and practitioners who are at the forefront of research and development efforts to advance the cause of STEM education on a statewide and by extension, a national level. It is anticipated that the broad representation of expertise featured at this gathering will foster a strong spirit of collaboration, promote the cross pollination of ideas, engender deep reflection, and stimulate unified systematic and sustained action. This year’s conference theme reflects our increased understanding that although much has been accomplished, the success of future efforts will hinge on our ability to integrate the collective learning and expertise of our constituent parts, and direct it towards a more holistic advancement of the statewide whole.

In support of the overarching theme, you will find that we have assembled a stellar panel of experts who, along with you and the entire body of conference participants, will bring our collective experience to bear on how to bring about sustained and measureable enhancements to the progress of STEM education throughout all strata of the state of New York. In all, the content of 19 presentations that cover a gamut of timely and relevant STEM education successes and concerns will be featured, and the unifying themes of these will be tied together in the plenary sessions and keynote addresses. We are especially pleased that this year’s poster session will feature the work of students in the areas of both STEM pedagogy and traditional scientific research. Furthermore, the conference is structured to permit ample opportunity for socialization and networking.

We extend our thanks to you, our special guests, our speakers and presenters, and the dedicated team responsible for all aspects of the conference organization. We also acknowledge with gratitude that it is the generous support of the SUNY Office of Diversity, Equity and Inclusion that continues to make this conference possible.

Please enjoy the conference and let us know of anything we can do to enhance your experience.

Sincerely,

Dr. Rabi Musah
Associate Professor of Chemistry
The University at Albany
STEM Committee Co-Chair

Dr. Shashi Kanbur
Professor and Chair of Physics,
SUNY Oswego
STEM Committee Co-Chair
October 1, 2015

Dear Friends and Colleagues,

It is my great pleasure to welcome you to the fourth biennial SUNY STEM Conference. This year’s theme, Building Pathways & Partnerships in STEM for a Global New York, highlights the critical importance of STEM to the competitiveness of our great state.

It becomes more and more clear as the world changes, as our student population diversifies, as traditional education funding resources tighten, and as technology advances, that how we teach and what we teach needs to change and needs to keep pace. This means forming new pathways and partnerships to deliver on our education needs.

At SUNY, everything we do is viewed through the lens of forging partnerships, both traditional ones—within the system, on campuses, and in departments—and now, increasingly, partnerships with those sectors once thought to stand outside higher education: K-12, elected officials at all levels, and business and community leaders. Through clearly defined pathways and new partnerships, we will build the education delivery systems of tomorrow.

Everyone gathered for this event is more than familiar with the challenges facing our nation and state in preparing students for careers in STEM fields. You understand the seriousness of this challenge and are rising to meet it. You’ve made it your job, your mission. I am grateful for your partnership in this process, and I look forward to learning about the advancements that come out of these discussions.

With best regards,

Nancy L. Zimpher
Chancellor
The State University of New York
Dear Participants,

I bring you greetings from the University Faculty Senate, and I commend the organizers for their hard work in developing an exciting program that without a doubt will help shape continuing conversations and initiatives. As a faculty member in a STEM discipline (geology, in my case), I appreciate both the importance of these fields for society, and also the challenges that students from underrepresented and diverse backgrounds face in pursuing advanced education in these areas. Thus, I am particularly pleased to be able to join you for this important conference.

The availability of careers in the science, technology, engineering and mathematics fields continues to outpace the number of college graduates from these fields. Furthermore, our society faces a broad array of challenges to our future sustainability, including responses to a changing climate and the need to find alternatives for diminishing resources. Solutions to these challenges, even adaptation to them, will require breakthroughs in the future that can be delivered only by those with strong backgrounds in the STEM disciplines. It is equally important, however, that we recognize the need for even the most specialized engineer or scientist to be broadly enough trained to understand societal needs, not just the details of our own discipline.

The STEM fields have suffered historically even more than most other areas from unequal opportunity for, or at least unequal representation of, groups defined by race, ethnicity and gender. This leads not only to less richness in these fields, but also to limited access to driving the changes necessary for the future or even many of the jobs available today.

This conference is one of a series that SUNY has hosted that has helped identify ways to expand opportunity in the STEM fields, and it is timely in the context of the national conversations about science and technical education. The challenges surrounding diversity in society remain significant, not least in terms of the participation in STEM education of those from traditionally disadvantaged groups. Coming together to discuss practices for “Building Pathways and Partnerships in STEM for a Global New York” will be a significant contribution that can only help us to provide the opportunities and support that our students, and ultimately our society, need. It is through partnerships like the ones being discussed here that we can provide both greater access and greater success.

My very best wishes,

Peter L.K. Knuepfer
President
University Faculty Senate
October 1, 2015

Dear Friends and Colleagues,

I am pleased to welcome you to SUNY’s conference on diversity and STEM education. This important event highlights SUNY’s ongoing commitment to increasing access and success for all students in science, technology, engineering and mathematics. The fact that it occurs just after SUNY has adopted a comprehensive Diversity, Equity and Inclusion policy makes it all the more meaningful.

We know well the importance of STEM fields to the economic vitality of our state and nation. With your help, this conference can be a central support to SUNY’s efforts to increase student engagement in STEM fields. We need you to actively participate, engage, and bring back what you learn at the conference to others on your campus. Doing so will contribute to SUNY’s ability to attract, retain and graduate more students from diverse backgrounds in high-demand STEM areas.

I extend my thanks to Chief Diversity Officer Carlos Medina, the Office of Diversity, Equity and Inclusion, and the entire Conference Committee for organizing another stellar program this year which recognizes faculty, staff, and student work. Notably, so many of these projects, programs and initiatives can be replicated across SUNY. We are so thankful to all of our presenters for sharing their time and expertise.

I wish you all the best for a terrific conference and remind you to share all that you learn with colleagues when you return to campus.

Regards,

Alexander N. Cartwright

Provost and Executive Vice Chancellor

The State University of New York
October 1, 2015

Dear Friends,

It is my pleasure to welcome you to this seminal statewide conference on Science, Technology, Engineering and Mathematics (STEM) education, organized by the State University of New York (SUNY) Office of Diversity, Equity and Inclusion. The SUNY system has consistently pushed forward the technological envelope with its research programs in the STEM fields, and this conference will help reinvigorate and help build upon an already massive investment in these fields to better our daily lives. This conference will provide programs that demonstrate success in increasing access, retention and graduation of diverse student populations in STEM majors, creating a strong workforce.

As a member of the Committee on Energy and Commerce, I am inspired by the potential of this esteemed gathering to shape the future of STEM fields. Without heavy investment of research in to these fields, the United States could not possibly maintain a competitive stance in the global market. Thanks to the work of professors, students and business people in the STEM fields, we remain a major global competitor. I cannot begin to express my gratefulness for the work you have done.

As the representative of the Congressional district that houses the University at Albany and the College of Nanoscale Science and Engineering, I am proud to see this prestigious two day conference in the heart of Albany. I welcome you and wish you the best for the next two days as you work together to lay the groundwork for continued success in STEM disciplines, which, with your guidance, will remain cornerstones of our economy and society.

