

Science and Engineering for Social Good



NATIONAL CENTER FOR
SCIENCE & CIVIC ENGAGEMENT



Stony Brook
University



Vertically
Integrated
Projects

February 9-11, 2018
Atlanta, Georgia

Science and Engineering for Social Good Schedule at a Glance

Friday, February 9, 2018

Time	Event	Location
3:00 - 4:00 PM	Science and Engineering for Social Good Check-in	Klaus Building S. Wing Lobby
4:00 - 5:30 PM	Opening and Plenary Session I: Norman Fortenberry	Klaus 1456 - S. Wing
6:00 - 7:00 PM	Networking Reception	Georgia Tech Hotel Club Room

Saturday, February 10, 2018

8:00 - 9:00 AM	Breakfast	Klaus Building Atrium - N. Wing
9:00 - 9:30 AM	Plenary Session II: Ed Coyle	Klaus 1116
9:30 - 10:00 AM	Plenary Session III: SUNY LSAMP Panel	Klaus 1116
10:00 - 10:20 AM	Networking Break	Klaus Building
10:20 AM - 12:00 PM	Talk Block I	Klaus Building Classrooms
12:00 - 1:30 PM	Lunch and Poster Session	Klaus Building Atrium - N. Wing
1:30 - 2:00 PM	Plenary Session IV: Greg Pearson	Klaus 1116
2:00 - 2:30 PM	Plenary Session V: Jenny Hirsch	Klaus 1116
2:30 - 3:00 PM	Networking Break	Klaus Building
3:00 - 4:00 PM	Talk Block II	Klaus Building Classrooms
4:00 - 5:00 PM	Four Models for Incorporating Civic Engagement into the Undergraduate STEM Curriculum - Stories from Georgia Tech	Klaus 1116

Sunday, February 11, 2018

8:00 - 9:00 AM	Breakfast	Klaus Building Atrium - N. Wing
9:00 - 9:30 AM	Plenary VI: Jinsang Lee	Klaus 1116
9:30 - 10:00 AM	Networking Break	Klaus Building
10:00 - 11:20 AM	Talk Block III	Klaus Building Classrooms
11:20 AM - 12:00 PM	Closing Session	Klaus 1116

Science and Engineering for Social Good Talk Blocks

Saturday, February 10, 2018

Talk Block I: 10:20 AM - 12:00 PM

Start Time	Klaus 1440 - South Wing	Klaus 2456 - South Wing	Klaus 1116 East - Off Atrium	Klaus 1116 West - Off Atrium
10:20 AM	Learning without Borders: A Qualitative Exploration of a Service-Learning Collaboration between Healthcare and Computer Science Students in the Dominican Republic.	Upstate Louis Stokes Alliance for Minority Participation		
10:40 AM	Integrating Science, Engineering and Liberal Arts through the Grand Challenge Scholars Program	Sustainable Development Capstone Project for Incoming First-Year Students in STEM	Addressing Bullying with Technical Solutions	STEM Smart: Partnerships Providing a Pathway to STEM Careers
11:00 AM	Engineering and Policy Analysis: Intertwining Math and Models with Political and Strategic Decision-making	Pillars of Success: Ten Strand Systemic Mentoring Model of LS-LAMP	STEM (Education) for Empowerment: How are Asian Women doing?	Fostering Diverse Communities at Research Intensive Institutions: The Center for Inclusive Education as a Community Building Space for Underrepresented Minority Scholars
11:20 AM	Bridging the Human Rights & Engineering Fields	PR-LSAMP: Successful Stories of STEM Education	The Strategic Partnership for Industrial Resurgence: Bringing Engineering Out into the Community	APLU INCLUDES: Broadening Participation in the STEM Professoriate
11:40 AM	Broadening Participation of Underrepresented Students in STEM at Rose-Hulman Institute of Technology	USM LSAMP Examines the UN's Sustainable Development Goals and Grand Challenges with the Latin and Caribbean Consortium of Engineering Institutions (LACCEI)	Understanding Intergenerational Trauma for Indigenous Communities	Engineering for Humanity: Case Studies from the United States and Africa

Talk Block II: 3:00 - 4:00 PM

Start Time	Klaus 1440 - South Wing	Klaus 2456 - South Wing	Klaus 1116 East - Off Atrium	Klaus 1116 East - Off Atrium
3:00 PM	Bee Inspired Summer Internship Program	Use-Inspired Research In the Western Alliance to Expand Student Opportunities (WAESO)		
3:20 PM	Nurturing Citizenship and Partnership thru Biology	Engineering & Technological Literacy for Non-Majors: Both an Opportunity and Responsibility for Engineering Faculty	English Composition - Exposing STEM Students to Civic Engagement Right When they Come to Georgia Tech	Creative Fabrication: A SENCERized Introduction to User-Centered Design and Fabrication for Engineering
3:40 PM	Project-based Course on Health and Humanitarian Systems	How National Labs can Influence STEM Education	Institute on Teaching and Mentoring	Women in Science and Engineering (WISE): Undergraduate Academic Excellence through Curriculum, Service, Research, Mentoring, and Leadership

Sunday, February 11, 2018

Talk Block III: 10:00 - 11:20 AM

Start Time	Klaus 1440 - South Wing	Klaus 1447 - South Wing	Klaus 1116 East - Off Atrium	Klaus 1116 West - Off Atrium
10:00 AM	Designing an Undergraduate Engineering Curriculum with an Internationally Focused Liberal Arts Concentration and On-Site Project	Scientific and Technological Innovation: The Exploration of Risk Aversion, Job Security and Workforce Development In Catalyzing STEM Fields		
10:20 AM	REU Program in Costa Rica	Science and Engineering for Social Good: On-ramp to the Road to Hell?		
10:40 AM	Using Science, Technology, and Service to Encourage People to Solve the World's Biggest Problems	STEM on the MOVE: Engaging Undergraduate Non-Majors in Engineering	The Impact of Septic Systems on Long Island's Aquifer- An Interdisciplinary Study	
11:00 AM	Experiential Learning Programs at Stony Brook University	The Importance of Summer Research Experiences for Community College Student Success	Training Engineers for Community Engagement	

FRIDAY, FEBRUARY 9, 2018

3:00 P.M. – 4:00 P.M. **CHECK-IN**
Klaus Building Classroom South Wing Lobby

Please meet us in Klaus Building classroom wing lobby to check in and pick up your printed materials and name badge for the meeting.

4:00 P.M. – 5:30 P.M. **OPENING SESSION AND PLENARY ADDRESS I: ENGINEERING FOR SOCIAL GOOD**
Klaus 1456, South Wing

Welcome from NCSCE: Eliza Reilly, *The National Center for Science and Civic Engagement*

Welcome from Georgia Tech: Ed Coyle, *Georgia Institute of Technology*

Speaker Introduction: David Ferguson, *Stony Brook University*

Plenary Address: Norman Fortenberry, *American Society for Engineering Education*

Following introductions from NCSCE and Georgia Tech, Norman Fortenberry, executive director of the American Society for Engineering Education (ASEE) will deliver the first plenary, “Engineering for Social Good.” Dr. Fortenberry will summarize the role of engineers in producing social good and discuss ways of improving the process for producing engineers better able to do that.

6:00 P.M. – 7:00 P.M. **NETWORKING RECEPTION**
Georgia Tech Hotel Club Room

Please join us at the Georgia Tech Hotel’s Club Room for a reception. The Club Room is on the first floor of the hotel, near the bar. Refreshments will be served.

SATURDAY, FEBRUARY 10, 2018

8:00 A.M. – 9:00 A.M. **BREAKFAST**
Klaus Building Atrium, North Wing

9:00 A.M. – 9:30 A.M. **PLENARY SESSION II: THE VIP PROGRAM: LARGE-SCALE, LONG-TERM, MULTIDISCIPLINARY PROJECTS SUPPORTING CIVIC INNOVATION**

Klaus 1116

Speaker Introduction: Eliza Reilly, *The National Center for Science and Civic Engagement*

Plenary Address: Ed Coyle, *Georgia Institute of Technology*

This session will describe the Vertically Integrated Projects (VIP) Program the VIP Consortium. Undergraduate students who join VIP teams earn academic credit for their participation in projects that assist faculty and graduate students with innovative activities in their areas of interest, including civic engagement. The teams are: multidisciplinary – drawing students from every discipline on campus; vertically-integrated – maintaining a mix of sophomores through PhD students each semester; large-scale – the average team has 16 undergraduates, 1 to 4 graduate students, and 1 to 3 advisers; and, long-term – each undergraduate student may participate in a project for up to seven semesters and each graduate student may participate for the duration of their graduate career. The continuity, technical depth, and disciplinary breadth of these teams enable the completion of projects of significant benefit to researchers’ activities and to the community at-large. Examples of Georgia Tech VIP teams that are engaged with the greater Atlanta community will be provided.

9:30 A.M. – 10:00 A.M.

PLENARY SESSION III: SUNY LSAMP BROADENING PARTICIPATION IN STEM

Klaus 1116

Panel Introduction: David Ferguson, *Stony Brook University*

Plenary Panel: Candice Foley, *Suffolk Community College*

Shanise Kent, *University at Albany, SUNY*

Stacie Nunes, *SUNY New Paltz*

The SUNY LSAMP was formed in 1996 and is a collaboration of SUNY university centers, four year colleges, and community college working together to broaden participation in STEM within SUNY. Goals of the collaboration and some alliance-wide outcomes will be presented. Representatives from each of the three categories of institutions will share their perspectives on achieving goals for the SUNY LSAMP students.

10:00 A.M. – 10:20 A.M.

NETWORKING BREAK

Klaus Building

10:20 A.M. – 12:00 P.M.

TALK BLOCK I

Klaus Building Classrooms

10:20 A.M. – 10:35 A.M.

Learning without Borders: A Qualitative Exploration of a Service-Learning Collaboration Between Healthcare and Computer Science Students in the Dominican Republic

Klaus 1440

Patrick Burns, pmburns@butler.edu

Courtney Cox, clcox1@butler.edu

Patricia Devine, tdevine@butler.edu

Sarah Lenahan, slenahan@butler.edu

Panos Linos, linos@butler.edu

Butler University

For the past three years, faculty and students from Butler University's College of Pharmacy and Health Sciences and the Engineering Projects in Community Service (EPICS) program collaborated in order to develop an Electronic Medical Records (EMR) iPad application for students and faculty volunteers to use during mission trips to the Dominican Republic (DR). A prototype of the EMR app was tested, utilized and improved in underserved clinics in the DR for the past two years. We also launched a research project this past year to assess the learning and cultural awareness of students, usefulness of the EMR app and patient satisfaction by means of a qualitative survey.

In this session, we will share some of our experiences and results from the survey as well as explain what resources are needed. We will also propose a plan and engage participants into exploring how to implement similar academic programs locally or internationally.

10:20 A.M. – 10:35 A.M.

Upstate Louis Stokes Alliance for Minority Participation

Klaus 1147

Tamara Hamilton, tnhami01@syr.edu
Syracuse University

Established in 2007, the goal of the Upstate Louis Stokes Alliance for Minority Participation (ULSAMP) is to recruit, retain, and graduate an increasing number of underrepresented minority (African-American, Alaskan Native, American Indian, Hispanic American, Native Hawaiian, and Native Pacific Islander) students in science, technology, engineering, and mathematics (STEM) fields and to provide early student research experiences to foster graduate school enrollment in Upstate New York. Over the past ten years, ULSAMP has achieved significant results in increasing the entry, retention, and graduation of URM students, focusing its efforts on assisting students with bridging key transitions: from high school to college; from college into graduate school; and ultimately into a rewarding career in STEM. The next five years of ULSAMP will focus on strengthening the two-year to four-year pathway by increasing support for community college students. Each year, ULSAMP supports over 200 students through activities such as research experiences for undergraduates, bridge program for transfer students, preparation in STEM courses during the first two years, opportunities for graduate school preparation, and students presenting research at conferences. Since 2007, ULSAMP institutions have awarded 4,186 STEM degrees to URM students.

10:40 A.M. – 10:55 A.M.