Sincerely,

Paul D. Tonko
Member of Congress
Before her untimely passing in fall 2014, Margaret Ashida was the Executive Director of the STEMx™ network of statewide organizations working together to transform Science, Technology, Engineering and Mathematics (STEM) education through local innovation and state leadership for national impact. Previously, Margaret led the incubation of the Empire State STEM Learning Network at Rensselaer Polytechnic Institute and the State University of New York (SUNY) System. Prior to joining the non-profit sector, Margaret held executive positions at IBM in global workforce management and university relations, and served on global and national innovation initiative teams. She began her career at the Xerox Corporation and moved to ROLM coincident with its acquisition by IBM. Margaret was a tireless leader, and she contributed by serving on many steering committees, advisory panels and organizing teams.

Aside from her professional roles, Margaret was a role model, mentor and friend to many people in the STEM community. She left an indelible mark on the lives of all the people she worked with, and she is deeply missed. Margaret affected STEM education in many profound ways, and we are all richer for having known her.
THURSDAY, OCTOBER 1, 2015

10:00 a.m. - 11:30 a.m.
Registration

11:30 p.m. - 1:15 p.m.
Lunch

Welcoming Remarks
Carlos N. Medina, Chief Diversity Officer and Senior Associate Vice Chancellor; Assemblywoman Deborah J. Glick, Chair of the Higher Education Committee; Dr. Shashi Kanbur and Dr. Rabi Musah, Co-Chairs; and Peter Knuepfer, President of the University Faculty Senate

Plenary Panel: Undergraduate Research Experiences across SUNY
Undergraduate research (UGR) experiences have been widely accepted as a best practice for engaging students and contributing to their academic growth. Researchers have found that UGR experiences, especially early experiences (i.e., in the first two years of coursework), lead to increased student technical and personal skills, higher grades, increased persistence in STEM degree programs and shorter times to degrees, increased placement in STEM careers, and increased pursuit of STEM graduate degrees. These research experiences can take place during the academic year or over the summer. The panelists will briefly describe their programs. Audience participation will be encouraged.

Moderator:
Joseph Skrivanek, Professor of Chemistry, Purchase College and SUNY Replication Project Director, SUNY ODEI

Panelists:
- Patricia DiLorenzo, Professor of Psychology, Binghamton University
- Shanise Kent, Director of Diversity Programs and Initiative, Watson School of Applied Science, Binghamton University
- Daniel Moloney, Research Assistant Professor of Biochemistry and Cell Biology, Stony Brook University
- Letitia Thomas, Assistant Vice Provost & Director of Undergraduate Education, Buffalo University

1:15 p.m. - 1:30 p.m.
Break

1:30 p.m. - 3:00 p.m.
Concurrent Presentations (Session I):
(See complete workshop descriptions on pages 18-21)

WORKSHOP #1
STEM Central – A Metacommunity for STEM Higher Education Reform
Kelly Mack
Association of American Colleges and Universities

WORKSHOP #2
Collaborating with Brookhaven National Laboratory through Research
Noel D. Blackburn
Brookhaven National Laboratory

WORKSHOP #3
Integrating STEM Laboratory Instruction and Communication Arts at the Introductory Level – Opportunities and Challenges
Neal Abrams, Elizabeth Hogan and Gregory McGee
SUNY College of Environmental Science and Forestry

WORKSHOP #4
TA Master’s Program in Lake Management - Bridging the Gap between Scientific Research and Professionals in the Field
Kiyoko Yokota and Willard Harman
SUNY Oneonta

WORKSHOP #5
STEM Retention Efforts and Their Assessment through Multiple Programs at SUNY Oswego
Eric Olson, Fehmi Damkaci and Timothy Braun
SUNY Oswego

WORKSHOP #6
Effects of the Purchase College Bridges to Baccalaureate Program on Degree Completion
Karen Singer-Freeman, Julianna Campos and Linda Bastone
SUNY Purchase College

WORKSHOP #7
Recruitment Road - Turning on Cruise Control to a Future in Graduate Research and Medicine
Krystal Ripa and Nakeia Chambers
SUNY Upstate Medical University

3:00 p.m. - 3:15 p.m.
Break

3:15 p.m. - 4:45 p.m.
Concurrent Presentations (Session II):
(See complete workshop descriptions on pages 18-21)

WORKSHOP #8
Show Me the Money – A Review of Effective Grant Writing Skills
Kelly Mack
Association of American Colleges and Universities
WORKSHOP #9
Science, Technology, Engineering, and Math (STEM) Mentoring Experiences in Brooklyn: the Value of Mentors Mentoring for Multiple Semesters
Kristine Paulsson, Mark Stewart and Gaylen Moore
SUNY Downstate Medical Center

WORKSHOP #10
Undergraduate Research: An Adventure in Biochemistry and Community Partners
Melissa Barlett and Amanda Miller
Mohawk Valley Community College

WORKSHOP #11
VIDIA – A Virtual Infrastructure for Data Intensive Analysis
James Greenberg and Jeanette Sperhac
SUNY Oneonta

WORKSHOP #12
The SUNY Oswego Global Laboratory
Shashi Kanbur and Cleane Medeiros
SUNY Oswego

WORKSHOP #13
Partnerships and Collaborations that Impact Community College Student Outcomes in STEM Research Programs
Candice Foley
Suffolk County Community College

4:45 p.m. - 5:00 p.m.
Break

5:00 p.m. - 6:15 p.m.
Poster Presentations

Brooklyn College, CUNY-New York, CUNY Central Office
Big City, Big Data: Scalable Undergraduate Research Experience in Urban Microbial Community Analysis

Buffalo State College
Attracting Underrepresented Students to STEM

University at Buffalo
Building an Excellent Scientific Workforce

SUNY Empire State STEM Learning Network
STEM for All: A NYS STEM Rubric Tool to Support Scale-Up

SUNY Maritime
Images of Gender and Technology: Confronting Stereotypes and Promoting Change

SUNY New Paltz
Comparative Ambystomoid Gait Kinematics

Rochester Engineering Society
How to Put 60 Engineers to Work in STEM: Classroom Visitations, STEM Coaches, Mentors, Curriculum Advisors

Stony Brook University
The Underrepresentation of Females in STEM

Center for Inclusive Education, the Graduate School,
Stony Brook University
The Role of Identity Safe Spaces in Student Retention

Center for Inclusive Education- the Graduate School,
Stony Brook University, EOP/AIM,
Stony Brook University, and Undergraduate Biology-Stony Brook University
Overcoming the Gatekeeper: Empowering Underrepresented Students to Pursue STEM Majors

Stony Brook University
An Effective Policy for High School to College Transition: The Case of Bronx County Public High Schools

5:00 p.m. - 6:15 p.m.
Evening Reception/Networking

6:15 p.m. - 8:00 p.m.
Dinner

Keynote Address
Dr. Jill Bargonetti, Professor/Chair of the Molecular, Cellular & Developmental PhD Subprogram in Biology at the CUNY Graduate Center

FRIDAY, OCTOBER 2, 2015

8:00 a.m. - 9:00 a.m.
Networking Breakfast

9:00 a.m. - 10:00 a.m.
Welcoming Remarks
Chancellor Nancy L. Zimpher

Keynote Address
Dr. Freeman A. Hrabowski, III, President of the University of Maryland, Baltimore County