Integrating Science, Engineering and Liberal Arts through Grand Challenge Scholars Program

Klaus 1440

Karen Oates, koates@wpi.edu
Worcester Polytechnic Institute

WPI, along with three other Technological Institutions, participated in a Teagle Foundation Grant to establish Grand Challenge Scholars according to the criteria set by the National Academy of Engineering. In this short session we will review the foundations and unique aspects of the programs developed by our institutions.

10:40 A.M. – 10:55 A.M.

A Sustainable Development Capstone Project for Incoming First-Year Students in STEM

Klaus 2456

Eda Davis-Lowe, edavislowe@valenciacollege.edu
Valencia College

For a week late in the summer semester, Valencia College offers incoming first-year students interested in STEM an opportunity to explore STEM discipline and careers and work in a small team to complete a capstone project. The completion of the project results in a poster that is shared during the closing session of the weeklong event. The context for the capstone project is the United Nations' sustainable development goals, focusing on nine of the goals and their associated targets. This talk will highlight the structure of the weeklong experience, the specific supports for the capstone project, and findings from the pre- and post-survey data from student participants.

10:40 A.M. – 10:55 A.M.

Addressing Bullying with Technical Solutions

Klaus 1116 East - Off Atrium

Derek Peterson, derek.peterson@digitalfly.net

Digital Fly

Social Media is here to stay and the user adoption continues to grow at a staggering rate. With this increase we are seeing bullying also increase at an alarming rate. We can either choose to ignore it and stick our head in the sand or embrace this Digital Playground. We will go over technology advancement on addressing this growing issue. Bullies Beware!

10:40 A.M. – 10:55 A.M.

STEM Smart: Partnerships Providing a Pathway to STEM Careers

Klaus 1116 West - Off Atrium

Christine Veloso, christine.veloso@stonybrook.edu

Stony Brook University

For more than 40 years Stony Brook University (SBU) has been involved in serving the needs of historically underrepresented (UREP) and economically disadvantaged student populations; hosting a wide variety of equity and access initiatives specifically aimed towards helping these students prepare for careers in science, technology, engineering and mathematics (STEM). Much of the success has come as the result of building powerful collaboratives that include schools, colleges and universities, STEM departments and an array of institutionally, state and federally, supported programs for enhancing diversity in STEM. A clear demonstration of Stony Brook's expertise and commitment to providing services to underrepresented populations regarding STEM is its model for coordinated program services through the STEM Smart umbrella outreach program.

Whether it is through the provision of a sense of a "community of scholars", near to peer role models and mentoring, or skill/knowledge acquisition through engaging inquiry based explorations, each of the featured programs involved in STEM Smart addresses many, if not all, of the contextual, cognitive and cultural factors that influence student academic achievement and retention. This presentation will highlight STEM Smart and address the special secondary school and undergraduate programs that collaborate to effectively create a seamless pathway for UREP students to progress toward careers in STEM. Participants will work to brainstorm ways in which such partnerships can be developed at their own institutions.

11:00 A.M. – 11:15 A.M.

Engineering and Policy Analysis: Intertwining Math and Models with Political and Strategic Decision-making

Klaus 1440

Bert Enserink, b.enserink@tudelft.nl

Delft University of Technology

The T-shaped engineer with his deep technical foundation and engineering skills with on top of that a broad managerial perspective currently is the ideal of many engineering programs. The master in Engineering Policy Analysis at Delft University of Technology was such a 'broad/managerial' top-program. Despite its high scores in (international) accreditations and the Delfts rankings the 15 year old program led a somewhat marginal existence.

A series of workshops were initiated, involving external parties (the labour market), students, alumni and staff and highlighted its strengths and weaknesses and explicated opportunities. This led to a series of connected and reinforcing measures. Opening up the program to STEM applicants would enlarge the pond. A focus on the Grand Challenges would create an agenda and give a perspective of the labour market. A re-design of the curriculum and a focus on data analytics, modelling and simulation would make it attractive for STEM bachelors and finally the deliberate choice to relocate the program to the city of The Hague to be at the heart of policy making in the Netherlands. As a result the influx of new students doubled and currently the focus is on creating internships and research projects for its students.

11:00 A.M. – 11:15 A.M.

Pillars of Success: Ten Strand Systemic Mentoring Model of LS-LAMP

Klaus 2456

Anthony Stewart, anthony_stewart@subr.edu
Southern University & A&M College

The Louis Stokes Louisiana Alliance for Minority Participation (LS-LAMP) is a comprehensive, statewide, coordinated program aimed at substantially increasing the number and quality of minority students enrolling and completing baccalaureate degrees in science, technology, engineering, and mathematics (STEM) and subsequently pursuing graduate studies in STEM disciplines. LS-LAMP's strategy is centered on enhancing and coordinating existing STEM workforce development activities at the partner institutions, supporting undergraduate research activities and introducing strategic statewide and regional academic and research activities to promote networking and technology exchanges. This session describes the ten strand systemic mentoring model whose implementation has ensured our success to date.

11:00 A.M. – 11:15 A.M.

STEM (Education) for Empowerment: How are Asian Women Doing?

Klaus 1116 East - Off Atrium

Faheem Hussain, faheem.hussain@stonybrook.edu
SUNY Korea/Stony Brook University

This presentation summarizes my personal experiences and key reflections of teaching and designing STEM curriculum and programs in the Middle East, South, South-East, and North Asia. I will first focus on the impact of STEM Education in Asian women's lives, who are in general marginalized when it comes to socio-economic opportunities and representations. Then, I will highlight some of the key findings from my research (using Capability Approach framework) on how Information and Communication Technology (ICT) Education can positively impact young women professionals careers as well as lifestyles, especially in South and South-East Asia.

I will also share several cases of women social-entrepreneurs, who have successfully utilized ICT to initiate social good while ensuring sustainable profits for their companies. At the end of the presentation, I will share a set of policy recommendations which can help to facilitate further synergy of STEM and Women's Empowerment both globally and locally.

11:00 A.M. – 11:15 A.M.

Fostering Diverse Communities at Research Intensive Institutions: The Center for Inclusive Education as a Community Building Space for Underrepresented Minority Scholars

Klaus 1116 West - Off Atrium

Toni Sperzel, toni.sperzel@stonybrook.edu
Karian Wright, karian.wright@stonybrook.edu
Stony Brook University

In 2002, Stony Brook University established the Center for Inclusive Education as a space to support the success of Stony Brook's underrepresented minority STEM graduate scholars. In the years that followed, the Center has grown its community and scope through the engagement of Arts, Humanities and Social Science programs, the expansion of support efforts to postdoctoral trainees, and the diversification of funding mechanisms. Now in its 16th year, the Center's programs have graduated over 544 scholars from master's and PhD programs and supported 15 postdoctoral trainees. Today, the Center's interdisciplinary community of 180 undergraduate, graduate students and postdoctoral trainees engage with faculty, staff, campus leaders, national organizations and most importantly, one another to support their academic, personal, and career growth. This presentation will discuss the evidence-based models for supporting diverse scholars that have been central to the Center's success. Examples include the designing of wise academic interventions and advocacy efforts, the provision of mentors and role models, the creation of communities to combat feelings of isolation, and the affirmation of values and use of physical cues to communicate an inclusive environment to scholars. Combined, these activities result in the creation of the Center as an identity safe space for UR and URM scholars in which they feel that their identity is valued in the University.

11:20 A.M. – 11:35 A.M.

Bridging the Human Rights & Engineering Fields

Klaus 1440

Shareen Hertel, shareen.hertel@uconn.edu
University of Connecticut

Human rights research and teaching have largely been dominated by scholars in law, social sciences, and humanities, with scholars in the STEM fields playing a far less visible role in the development of the field. The University of Connecticut is actively working to bridge this gap through teaching and research that explicitly involves engineers and human rights scholars in interdisciplinary collaboration. There is a parallel and complementary track of work on global health and human rights, but this presentation will focus principally on engineering as the locus of collaboration.

Faculty from UConn's Human Rights Institute have spearheaded course development and joint research projects that directly involve engineering professors and HR scholars in collaborative teaching and research -- on topics ranging from sustainable energy to supply-chain management to water security. This presentation will explore these new developments and their implications for scholarship, teaching and HR practice.

11:20 A.M. – 11:35 A.M.

PR-LSAMP: Successful Stories of STEM Education

Klaus 2456

Pablo Llerandi, pablo.llerandi@upr.edu

University of Puerto Rico

The PR-LSAMP Program, one of the original LSAMP Programs funded by NSF in 1991, consists of an alliance between the University of Puerto Rico (eight campuses), the Ana G. Méndez System (three institutions), and the main campus of the Pontifical Catholic University. PR-LSAMP manages both the Research Opportunities for Undergraduate Students and the Bridge to the Doctorate initiatives. Yearly activities include Role Model Series presentations, educational field trips, skill development workshops, and mentoring and recruitment seminars. In addition, nearly 400 undergraduate and graduate students present their research and attend keynote lectures by renowned researchers at the Puerto Rico Interdisciplinary Meeting (PRISM), and faculty mentors discuss cutting-edge STEM education approaches at the Best Practice Conference on Teaching and Learning.

The Program's systemic initiatives and integrative approaches have achieved a (1) twofold increase in undergraduate STEM enrollment since 1991-92; (2) increased the annual BS degree production contributing to the NSF goal of a diversified STEM workforce; (3) contributed to the national pool of Latino/Hispanic PhDs nationally in both the Natural Sciences and Engineering; and (4) contributed to a five-fold increase in the number of PhD degrees awarded in STEM fields since 1991. The level of satisfaction related to the impact of PR-LSAMP activities in students' academic careers, opportunities, and guidance is high among students.

At the same time, there are areas being reconsidered to make them more effective, such as communication among participants, establishing key skill development workshops annually, and mentoring through the professional development of faculty in two-year institutions. This presentation will discuss the success stories and lessons learned throughout the history of the Program with the objective of engaging the audience in a conversation about best practices and what can be improved in LSAMP implementation.

11:20 A.M. – 11:35 A.M.

The Strategic Partnership for Industrial Resurgence: Bringing Engineering Out into the Community

Klaus 1116 East - Off Atrium

Lisa Chichura, lisa.chichura@stonybrook.edu

Stony Brook University

The Strategic Partnership for Industrial Resurgence (SPIR) was established in 1994 by New York State to utilize the extensive engineering resources of the state university system to help local industry compete more effectively. SPIR fills a critical gap in existing state industrial assistance programs by providing technically advanced multidisciplinary assistance on a fast turnaround basis. The success of the SPIR program is built on the relationships between academic engineers and industry. SPIR provides local industry with engineering expertise, access to advanced manufacturing and high technology facilities, and a host of other resources to help businesses become more competitive. In return, SPIR also provides students the opportunity to work on real world problems alongside academic and industrial engineers, enabling them to obtain valuable work experience which helps them to prepare for engineering and technical careers.

11:20 A.M. – 11:35 A.M.

APLU INCLUDES: Broadening Participation in the STEM Professoriate

Klaus 1116 West - Off Atrium

Kacy Redd, kredd@aplu.org

Association of Public and Land-grant Universities

APLU INCLUDES seeks to diversify the STEM professoriate at public research universities—a critical lever to broadening participation throughout the global STEM community. Through a collaborative, evidence-based approach, this project will provide tools for APLU's national network of member universities to effectively recruit, hire, and retain faculty from underrepresented groups and foster career pathways toward the professoriate by broadening student participation in STEM programs. The Association of Public and Land-grant Universities (APLU) is a higher education association whose members include 208 public research universities and 24 university systems.

11:40 A.M. – 11:55 A.M.

Broadening Participation of Underrepresented Students in STEM at Rose-Hulman Institute of Technology

Klaus 1440

Janice Fenn, fenn@rose-hulman.edu

Rose-Hulman Institute of Technology

Scientific evidence shows that genetically, all humans are 99.9% the same. We have this intricately assembled and functioning brain that even neurologists cannot fathom, and holding potential that remains untapped. It is our mission to look beyond the outer covering and to provide students with the most innovative STEM education, and to reinforce the reality that potential has no boundaries . . . culture, background, ethnicity, gender, orientation . . . and most importantly, no speed limit.