10:00 a.m. - 10:30 a.m.
Break/Book Signing
Dr. Freeman A. Hrabowski, III

10:30 a.m. - 12:00 p.m.
Concurrent Presentations (Session III)
(See complete workshop descriptions on pages 18-21)
2015 STEM CONFERENCE AGENDA

WORKSHOP #14
Buffalo Public Schools STEM Experience
Suzanne Chamberlain, Eunice Lewin and Kelly Baudo
University at Buffalo

WORKSHOP #15
SENCER in Theory and Practice: A Panel Presentation
David Ferguson, Wm. David Burns, Candice Foley and Anna Rozenboym
Stony Brook University, National Center for Science and Civic Engagement, Suffolk County Community College and Kingsborough Community College

WORKSHOP #16
Cheap, Effective and Fun: Evaluation of an Intervention for Underprepared First-Year STEM Students
Jennifer Waldo
SUNY New Paltz

WORKSHOP #17
NYS Master Teacher Program: Outstanding STEM Teachers Inspiring the Next Generation of STEM Leaders in NYS
Josephine Salvador
SUNY NYS Master Teacher Program

WORKSHOP #18
Scaling-Up a Two-Year to Four-Year Transition Program in a Sustainable Manner: An NSF I CORPS L Project
Joe Skrivanek, Elizabeth Carrature, Julianna Campos and Joanne Russell
SUNY Office of Diversity, Equity and Inclusion, SUNY Purchase College and SUNY Provost’s Office
Sarah Rowlinson, Clemson University
Karen Burg, Richard Potter and Timothy Burg, Kansas State
Destiny Babjack and Anthony Zuccoloto, PST Solutions and Sandra Webster, Westminster College

WORKSHOP #19
Online Science Labs: Strengths, Weaknesses, Opportunities and Threats
Carey Hatch, Jennifer Herzog and Mary Mawn
SUNY System Administration, Herkimer County Community College, Empire State College

12:00 p.m. - 1:30 p.m.
Lunch

Plenary Session – Empire State Learning Network Regional Hubs: Vision and Value
The Empire State STEM Learning Network was launched in 2010 through the leadership of the late Margaret Ashida. The network is comprised of connected regional STEM hubs across New York State, which are attuned to local STEM needs, capacities and priorities. Empire STEM’s statewide office is based in SUNY’s Office of the Education Pipeline, through which it is connected to the STEMx coalition of 19 state STEM networks across the nation. This plenary session will feature a panel of STEM Hub visionaries and leaders from across the state who will share their insights and provide examples of how Hubs are positively contributing to STEM-related academic and economic growth.

Each of the panelists will give remarks in response to guiding questions from the moderator. This will be followed by a question and answer session with the audience, with closing remarks by the moderator and panel members.

Moderator:
Nina Leonhardt, Associate Dean for Continuing Education, Suffolk County Community College

Panelists:
- Donna J. DeSiato, Superintendent, East Syracuse Minoa Central School District, East Syracuse
- Michelle Kavanaugh, President, WNY STEM Hub, Buffalo
- Jim King, Partner, King + King Architects, Syracuse
- Catherine Osiecki, Project Director, LI STEM Hub, Sr. Educational Programs Administrator, Brookhaven National Laboratory
- Mark D. Vaughn, Technical Talent Pipelining Manager, Lead, Technology Community Office of STEM, Corning Incorporated, Corning

1:30 p.m. - 2:00 p.m.
Questions/Next Steps/Closing Comments

STEM CONFERENCE EVALUATION
Thank you for attending the STEM Conference. We value your opinion and would like to know what you thought about the format, various presentations and speakers. Please take a few moments to complete the survey by going to http://www.suny.edu/stemconference2015. Your responses will be key to planning future events.
demonstrate the chromatin-interaction of p53 with a constitutively nucleosome free region of the mdm2 gene in the P2 promoter (Xiao et al., Oncogene 1998). This is an important feature of the p53-Mdm2 feedback loop and her laboratory has continued to study the regulation of mdm2 from this gene region. More recently, her group has shown that mdm2 SNP 309 results in the expression of oncogenic MDM2 splice variant isoforms that can promote tumorigenesis p53-independently (Brekman et al. 2011 and Okoro et al., 2013). The Bargonetti group has published numerous findings on the activation of p53-independent cell death, as well as studies on the nature of the role of oncogenic mutant p53, and the use of C. elegans as a whole animal model for the study of p53 tissue-based functionality.

Dr. Bargonetti has been recognized for her outreach and teaching accomplishments at the graduate and undergraduate levels. Some examples of classes she has designed include an undergraduate curriculum using p53-biology as an undergraduate biology exercise (used in Biology 302 since 1997 and now in Biology 303). She has recently developed a new movement based class called choreographing genomics (Biology 175) that uses Post-Modern dance choreographic concepts for students to explore genomics and the relationship to Cancer Biology. Dr. Bargonetti has graduated thirteen PhD recipients who have worked on projects aimed at understanding mutant p53 gain-of-function activity, elucidating how wild-type p53 and MDM2 function, as well as elucidating mechanisms to induce p53-independent cancer cell death by novel chemotherapeutic protocols.

Since arriving at Hunter College Dr. Bargonetti has maintained an externally funded laboratory. The funding has amounted to over 5 million dollars from varied sources including the Department of Defense, The American Cancer Society, The National Science Foundation, The National Institutes of Health, and The Breast Cancer Research Foundation.
Freeman A. Hrabowski, III, has served as President of UMBC (The University of Maryland, Baltimore County) since 1992. His research and publications focus on science and math education, with special emphasis on minority participation and performance. He chaired the National Academies’ committee that produced the recent report, Expanding Underrepresented Minority Participation: America’s Science and Technology Talent at the Crossroads. He also was recently named by President Obama to chair the newly created President’s Advisory Commission on Educational Excellence for African Americans. In 2008, he was named one of America’s Best Leaders by U.S. News & World Report, which ranked UMBC the nation’s #1 “Up and Coming” university the past six years (2009-14). During this period, U.S. News also consistently ranked UMBC among the nation’s leading institutions for “Best Undergraduate Teaching” – in 2014, other universities on the list included Princeton, Brown, Stanford, and Yale. TIME magazine named him one of America’s 10 Best College Presidents in 2009, and one of the “100 Most Influential People in the World” in 2012. In 2011, he received both the TIAA-CREF Theodore M. Hesburgh Award for Leadership Excellence and the Carnegie Corporation of New York’s Academic Leadership Award, recognized by many as the nation’s highest awards among higher education leaders. Also in 2011, he was named one of seven Top American Leaders by The Washington Post and the Harvard Kennedy School’s Center for Public Leadership. In 2012, he received the Heinz Award for his contributions to improving the “Human Condition” and was among the inaugural inductees into the U.S. News & World Report STEM Solutions Leadership Hall of Fame.

He serves as a consultant to the National Science Foundation, the National Institutes of Health, the National Academies, and universities and school systems nationally. He also serves on the boards of the Alfred P. Sloan Foundation, France-Merrick Foundation, Marguerite Casey Foundation (Chair), T. Rowe Price Group, The Urban Institute, McCormick & Company, and the Baltimore Equitable Society. He served previously on the boards of the Carnegie Foundation for the Advancement of Teaching and the Maryland Humanities Council (member and Chair).