To achieve this, the Presidential Cabinet at Rose-Hulman Institute of Technology has approved the following four diversity initiatives for campus that expose our students to a wide range of Diversity Messages, Diverse Messengers, and Diverse Interactions:

1. Create a diverse and inviting campus environment
2. Provide diversity and inclusion educational experiences
3. Engage in strategic outreach to diverse audiences
4. Enhance awareness and goodwill with diverse audiences

The presentation will focus on the 11 original D&I programs; ten D&I speakers/performances, and numerous corporate partners introduced over the past two years in support of these initiatives.

11:40 A.M. – 11:55 A.M.

USM LSAMP Examines the UN's Sustainable Development Goals and Grand Challenges with the Latin and Caribbean Consortium of Engineering Institutions (LACCEI)

Klaus 2456

Sunji Jangha, sjangha@umbc.edu

University of Maryland, Baltimore County

The University System of Maryland LSAMP has partnered with the Latin and Caribbean Consortium of Engineering Institutions (LACCEI) to facilitate opportunities for URM students to present at an international conference. In this presentation we will discuss the mechanisms that we used as an alliance to: encourage students to participate, prepare students for presenting at an international conference, engage students before, during and after the conference through social media, enhance our LSAMP students' experience by integrating cultural activities. Equally important in the interaction is helping students develop a sense of understanding the global challenges that their STEM education uniquely prepares them to help solve. Our partnership with LACCEI allows us to open the world up to our students fostering within them the capacity to meet the grand challenges that we will face head on.

11:40 A.M. – 11:55 A.M.

Understanding Intergenerational Trauma for Indigenous Communities

Klaus 1116 East - Off Atrium

Lee Bitsoi, lee.bitsoi@stonybrook.edu

Stony Brook University

Once dismissed as a notion, Intergenerational Trauma is now being validated through epigenetics. Through epigenetics, we are discovering that what our grandparents experienced, what they ate, the toxins they may ingested and any trauma they endured could have impacted their minds and bodies, such as creating a predisposition for chronic illness and/or disease. Our parents inherited such predispositions and we in turn are affected and our progeny will also be affected. Accordingly, indigenous scholars are re-examining the government boarding school experience for Native Americans who endured isolation, poor diets, physical and sexual abuse in these government institutions and the impact of such experiences that has led to predispositions for chronic illnesses and diseases for indigenous people and communities. Many of these schools were established on abandoned military installations as the means for the government to achieve assimilation of Native Americans into mainstream American culture. Assimilation efforts included forcibly removing Native Americans from their families, converting them to Christianity, preventing them from speaking their languages and carrying on their customs, and living in a strict military fashion that collectively led to the loss of language and culture during this unfortunate era. Suffice to say, this has impacted indigenous people and communities on many levels.

In this session, Dr. Lee Bitsoi, a Navajo scholar, will present an overview of research endeavors that are uncovering connections between the intergenerational trauma of the government boarding school experience and the current well-being of indigenous people. Dr. Bitsoi will also provide information about how this is an international endeavor by discussing similar research endeavors in Canada (for First Nations people) and Australia (for Aboriginal people). With such a framework, Dr. Bitsoi is embarking on an interdisciplinary research initiative to add to this growing and much needed body of research and literature.

11:40 A.M. – 11:55 A.M.

Engineering for Humanity: Case Studies from the United States and Africa

Klaus 1116 West - Off Atrium

Wole Soboyejo, wsoboyejo@wpi.edu

Worcester Polytechnic Institute

This presentation showcases three sets of case studies of humanitarian engineering from the United States and Africa. The first set includes undergraduate and K-12 activities with a focus on engaging U.S. students in education and outreach with a focus on developmental engineering problems, while the second presents examples of project-based modules that address development challenges in clean water and solar energy for the poor. Finally, the third set presents case studies with a focus on the training of trainers that can go on to train K-12 teachers and future university professors in Africa. The implications of the case studies are discussed for programs with the aim of using engineering to address human problems.

12:00 P.M. – 1:30 P.M.

LUNCH AND POSTER SESSION

Klaus Building Atrium, North Wing

Poster authors will be on hand to share their work, exchange ideas, and answer questions during this designated Poster Presentation time.

Poster Descriptions - Listed Alphabetically by Institution

APLU INCLUDES: Broadening Participation in the STEM Professoriate

Kacy Redd, kredd@aplu.org

Association of Public and Land-grant Universities

APLU INCLUDES seeks to diversify the STEM professoriate at public research universities—a critical lever to broadening participation throughout the global STEM community. Through a collaborative, evidence-based approach, this project will provide tools for APLU's national network of member universities to effectively recruit, hire, and retain faculty from underrepresented groups and foster career pathways toward the professoriate by broadening student participation in STEM programs. The Association of Public and Land-grant Universities (APLU) is a higher education association whose members include 208 public research universities and 24 university systems.

How National Labs can Influence STEM Education

Melvyn Morris, mmorris@bnl.gov

Brookhaven National Laboratory

Brookhaven National Laboratory is a multi-disciplinary lab located on Long Island in New York. The office of Educational Programs (OEP) conducts program in STEM education from early childhood through university students and professors. OEP programs reflect the science that is being conducted at BNL as well as responding to the national issues of increasing participation of underrepresented minority students and faculty. Programs range from computer coding workshops to synchrotron science training for faculty and students, to school, community, and government partnerships in various environmental programs. Additionally BNL is partnering with national, state and local universities to develop working research agreements.

Learning without Borders: A Qualitative Exploration of a Service-learning Collaboration Between Healthcare and Computer Science Students in the Dominican Republic

Patrick Burns, pmburns@butler.edu

Courtney Cox, clcox1@butler.edu

Patricia Devine, tdevine@butler.edu

Sarah Lenahan, slenahan@butler.edu

Panos Linos, linos@butler.edu

Butler University

For the past three years, faculty and students from Butler University's College of Pharmacy and Health Sciences and the Engineering Projects in Community Service (EPICS) program collaborated in order to develop an Electronic Medical Records (EMR) iPad application for students and faculty volunteers to use during mission trips to the Dominican Republic (DR). A prototype of the EMR app was tested, utilized and improved in underserved clinics in the DR for the past two years. We also launched a research project this past year to assess the learning and cultural awareness of students, usefulness of the EMR app and patient satisfaction by means of a qualitative survey. In this poster, faculty and students will share some of their experiences and results from the survey as well as discuss some ideas on how to implement similar academic programs.

Engineering and Policy Analysis: Intertwining Math and Models with Political and Strategic Decision-making

Bert Enserink, b.enserink@tudelft.nl

Delft University of Technology

The T-shaped engineer with his deep technical foundation and engineering skills with on top of that a broad managerial perspective currently is the ideal of many engineering programs. The master in Engineering Policy Analysis at Delft University of Technology was such a 'broad/managerial' top-program. Despite its high scores in (international) accreditations and the Delfts rankings the 15 year old program led a somewhat marginal existence.

A series of workshops were initiated, involving external parties (the labour market), students, alumni and staff and highlighted its strengths and weaknesses and explicated opportunities. This led to a series of connected and reinforcing measures. Opening up the program to STEM applicants would enlarge the pond. A focus on the Grand Challenges would create an agenda and give a perspective of the labour market. A re-design of the curriculum and a focus on data analytics, modelling and simulation would make it attractive for STEM bachelors and finally the deliberate choice to relocate the program to the city of The Hague to be at the heart of policy making in the Netherlands. As a result the influx of new students doubled and currently the focus is on creating internships and research projects for its students.

Bee Inspired Summer Internship Program

Jennifer Leavey, jennifer.leavey@cos.gatech.edu

Georgia Institute of Technology

Bee-INSPIRED is a USDA-funded summer experience for undergraduates that blends research with community engagement. Students spend four days per week conducting interdisciplinary research with faculty from across Georgia Tech and one day per week working with community partners on urban agriculture, sustainability or STEM outreach-related projects. The program is run by the Georgia Tech Urban Honey Bee Project and recruits participants primarily from undergraduate-only institutions around the country.

REU Program in Costa Rica

Adriana Baltodano, adriana.baltodano@tropicalstudies.org
Organization for Tropical Studies

The Organization for Tropical Studies has been running NSF REU programs in Costa Rica for the past 16 years. Over 500 students have benefited from the summer-long research experience, where they have learned to conduct field research in some of the world's most renowned biological stations: La Selva and Las Cruces, in Costa Rica. This program is oriented to give opportunities to underrepresented minorities in STEM that will help them develop research skills. In this presentation, M.Sc. Adriana Baltodano will provide details of the program's history, lessons learned and stories of success.

The Strategic Partnership for Industrial Resurgence: Bringing Engineering Out into the Community

Lisa Chichura, lisa.chichura@stonybrook.edu
Stony Brook University

The Strategic Partnership for Industrial Resurgence (SPIR) was established in 1994 by New York State to utilize the extensive engineering resources of the state university system to help local industry compete more effectively. SPIR fills a critical gap in existing state industrial assistance programs by providing technically advanced multidisciplinary assistance on a fast turnaround basis. The success of the SPIR program is built on the relationships between academic engineers and industry. SPIR provides local industry with engineering expertise, access to advanced manufacturing and high technology facilities, and a host of other resources to help businesses become more competitive. In return, SPIR also provides students the opportunity to work on real world problems alongside academic and industrial engineers, enabling them to obtain valuable work experience which helps them to prepare for engineering and technical careers.

Experiential Learning Programs at Stony Brook University

Carrie-Ann Miller, carrie-ann.miller@stonybrook.edu
Stony Brook University

Stony Brook University is committed to experiential learning and encourages students to engaging in either a service learning, research, or an internship opportunity. This presentation will highlight four programs that incorporate the pedagogies of project-based learning and service learning. In 2008, Ms. Miller co-founded the STEM Collaborative, which host both the TechPEP and STEM Tech programs. These programs engage students in project based and service learning in Science, Technology, Engineering and Mathematics (STEM) education and introduces them to mentors. Stony Brook collaborates with community members/organizations in high need communities and with underserved populations. Each STEM Tech club determines the issues that they will addressed. The Engineer Design Model is the framework used to address the issue. Mosquitoes Be Gone and The Humanology Project are two interdisciplinary global internships founded by students and supported by a team of interdisciplinary faculty and staff. All four programs have engage students in active learning in ways that builds their confidence and competence in STEM, while teaching them to think critically about important issues. Students apply their classroom knowledge to real life situation. Reflection is an ongoing learning tool and encouraged throughout all programs. Merging students' academics with real world issues opens their eyes to how science, technology, engineering, mathematics (STEM) and art humanities (STEAM) is applied to promote social good.

Fostering Diverse Communities at Research Intensive Institutions: The Center for Inclusive Education as a Community Building Space for Underrepresented Minority Scholars

Toni Sperzel, toni.sperzel@stonybrook.edu
Karian Wright, karian.wright@stonybrook.edu
Stony Brook University

In 2002, Stony Brook University established the Center for Inclusive Education as a space to support the success of Stony Brook's underrepresented minority STEM graduate scholars. In the years that followed, the Center has grown its community and scope through the engagement of Arts, Humanities and Social Science programs, the expansion of support efforts to postdoctoral trainees, and the diversification of funding mechanisms. Now in its 16th year, the Center's programs have graduated over 544 scholars from master's and PhD programs and supported 15 postdoctoral trainees. Today, the Center's interdisciplinary community of 180 undergraduate, graduate students and postdoctoral trainees engage with faculty, staff, campus leaders, national organizations and most importantly, one another to support their academic, personal, and career growth. This presentation will discuss the evidence-based models for supporting diverse scholars that have been central to the Center's success. Examples include the designing of wise academic interventions and advocacy efforts, the provision of mentors and role models, the creation of communities to combat feelings of isolation, and the affirmation of values and use of physical cues to communicate an inclusive environment to scholars. Combined, these activities result in the creation of the Center as an identity safe space for UR and URM scholars in which they feel that their identity is valued in the University.

STEM Smart: Partnerships Providing a Pathway to STEM Careers

Christine Veloso, christine.veloso@stonybrook.edu
Stony Brook University

For more than 40 years Stony Brook University (SBU) has been involved in serving the needs of historically underrepresented (UREP) and economically disadvantaged student populations; hosting a wide variety of equity and access initiatives specifically aimed towards helping these students prepare for careers in science, technology, engineering and mathematics (STEM). Much of the success has come as the result of building powerful collaboratives that include schools, colleges and universities, STEM departments and an array of institutionally, state and federally, supported programs for enhancing diversity in STEM. A clear demonstration of Stony Brook's expertise and commitment to providing services to underrepresented populations regarding STEM, is its model for coordinated program services through the STEM Smart umbrella outreach program.