Examples of other honors include election to the American Academy of Arts & Sciences and the American Philosophical Society; receiving the prestigious McGraw Prize in Education, the U.S. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, the Columbia University Teachers College Medal for Distinguished Service, the GE African American Forum ICON Lifetime Achievement Award, the American Educational Research Association’s Distinguished Public Service Award, and the American Association for the Advancement of Science’s (AAAS) William D. Carey Award; being named a Fellow of the AAAS, Black Engineer of the Year (BEVA) by the BEYA STEM Global Competitiveness Conference, Educator of the Year by the World Affairs Council of Washington, DC, and Marylander of the Year by the editors of the Baltimore Sun; and being listed among Fast Company magazine’s first Fast 50 Champions of Innovation in business and technology, and receiving the Technology Council of Maryland’s Lifetime Achievement Award. He also holds honorary degrees from more than 20 institutions – from Harvard, Princeton, and Duke to the University of Michigan, University of North Carolina at Chapel Hill, Johns Hopkins University, Georgetown University, Haverford College, and Harvey Mudd College.

With philanthropist Robert Meyerhoff, he co-founded the Meyerhoff Scholars Program in 1988. The program is open to all high-achieving students committed to pursuing advanced degrees and research careers in science and engineering, and advancing underrepresented minorities in these fields. The program is recognized as a national model, and based on program outcomes, Hrabowski has authored numerous articles and co-authored two books, Beating the Odds and Overcoming the Odds (Oxford University Press), focusing on parenting and high-achieving African American males and females in science. His most recent book, Holding Fast to Dreams: Empowering Youth from the Civil Rights Crusade to STEM Achievement (Beacon Press, 2015), describes the events and experiences that played a central role in his development as an educator and leader. He and UMBC were recently featured on CBS’s 60 Minutes, attracting national attention for the campus’s achievements involving innovation and inclusive excellence.

A child-leader in the Civil Rights Movement, Hrabowski was prominently featured in Spike Lee’s 1997 documentary, Four Little Girls, on the racially motivated bombing in 1963 of Birmingham’s Sixteenth Street Baptist Church.

Born in 1950 in Birmingham, Alabama, Hrabowski graduated from Hampton Institute with highest honors in mathematics. He received his M.A. (mathematics) and Ph.D. (higher education administration/statistics) from the University of Illinois at Urbana-Champaign.
Joseph Skrivanek (Moderator)  
Professor of Chemistry, Purchase College and SUNY  
Replication Project Director, SUNY ODEI

He is the founder and Director of the Baccalaureate and Beyond Community College Mentoring Program at Purchase College, SUNY. The Purchase Program is designed to provide community college students at six SUNY community colleges with a seamless transition to a four-year institution. The activities under the Baccalaureate and Beyond Program include a five-week summer program as well as workshops and community building activities throughout the academic year. The program was started in 2000 with an initial grant from the National Institutes of Health Bridges to the Baccalaureate Program. Over the last fifteen years, Dr. Skrivanek has received funding from NIH, NSF, and the PepsiCo Foundation in excess of eight million dollars. The Baccalaureate and Beyond Community College Mentoring Program received the President’s Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). Dr. Skrivanek is presently leading the SUNY Replication Project that is replicating the activities of the Purchase Baccalaureate and Beyond Program throughout SUNY System and is based in the SUNY Office of Diversity, Equity and Inclusion. Dr. Skrivanek received his Bachelor’s and Master’s degrees in Chemistry from the University of Scranton and his Ph.D. in Biochemistry from the Pennsylvania State University. After postdoctoral work at the Albert Einstein College of Medicine, he joined the faculty at Purchase College in 1979. In addition to being a Chemistry faculty member, he has held numerous positions at the College including Chair of the Chemistry and Biochemistry Programs, Dean of Natural Sciences, and Chair of the two Middle States Steering Committees.

Patricia Di Lorenzo  
Professor of Psychology, Binghamton University

She is a professor of Psychology, Director of the Integrative Neuroscience Program, and Co-Director of the Bridges to the Baccalaureate Program at Binghamton University in Binghamton, NY. She earned her Ph.D. in Biopsychology from the University of Rochester and did a postdoctoral fellowship at the University of California at Los Angeles. She has been a faculty member at Binghamton University since 1985. In 2007, she was awarded the SUNY Chancellor’s Award for Excellence in Scholarship and Creative Activities. Her research has focused on neural coding in the brainstem gustatory system using behavioral, electrophysiological and computational techniques with funding from the Whitehall Foundation, the NSF and the NIH. She currently holds three NIH grants, two from the NIDCD on neural coding in the brainstem gustatory system and the other from the NIGMS.

Shanise Kent  
Director of Diversity Programs and Initiative, Watson School of Applied Science, Binghamton University

She serves as the Chief Diversity Officer for the Watson School (tasked with increasing the number of women and underrepresented students, faculty and staff) as well as the Director of the Louis Stokes Alliance for Minority Participation (LSAMP), Co-PI of LSAMP Bridge to the Doctorate, and Co-PI of the Science & Technology Entry Program (STEP). Dr. Kent originally joined the Binghamton University campus in 2007 as the Ronald E. McNair Post Baccalaureate Achievement Programs Coordinator. She has also taught courses in Law and the Political Process, Race and Law, Law’s Order, and Introduction to American Politics for the Political Science Department. She holds a Bachelor, MBA, and Juris Doctor degrees from the University at Buffalo.
Letitia Thomas
Assistant Vice Provost & Director of Undergraduate Education, University at Buffalo

With twenty-two years of experience in higher education administration, Dr. Letitia Thomas serves as an Assistant Vice Provost for Undergraduate Education in Cora P. Maloney College (CPMC) at the University at Buffalo (UB). CPMC houses a variety of academic support programs, and Dr. Thomas’ unit places special emphasis on holistic advising, experiential learning and academic support for Science, Technology, Engineering and Mathematics (STEM) disciplines. Dr. Thomas oversees a number of National Science Foundation (NSF) funded grants that seek to increase the number of underrepresented students pursuing Science, Technology, Engineering and Mathematics (STEM) disciplines by building a supportive network of STEM scholars. She also has teaching experience in various sociology courses including Race & Ethnic Relations, Social Problems and Social Justice.

Dr. Thomas is a member of various professional organizations including the American Association of University Women (AAUW), American Sociological Association (ASA), National Academic Advising Association (NACADA) and American Educational Research Association (AERA). A native of Buffalo, Dr. Thomas earned a BS in Biological Sciences from the Rochester Institute of Technology (RIT) in Rochester, New York and holds a Master’s in Educational Administration as well as a Master’s and Doctorate in Sociology, all from the University at Buffalo.