Whether it is through the provision of a sense of a "community of scholars", near to peer role models and mentoring, or skill/knowledge acquisition through engaging inquiry based explorations, each of the featured programs involved in STEM Smart addresses many, if not all, of the contextual, cognitive and cultural factors that influence student academic achievement and retention. This presentation will highlight STEM Smart and address the special secondary school and undergraduate programs that collaborate to effectively create a seamless pathway for UREP students to progress toward careers in STEM. Participants will work to brainstorm ways in which such partnerships can be developed at their own institutions.

Training Engineers for Community Engagement

Thomas Woodson, thomas.woodson@stonybrook.edu
Stony Brook University

Even though successful engineers must engage with the community for their projects to succeed, they are not taught basic community engagement techniques during their education. A team of faculty at five different universities developed a community engagement workshop that introduces science and engineering graduate students and early professionals to the complexities and challenges of community engagement and development. During the two-day workshop participants engaged in a variety of exercises that taught them to listen to their community partners, look beyond the technology, and empower the community. This poster/presentation describes the workshop's learning objectives, design, activities and results from the evaluation. The results from this presentation will help other educators develop courses and programs to train holistic engineers for the social good.

Creative Fabrication: A SENCERized Introduction to User-Centered Design and Fabrication for Engineering

Susan Reiser, reiser@unca.edu
University of North Carolina Asheville

As the host institution of SENCER Center of Innovation South (SCI-South), UNC Asheville has adopted the SENCER approach in disciplines throughout the college, including mechatronics engineering. One example is Creative Fabrication: Art Meets Technology. For the last five years, Susan Reiser and Rebecca Bruce have taught Creative Fabrication, an engineering course with a theme of disability as diversity. In this course, we work with subject matter experts from Mountain Area Health Education Collaborative (MAHEC) and sculpture faculty at UNC Asheville, to guide students in the development of assistive devices that address the full human condition of our clients – senior residents of a public housing apartment in Asheville, North Carolina. In each year's intergenerational and multidisciplinary collaboration, the students focus on creating devices that address both the functional needs and the aesthetic preferences of their clients. This is a service-learning effort lead by interdisciplinary faculty and executed by student teams comprised of engineering students teamed with art or new media students. The pedagogical focus of this course includes the acquisition of a common skill set for all students: 3D modeling, the elements of art and principles of design, user-centered design and testing, and experience with manual and digital fabrication techniques. Additionally, the course strives to hone twenty-first century skills such as communication, creativity, critical thinking, and respect and understanding of diversity acquired through interdisciplinary team work and engagement with differently-abled clients.

In this presentation, Susan Reiser will share her and Rebecca's approach to formulating and delivering Creative Fabrication including teaching resources, insights on formulating and guiding interdisciplinary teams, and ideas for how user-centered design and design thinking can be applied to different service-learning experiences. We will explain how UNC Asheville's STEAM Studio @ the River Arts Maker Place, our new interdisciplinary 12,000 square-foot fabrication center, plays a key role in the formulation and delivery of Creative Fabrication.

We will also share information about the SENCER Center of Innovation South and its available services.

PR-LSAMP: Successful Stories of STEM Education

Pablo Llerandi, pablo.llerandi@upr.edu
University of Puerto Rico

The PR-LSAMP Program, one of the original LSAMP Programs funded by NSF in 1991, consists of an alliance between the University of Puerto Rico (eight campuses), the Ana G. Méndez System (three institutions), and the main campus of the Pontifical Catholic University. PR-LSAMP manages both the Research Opportunities for Undergraduate Students and the Bridge to the Doctorate initiatives. Yearly activities include Role Model Series presentations, educational field trips, skill development workshops, and mentoring and recruitment seminars. In addition, nearly 400 undergraduate and graduate students present their research and attend keynote lectures by renowned researchers at the Puerto Rico Interdisciplinary Meeting (PRISM), and faculty mentors discuss cutting-edge STEM education approaches at the Best Practice Conference on Teaching and Learning.

The Program's systemic initiatives and integrative approaches have achieved a (1) twofold increase in undergraduate STEM enrollment since 1991-92; (2) increased the annual BS degree production contributing to the NSF goal of a diversified STEM workforce; (3) contributed to the national pool of Latino/Hispanic PhDs nationally in both the Natural Sciences and Engineering; and (4) contributed to a five-fold increase in the number of PhD degrees awarded in STEM fields since 1991. The level of satisfaction related to the impact of PR-LSAMP activities in students' academic careers, opportunities, and guidance is high among students.

At the same time, there are areas being reconsidered to make them more effective, such as communication among participants, establishing key skill development workshops annually, and mentoring through the professional development of faculty in two-year institutions. This presentation will discuss the success stories and lessons learned throughout the history of the Program with the objective of engaging the audience in a conversation about best practices and what can be improved in LSAMP implementation.

The LSAMP Scholars Program and Its Impact on a Student's Progress toward a STEM Degree

Eda Davis-Lowe, edavislowe@valenciacollege.edu
Valencia College

Valencia offered its first LSAMP-sponsored professional experiences for students during Fall 2014. The workplace duties constituted just one element of the STEM professional development program. Students accepted as LSAMP Scholars also participated in regularly scheduled cohort meetings throughout the semester and concluded the program with a poster presentation before an audience of peers, faculty, staff, administrators, and external partners/collaborators. Over its ten-semester history, the program experienced a number of refinements has changed so that students are now able to choose one of two tracks: assistantship or internship. This presentation places the LSAMP Scholars Program within the broader context of LSAMP at Valencia College, highlights various avenues for student engagement, and summarizes data about student outcomes through the program structure.

1:30 P.M. – 2:00 P.M.

Klaus Building Room 1116

PLENARY SESSION IV: ENGINEERING AS AN FOCUS OF REFORM IN US K-12 EDUCATION

Speaker Introduction: Danielle Kraus Tarka, *The National Center for Science and Civic Engagement*

Plenary Address: Greg Pearson, *National Academy of Engineering*

Greg Pearson is a Scholar with the National Academy of Engineering. His presentation will review how engineering, a discipline strongly connected to social good, is understood by the public and presented in K-12 settings.