Daniel Moloney
Research Assistant Professor of Biochemistry and Cell Biology, Stony Brook University

Dan is a Research Assistant Professor in the Department of Biochemistry and Cell Biology and Director of the Biotechnology Teaching Laboratories in the Center for Science and Mathematics Education at Stony Brook University. Dan mentors, advises and educates students at all levels and from diverse backgrounds with the goal of promoting science knowledge, interest and awareness. Thousands of middle school and high school students visit the Biotechnology Teaching Laboratories each year to learn how to conduct laboratory experiments. Dan teaches Laboratory Techniques in Cancer Biology to undergraduates majoring in Biology or Biochemistry. He mentors and instructs graduate students in the Masters in the Art of Teaching (MAT) Biology program. He is also the Program Director of the NIH-funded Bridges to the Baccalaureate program called BioPREP. BioPREP is a summer research program that encourages and trains underrepresented minority community college students to pursue careers in biomedical sciences.
EMPIRE STATE LEARNING NETWORK REGIONAL HUBS: VISION & VALUE

The Empire State STEM Learning Network was launched in 2010 through the leadership of the late Margaret Ashida. The network is comprised of connected regional STEM hubs across New York State, which is attuned to local STEM needs, capacities and priorities. Empire STEM’s statewide office is based in SUNY’s Office of the Education Pipeline, through which it is connected to the STEMx coalition of 19 state STEM networks across the nation. This plenary session will feature a panel of STEM Hub visionaries and leaders from across the state who will share their insights and provide examples of how Hubs are positively contributing to STEM-related academic and economic growth.

Nina Leonhardt (Moderator)
Associate Dean for Continuing Education, Suffolk County Community College

For more than 30 years, Nina has led educational projects that inspire students, expand their interest in STEM and support professional development for STEM educators. In addition to her current responsibilities, she has been active on the national, state and local levels, serving as an Implementation Strategist and Community College Research Associate to Battelle’s STEMx network (sabbatical appointment), as a charter member of the Empire State STEM Learning Network, and as a core team member and leader of the Long Island STEM Hub. Nina has also played a leadership role in projects sponsored by the National Science Foundation - the Scholarships for STEM (S-STEM) and Advanced Technological Education (ATE) programs - the US Department of Labor, and New York State, including the Collegiate Science & Technology Entry Program (CSTEP), Science & Technology Entry Program (STEP) and Liberty Partnerships Program. She previously served as a leader at Brooklyn Children’s Museum where she developed and led professional development sessions on inquiry-based science learning and assessment for K-6th grade teachers as part of an Integrated Science Project, as Educational Programs Manager at Brookhaven National Laboratory, as Adjunct Instructor in the Department of Technology & Society at Stony Brook University, and as Special Projects Consultant for the Science Education Program in the Department of Teaching & Learning at New York University.

Dean Leonhardt has spent her career developing training pathways, mentoring programs and experiential learning opportunities to inspire students to pursue careers in STEM. She fostered partnerships with over 70 companies, municipalities and industry associations as part of a renewable energy program and has arranged research internships for students at facilities such as Brookhaven (NY), Lawrence Berkeley (CA), and Los Alamos (NM) National Laboratories. She has also spearheaded SCCC’s NSF-funded SENCER project, leading faculty in the development of student-centered active learning in climate change and sustainability. Most recently, Nina was named one of the “100 Inspiring Women in STEM” by INSIGHT Into Diversity. Nina Holds an MS in Electrical Sciences and a BA in Education from Stony Brook University and an MBA from Dowling College.

Donna J. DeSiato
Superintendent, East Syracuse Minoa Central School District (ESM), East Syracuse

As the Superintendent of ESM since 2005, the District has experienced a continual increase in the graduation rate and developed innovative STEM learning models with business partnerships such as energy and environmental initiatives with Siemens and SUNY ESF, financial literacy models including a student-led credit union with CORE Federal Credit Union, and the development of pharmaceutical drugs through Rx3eSearch: An Educational Journey supported by Bristol Myers Squibb. She is highly regarded in education and in the business community for her expertise and leadership in 21st century learning and preparing graduates for our global society. Her professional experiences include building, district, and state level involvement in strategic planning, organizing and developing comprehensive programs, designing professional development and leading systemic transformation. In 2011, ESM was recognized nationally by the College Board on their AP Achievement List and in 2013 was awarded the “Be the Change for Kids Innovation Award” by the Nanoscale College of Science and Engineering and New York State School Board Association. Dr. DeSiato was recognized in 2013 as Education Leader of the Year by Partners for Education & Business. Most recently, she was awarded the 2015 Margaret Ashida STEM Leadership Award by the New York State STEM Education Collaborative. Donna holds an Ed.D. in Education Leadership from Syracuse University.

Michelle Kavanaugh
President, WNY STEM Hub, Buffalo

Dr. Kavanaugh recently retired after 37 years in education. She has led mathematics curriculum projects, launched pre-engineering programs, initiated an Early College/Career Technical Education Program and led an Integrated Technology Advisory Board with the business community. She also served on a regional SUNY committee to expand broadband access. As Superintendent of the Honeoye Falls-Lima CSD in the Rochester area, Michelle instituted an inquiry learning initiative across all grade levels that led to STEAM (Science-Technology-Engineering-Arts-Math) at elementary and middle school level. The Middle School was recognized as a New York State School to Watch. The STEAM curriculum at
the elementary level received a New York State Whole Child Award. The high school, which saw a significant increase in students taking STEM courses and AP Exams, was recognized by U.S. News as a Gold Medal School and among the Best High Schools in STEM. Seeing the importance of robotics, Michelle obtained a legislative grant to launch a U.S. FIRST robotics program. She initiated a partnership with the GM Fuel Cell Facility and a partnership with Geneseo Community College to create a career-pathway Health Certificate Diploma Program.

During her time in the Rochester area, Michelle served on the Finger Lakes STEM Hub Core Team. In October 2013, she was awarded the Hub’s first Outstanding Service Award and agreed to launch a Hub in Western New York (WNY). In addition to her role as President of the Western NY Hub, she serves on the Committee for the NYS STEM Collaborative Institute at Alfred State and on the Leadership Team of the Empire State STEM Learning Network. She also serves as a member of the Buffalo Niagara Manufacturing Alliance and on the following Boards: InfoTechWNY; Innovation, Creativity & Entrepreneurship Council at SUNY Buffalo State and the WNY Science Congress. Michelle is a product of Buffalo Schools, the University at Buffalo and Buffalo State College. She holds an Ed. D. in Organization, Administration and Policy from the University at Buffalo, along with an M.S. Ed. in Exceptional Education and Communication Disorders and a B.S. Ed. in Exceptional Education and Psychology from Buffalo State.

**Jim King**  
*Partner, King + King Architects, Syracuse, New York*

Jim is the partner-in-charge of King + King Architects’ K-12 Education Design Studio. He has specialized in the K-12 education market for most of his career and has earned an excellent reputation working with the New York State Education Department, school superintendents, business officials and boards of education. His role has been one of educating and nurturing the understanding of the highly complex design and construction process. Jim has been involved in assisting in the formation of two STEM Hubs in the North Country and in the Mohawk Valley, as well as serving on the Leadership Teams of the Central New York STEM Hub and the Empire State STEM Network. This has helped fuel Jim’s passion to be a leader in changing the way education is delivered in NYS and beyond.

As an employer in a STEM field (or for that matter any business), Jim believes it is important to partner with education at all levels, particularly at the elementary and middle school levels. This is the age when young students are exploring/thinking about potential careers and seeing and applying the real world application of their learning. Business involvement will help them to remain engaged as they continue their education. Engagement of all students from diverse backgrounds with STEM businesses is critical to increasing the numbers who choose STEM focused careers. Those that focus on other fields will still be prepared with the 21st century skills that they can take to any career. Jim holds a Bachelor of Architecture degree from Syracuse University and has been a licensed architect in New York since 1983.

**Catherine Osiecki**  
*Project Director, LI STEM Hub, Sr. Educational Programs Administrator, Brookhaven National Laboratory*

Catherine has been working in Brookhaven National Laboratory’s (BNL) Office of Educational Programs since 1991 where she has managed New York State educational programs, pre-college programs and contests, college internship programs and international graduate programs. She is currently a Senior Educational Programs Administrator in the Office of Educational Programs at Brookhaven National Laboratory.

Catherine was named Project Director for the Long Island STEM Hub in 2012. Working with the Long Island STEM Hub Stewards, Ken White (BNL) and Cheryl Davidson (North Shore-LIJ Healthcare System), Catherine focuses on growing STEM business and industry connections to K-12 and post-secondary education in an effort to increase the STEM workforce. She also serves on the Empire State STEM Learning Network. Catherine holds an MBA and a BS in Business Management from Dowling College.

**Mark D. Vaughn**  
*Technical Talent Pipelining Manager, Lead, Technology Community Office of STEM, Corning Incorporated, Corning*

Dr. Vaughn is currently the Manager for Technical Talent Pipelining for Corning’s Technology Community and is the Lead for the Technology Community Office of STEM. In this role, he develops, implements and manages PK-20 science and engineering programs and initiatives in support of meeting the Technology Community’s near-term and long-term technical talent needs. Additionally, he serves as the chairman of the Black Technology Network and is project manager and process owner for a number of key programs.

Dr. Vaughn began his 27-year career with Corning in 1988 as a Research Technician. Prior to his current role, Dr. Vaughn was a Research Associate in Modeling and Simulation where he was a noted expert in Optical Network Traffic Demand Modeling and Access Network Cost Modeling. Mark holds a Ph.D. in Electrical Engineering from Georgia Institute of Technology, a M.S. in Optics from the University of Rochester, and a B.A. in Physics from Alfred University.
**Workshop #1**
*STEM Central – A Metacommunity for STEM Higher Education Reform*

**Kelly Mack,** Association of American Colleges and Universities

Increasingly, there is demand to expand and diversify the U.S. STEM workforce, with particular emphasis at the undergraduate level. Indeed, if our nation is to remain a global leader, better strategies for increasing the number of competitively trained and liberally educated STEM graduates are warranted. Chief among these strategies is improving quality of teaching, which Tsui (2007) identified as one of the strongest and most consistent predictors of student interest and retention in science both as a major and as a career. While numerous approaches have been employed to address this goal, virtual communication emerges as an essential factor in ensuring that strategies are not duplicated, but transferred across institution types and disciplines with precision. To that end, the STEM Central (formerly STEP Central) initiative, now housed within AAC&U’s Project Kaleidoscope (PKAL), works to build and sustain communities of practice among U.S. STEM faculty. This initiative effectively uses various strategies including: national meetings, and an online web platform (STEMCentral.net) that serves as a repository of information, as well as a forum for continued synchronous and asynchronous discussion, and idea and resource sharing. STEM Central is also a premier dissemination center in STEM higher education reform that utilizes webinars and virtual meetings, electronic newsletters, special announcements, and a consistently-monitored presence on several social media sites to promote the implementation of engaged pedagogies in STEM. Participants will have the opportunity to explore STEM Central, including its resources, discussions, and networking opportunities; as well as contribute to actively shaping the evolution of STEM Central into a metacommunity for STEM higher education reform.

**Workshop #2**
*Collaborating with Brookhaven National Laboratory through Research*

**Noel D. Blackburn,** Brookhaven National Laboratory

This workshop will focus on internship programs for both students and professors to develop research projects at Brookhaven National Laboratory (BNL), and college program administrators to understand existing and new models for collaborations with the Office of Educational Programs (OEP). BNL is one of five Department of Energy’s (DOE) - Office of Science (SC), multi-disciplinary, national laboratory - home to seven Nobel Prize laureates, and OEP manages all of the DOE’s internship programs along with other BNL internship programs. We are committed to working with colleges and universities in developing durable collaborations while providing research opportunities. These opportunities take advantage of the cutting-edge, large-scale facilities for studies in physics, chemistry, biology, nanomaterials, climate change, applied science, and a wide range of advanced technologies. The Laboratory’s almost 3,000 scientists, engineers, and support staff are joined each year by more than 4,000 visiting researchers from around the world to form the backdrop for potential collaborations. Our award-winning history stretches back to 1947, and we continue to unravel mysteries from the nanoscale to the cosmic scale, and everything in between in training the next generation of intellectuals.

**Workshop #3**
*Integrating STEM Laboratory Instruction and Communication Arts at the Introductory Level – Opportunities and Challenges*

**Neal Abrams, Elizabeth Hogan and Gregory McGee,** SUNY College of Environmental Science and Forestry

Introductory courses offer challenges to engage students who often view these courses as prerequisite requirements. Even students who are enrolled in STEM majors frequently struggle to see how introductory courses relate to their anticipated professions or apply to the “real world.” Although interdisciplinary linkages are eventually made in upper-division courses and synthesis experiences, these courses are sequenced at risk of missing opportunities to improve student engagement and reinforce important content and skills development during initial exposure. We integrated General Biology and General Chemistry laboratories with courses in writing and communication in an attempt to help students synthesize knowledge across disciplines, develop proficiency in laboratory skills, and improve attitudes toward STEM.

**Workshop #4**
*A Master’s Program in Lake Management – Bridging the Gap between Scientific Research and Professionals in the Field*

**Kiyoko Yokota and Willard Harman,** SUNY Oneonta

The Master of Science program in Lake Management at SUNY Oneonta is a unique program where students earn provisional certification as Certified Lake Managers upon graduation. It bridges the gap between the traditional graduate training in limnology, based on specialized scientific research, and the lake management profession, which traditionally has focused on skills and knowledge gained in the field through experience. An additional Professional Science Master (PSM) track incorporates an intensive co-op experience with well-respected lake management professionals and agencies across the country. Differences between the MS and PSM tracks and their respective recruitment targets will be discussed. Feedback from participants is anticipated regarding similar attempts in other STEM degree programs.

**Workshop #5**
*STEM Retention Efforts and their Assessment through Multiple Programs at SUNY Oswego*

**Eric Olson, Fehmi Damkaci and Timothy Braun,** SUNY Oswego

SUNY Oswego has developed several programs to increase its retention and graduation rates in STEM majors. The programs are developed with NSF funding in 2012 and have been either extensively expanded or revised since their implementation based on their success and impact. Our focus was developing programs; can be sustained after the funding, serves all or most STEM majors, and have large impact. As part of the workshop, following programs and their
impact on retention within STEM and revisions made through the development of program will be discussed: a) Peer-mentorship program using first-year STEM laboratory courses and successful juniors and seniors as mentors over three years, the data regarding its impact on retention (number of students served, the first year and second year retention rates within STEM and institution, interviews with mentors and mentees), and expansion of programs within STEM disciplines, and challenges; b) Changes in tutoring services, creation of walk-in tutoring, challenges, and the data regarding its impact on retention (number of students served, the first year and second year retention rates within STEM; c) Three weeks residential math and chemistry bridge camp, revisions to make it one-week math success program, the data regarding its impact on retention and success in math courses; d) Enforcement of math placement results and the results of pilot study. Participants will be asked to provide their experiences with similar programs and interests to set up similar programs in their institutions.

Workshop #6
Effects of the Purchase College Bridges to Baccalaureate Program on Degree Completion
Karen Singer-Freeman, Julianna Campos and Linda Bastone,
SUNY Purchase College

The Baccalaureate & Beyond summer programs at Purchase College, State University of New York, are designed to help underrepresented community college students transition to and graduate from 4-year schools. We investigated whether students who participated in summer programs which featured intensive science research (n = 62) or an interdisciplinary class (n = 23), and then transferred to Purchase College were more successful than similar students who did not participate in a summer program before transferring (n = 83). We hypothesized that students who participated in summer programs would be more successful than non-participating students. Students were matched for major, previous credits completed, GPA, and ethnicity. We examined first semester GPA cumulative GPA, graduation rate, graduation major, repeated courses and semesters to completion. We found that students who completed science research were more likely to graduate with STEM degrees than similar students who did not complete science research. The average number of repeated courses was higher for students who had completed research than similar students who did not complete science research. Participation in the summer class did not have an impact on retention within STEM, but then to research and medicine specifically. The five priorities outlined in SUNY Excels provide the framework for the never-ending roadmap of recruitment including advisement, enrollment management, and retention. Recruitment is not just the admissions counselors’ job and does not stop when students walk through our doors.

Workshop #7
Recruitment Road - Turning on Cruise Control to a Future in Graduate Research and Medicine
Krystal Ripa and Nakeia Chambers, SUNY Upstate Medical University

Working with our current populations of medical and graduate students, combined we provide a unique set of experiences and expertise to guide academic and pre-health advisors. We understand the starting point of getting students interested first in the STEM field, but then to research and medicine specifically. The five priorities outlined in SUNY Excels provide the framework for the never-ending roadmap of recruitment including advisement, enrollment management, and retention. Recruitment is not just the admissions counselors’ job and does not stop when students walk through our doors.
experiences on their continued progression through their academics examining the impact of these extended student research studies and quantitative descriptive analysis, our current research is summer research internships for our STEM students. Using case local, state, NSF, and business and industry resources to provide Candice Foley

Partnerships and Collaborations that Impact Community Col-

leverage resources to initiate such a program and how to quantitatively impact on retention - this is virtually 100%. We describe how to Oswego. Host institutions include universities in Brazil, Costa Rica, of their summer work in a fall poster conference held at SUNY fully integrated into their host research groups and present the results part in research projects at leading institutions abroad. Students are

program that provides undergraduate students the opportunity to take We will discuss the SUNY Oswego Global Laboratory - an innovative approach associated with MMRL, and one student did an independent project. All four students who did research responded in evaluations that they gained a multitude of experiences that they believe will help their future careers.

Workshop #11
VIDIA – A Virtual Infrastructure for Data Intensive Analysis
James Greenberg and Jeanette Sperhac, SUNY Oneonta
This hands-on workshop will introduce participants to the web-based HUBzero instance called VIDIA. Established from a SUNY IIIT initiative and available to any SUNY faculty or student, HUBzero was designed to help a scientific community share resources and work together with one another. Users can upload their own content—including tutorials, courses, publications, and animations—and share them with the rest of the community. Each hub is more than just a repository of information. It is a place where researchers and educators can collaborate in private spaces to build simulation/modeling tools, gather datasets, and share them online. Users can launch computations and view results with an ordinary web browser--without having to download, compile, or install any code.

Workshop #12
The SUNY Oswego Global Laboratory
Shashi Kanbur and Cleane Medeiros, SUNY Oswego
We will discuss the SUNY Oswego Global Laboratory - an innovative program that provides undergraduate students the opportunity to take part in research projects at leading institutions abroad. Students are fully integrated into their host research groups and present the results of their summer work in a fall poster conference held at SUNY Oswego. Host institutions include universities in Brazil, Costa Rica, Europe, India and Taiwan. This experience provides a deep learning experience since students are learning by doing and has a significant impact on retention - this is virtually 100%. We describe how to leverage resources to initiate such a program and how to quantitatively and qualitatively assess its impact.

Workshop #13
Partnerships and Collaborations that Impact Community College Student Outcomes in STEM Research Programs
Candice Foley, Suffolk County Community College
Since 2007, Suffolk County Community College has been leveraging local, state, NSF, and business and industry resources to provide summer research internships for our STEM students. Using case studies and quantitative descriptive analysis, our current research is examining the impact of these extended student research experiences on their continued progression through their academics and career aspirations. Over the last eight (8) years, over 120 students have engaged in summer research experiences in which they have applied classroom and instructional lab theory to practice. Our research methodology focuses on analyzing grades, academic achievements and awards, student employment and Likert scale surveys, along with case study data and longitudinal studies. In addition, we annually survey our faculty mentors who are paired with our STEM students. Our findings indicate that community college student researchers perform better academically than their peers who chose a more traditional path and that success in STEM encourages increased persistence of underrepresented populations in college and beyond to STEM careers or higher STEM education. This presentation will describe the results.

Workshop #14
Buffalo Public Schools STEM Experience
Suzanne Chamberlain, Eunice Lewin and Kelly Baudo, University at Buffalo
In its third year, BPS STEM Experience is planning for the 2015/16 school year. This public/private partnership uses interactive presentations, workshops, speakers and reading challenges to heighten awareness and increase interest among K – 12 students on the need for active STEM learning. It augments classroom work and provides additional professional development for teachers. Our underlying assumption is that STEM-educated Buffalo public school students have better career opportunities in Western New York’s growing life sciences and advanced manufacturing sectors.

Workshop #15
SENCER in Theory and Practice: A Panel Presentation
David Ferguson, Wm. David Burns, Candice Foley and Anna Rozenboym, Stony Brook University, National Center for Science and Civic Engagement, Suffolk County Community College and Kingsborough Community College
SENCER (Science Education for New Civic Engagements and Responsibilities)—a “high impact practice” focused faculty development and empowerment program—has been supported by the National Science Foundation (and others) since 2001. The SENCER approach is simple: to use complex, compelling matters of civic consequence to frame and organize the canonical disciplinary learning goals in general education courses at the college level. The workshop will feature leaders from the SENCER community unpacking the theory of this work and practitioners who will describe SENCER practices in courses for undergraduates that they teach. Audience participation will be encouraged through specific hands-on activities.

Workshop #16
Cheap, Effective and Fun: Evaluation of an Intervention for Underprepared First-Year STEM Students
Jennifer Waldo, SUNY New Paltz
At our comprehensive college, fiscal constraints dictate that the General Biology sequence be delivered in a large lecture format.
We have implemented active learning strategies in the class (clickers, on-line quizzes, think-pair-share, etc.), but remain concerned about the attrition of students from historically underrepresented groups. A consistent theme in student evaluation of these classes was that the size was a factor. In an effort to address this, we have provided a supplemental once-a-week discussion section with a senior biology faculty member. Data, including SAT scores and HS GPA was examined to provide criteria for identifying students that were likely to struggle in General Biology. Half of these students were given the opportunity to enroll in the discussion section, the remaining half served as the control group. Students that participated in the intervention were more likely to be successful in General Biology than those of similar background that did not.

Workshop #17
NYS Master Teacher Program: Outstanding STEM Teachers Inspiring the Next Generation of STEM Leaders in NYS
Josephine Salvador, SUNY NYS Master Teacher Program
The NYS Master Teacher Program (MTP) celebrates the work of outstanding STEM teachers by establishing an expert community dedicated to sharing expertise with peers and attracting the brightest minds to a career in STEM. The MTP is hosted at ten sites across the state. These sites serve as the home base of each regional cohort’s activities and partner with other educational institutions and organizations in their region to provide a robust program tailored to the professional growth and development goals of the Master Teachers in the cohort. The presentation will consist of a brief panel of MTP staff and Master Teachers to share examples of the professional activities, an interactive mini-version of a MTP regional cohort meeting with time for Q&A.

Workshop #18
Scaling-Up a Two-Year to Four-Year Transition Program in a Sustainable Manner: An NSF I CORPS L Project
Joe Skrivanek, Elizabeth Carrature, Julianna Campos and Joanne Russell, SUNY Office of Diversity, Equity and Inclusion, SUNY Purchase College and SUNY Provost’s Office
Sarah Rowlinson, Clemson University
Karen Burg, Richard Potter and Timothy Burg, Kansas State
Destiny Babjack and Anthony Zuccoloto, PST Solutions and Sandra Webster, Westminster College
Increasing the number and diversity of students entering, persisting and graduating with STEM degrees; and significantly aiding them with STEM internships and job placements is imperative to solving the critical national and state workforce deficit that encompasses 63 STEM occupations categorized by the U. S. Department of Labor. Community colleges represent a special opportunity for increasing STEM majors. Two-year institutions are “the entry point into higher education for most first-generation college students, particularly those from low-income, minority, and immigrant backgrounds.” Studies have shown that only 25% of these students complete a two-year degree and transfer to a four-year institution and only 17% complete a bachelor’s degree. In 2000, Dr. Skrivanek founded the Baccalaureate and Beyond Community College Mentoring Program (BBCCMP) to assist underrepresented minority, low income, and first generation community college students from six SUNY community colleges with the transition from the two-year to four-year institutions and transitions either into the workforce or to graduate or professional school. The Program involves tutoring, mentoring, and advising at the two and four-year institutions and a summer research program. In the fifteen years of the program, over 200 students have been involved. Over 80% of these students are completing their Associate’s degree and transferring to four-year institutions. Over 70% of these students are completing their bachelor’s degree and 33% are going on for post-graduate work. The program received the PAESMEM award in 2009. The model is successful because of the involvement of the community colleges. They become partners in our success because we share the same students and are focused on their success. In 2010 the SUNY Replication Project created a New York-based ecosystem in STEM based on the success of the Baccalaureate and Beyond Program within SUNY. The process began with an initial conference sponsored by ODEI and attended by teams from 34 of the 64 SUNY campuses. Subsequently, six regional hubs comprising a mixture of two-year and four-year institutions were formed, and representatives met again at a second conference in 2012, to scale-up working with community colleges on student transitions. These initiatives are complementary to SUNY’s strategic plan to increase access, completion and success for SUNY students. SUNY ODEI recently received an NSF Innovation Corps for Learning (I Corps L) grant to replicate the BBCCMP program in a self-sustaining manner. An I Corps L Team was formed, and the Team participated in a series of in-person and on-line workshops dealing with various aspects of start-up business model. The results of this training and how it relates to the Replication project will be discussed.

Workshop #19
Online Science Labs: Strengths, Weaknesses, Opportunities and Threats
Carey Hatch, Jennifer Herzog and Mary Mawn, SUNY System Administration, Herkimer County Community College, Empire State College
Online labs are accepted by some, scorned by others. As part of the completion agenda, SUNY faculty have constructed curriculum paths that help students transfer seamlessly across campuses. Should online labs be acceptable for transfer? Although there are good arguments on both sides, the decision may need to be made locally. If so, each campus will need to establish a protocol for making these decisions. That said, the decision is not as simple as it may seem. During this session, we will present an overview of the types of laboratory experiences that engage online students in scientific investigations. We will then suggest questions that your campus may wish to consider when establishing protocols for assessing learning gained through online laboratory experiences.
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GETTING TO KNOW SUNY

The State University of New York (SUNY)

The State University of New York’s 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New Yorkers and comprise the nation’s largest comprehensive system of public higher education.

- The State University of New York’s 64 campuses are divided into four categories, based on educational mission, the kinds of academic opportunities available, and degrees offered. They are: Community Colleges, Technology Colleges, Comprehensive Colleges, Research and University Centers.

- SUNY offers students a wide diversity of educational options: short-term vocational/technical courses, certificate programs, associate degree programs, baccalaureate degree programs, graduate degrees and post-doctoral studies. The University offers access to almost every field of academic or professional study somewhere within the system—some 7,262 degree and certificate programs overall.

- With a total enrollment of nearly 460,000, students are pursuing traditional study in classrooms and laboratories or are working at home, at their own pace, through such innovative institutions as the SUNY Learning Network and Empire State College.

- SUNY students are predominantly New York State residents, representing every one of the state’s 62 counties. SUNY students also come from every other state in the United States, the District of Columbia, from four U.S. territories, and over 190 foreign countries.

- As of Fall 2014, SUNY enrolls approximately 42 percent of the 2013-2014 high school graduating class, and its total enrollment of more than 459,000 (full-time and part-time) is approximately 34 percent of the state’s entire higher education student population.

- SUNY students represent the society that surrounds them. In fall 2014, approximately 29 percent of all students were minorities. As of fall 2013, full-time minority faculty members made up just over 16 percent of all full-time SUNY faculty.

- As of June 2014, the University numbers nearly 3 million graduates on its rolls. More than half of the University’s alumni reside and pursue careers in communities across New York State, contributing to the economic and social vitality of New York State.

- SUNY is committed to bringing its students the very best and brightest scholars, scientists, artists and professionals. SUNY campuses boast nationally and internationally recognized faculty in all the major disciplines. Their efforts are regularly recognized in numerous prestigious awards and honors.
Vision:
ODEI aspires to situate diversity as an integral component of academic excellence at The State University of New York (SUNY) and, in the process, to establish the university as a national leader in preparing its students for success in a culturally and racially diverse society. ODEI envisions the SUNY of the future as a preeminent public university that is truly representative of the rich array of human and intellectual diversity that is the hallmark of New York State. The principle of engagement through inclusion will be a core value. This office will promote new partnerships, within the 64-campus SUNY System and beyond, that embrace the inseparable connection between academic excellence and diversity.

Mission:
ODEI is responsible for devising and implementing a range of programs to promote the diversity of SUNY’s academic and human resources. The office promotes the integration of diversity-related instruction and research into ongoing SUNY system-wide initiatives to enhance academic excellence. ODEI partners with baccalaureate, doctoral granting institutions and community colleges to achieve the holistic integration of New York’s underrepresented and economically disadvantaged populations into the academic culture of higher education. The office strengthens SUNY’s ability to create knowledge of benefit for society and educate students for leadership positions in a culturally diverse and globalized society.