2:00 P.M. – 2:30 P.M.

Klaus Building Room 1116

PLENARY SESSION V: TRANSFORMATIONAL NOT TRANSACTIONAL: SUSTAINABILITY & CIVIC ENGAGEMENT AT GEORGIA TECH

Speaker Introduction: Eliza Reilly, *The National Center for Science and Civic Engagement*

Plenary Address: Jennifer Hirsch, *Georgia Institute of Technology*

Launched in August 2015, Serve-Learn-Sustain (SLS) is an Institute-wide initiative at Georgia Tech working with all six colleges to offer courses and programs connecting sustainability and community engagement with real-world partners and projects. It aims to train students to use their disciplinary expertise related to science and technology to work with diverse stakeholders to “create sustainable communities.” In this presentation, inaugural SLS Director Dr. Jennifer Hirsch will share SLS’ emerging framework for sustainable communities teaching and campus-wide culture change, linking faculty, students, and partners, and curricular and co-curricular learning and action. This presentation will set the stage for the following session, in which four Georgia Tech faculty will share their models for incorporating civic engagement into their courses.

2:30 P.M. – 3:00 P.M.

Klaus Building

NETWORKING BREAK

3:00 P.M. – 4:00 P.M.

Klaus Building Classrooms

TALK BLOCK II

3:00 P.M. – 3:15 P.M.

Klaus 1440

Bee Inspired Summer Internship Program

Jennifer Leavey, jennifer.leavey@cos.gatech.edu

Georgia Institute of Technology

Bee-INSPIRED is a USDA-funded summer experience for undergraduates that blends research with community engagement. Students spend four days per week conducting interdisciplinary research with faculty from across Georgia Tech and one day per week working with community partners on urban agriculture, sustainability or STEM outreach-related projects. The program is run by the Georgia Tech Urban Honey Bee Project and recruits participants primarily from undergraduate-only institutions around the country.

3:00 P.M. – 3:15 P.M.

Use-Inspired Research In the Western Alliance to Expand Student Opportunities (WAESO)

Klaus 2456

Jean Andino, jean.andino@asu.edu
Arizona State University

This presentation will focus on the efforts to inspire engineering students at Arizona State University to engage in use-inspired research and expand their entrepreneurial mindset through the Western Alliance to Expand Student Opportunities program (NSF-LSAMP). Past and current projects that focus on the development of novel materials to minimize the levels of greenhouse gases in the environment will be highlighted. The projects provide students with a real-world connection that encourages the use of engineering skills in the development of new solutions to global challenges.

3:20 P.M. – 3:35 P.M.

Nurturing Citizenship and Partnership thru Biology

Klaus 1440

Emily Weigel, emily.weigel@biosci.gatech.edu
Georgia Institute of Technology

This short talk will describe lessons learned through the integration of real-world biological scenarios into a sophomore-level lab. The talk will focus on two different projects:

1. biological sampling and analysis of a local watershed in partnership with USFW and EPA, and
2. long-term monitoring of two campus sustainability efforts

Both projects center around developing student identity as rising professionals, and the interconnectedness of the biological profession with communities. Attendees will learn some of the research behind these projects and how to adapt it for their own needs, as well as tips for creating student buy-in on projects which are admittedly more work, but more meaningful beyond just an assignment.

3:20 P.M. – 3:35 P.M.

Engineering & Technological Literacy for Non-Majors: Both an Opportunity and Responsibility for Engineering Faculty

Klaus 2456

Carole Womeldorf, carole.womeldorf@gmail.com
STEM Elements Consulting - Engineering Education

“Today we have a society profoundly dependent upon technology, profoundly dependent on engineers who produce that technology, and profoundly ignorant of technology.” (Wulf, 2004)

Overall, little has changed since Wulf, then President of the National Academy of Engineering, wrote these compelling words. There is growing evidence, however, that at some institutions some faculty have been heeding his call. Presented here are examples of engineering faculty rising to the challenge of teaching engineering to non-majors. These faculty are teaching familiar engineering subjects: energy, infrastructure, design, and more in new, more accessible ways – using less math and more multidisciplinary discussion to engage and inspire understanding and appreciation of engineering and technology. With, in some cases, an unexpected carryover of their outreach being the discovery of how to teach our own engineering students in a more “holistic” way, as defined by Grasso (2007).

How engineers think (their problem defining and solving skills) and what they create (the technology) are vital tools and a knowledge base to which society needs access. This review of “engineering-enhanced liberal education” courses illustrates the opportunity that awaits faculty willing to reach out to non-majors. People teaching these courses argue that they benefit society both directly and indirectly. Since 2015 this rich assortment of narratives describing engineering courses for non-majors has been collected (<https://www.asee.org/engineering-enhanced-liberal-education-project>). The instructors’ narratives, describing what they taught and how they adapted their syllabi and their pedagogy, can show us a way to meet society’s profound need while providing a new perspective into teaching our own majors.

3:20 P.M. – 3:35 P.M.

English Composition - Exposing STEM Students to Civic Engagement Right When they Come to Georgia Tech

Klaus 1116 East - Off Atrium

Ruth Yao, ryow6@gatech.edu
Georgia Institute of Technology

Ruth Yow will discuss her freshman English courses, ENGL 1101: Documenting Atlanta and ENGL 1102: Student Activism. Documenting Atlanta focused on how to expand students’ perspectives on Atlanta and complicate their role in it as university students AND citizens. Through oral history, documentary film, critical race studies, and urban history texts, the course sought to support students in understanding and choosing a critical lens through which to view their adoptive city, and applying that lens in their walking tour/monument assignment. The walking tour sent students on a trek through Centennial Park and Auburn Avenue during which they were asked to observe and document the way denizens interacted with local history and contemporary race and class politics through key sites such as Sweet Auburn Curb Market and the John Wesley Dobbs memorial. The subsequent monument assignment asked students to propose a monument for campus that would address a gap or a silence in the way Tech students view and understand Atlanta’s complex racial history. In the Student Activism class, a partnership with the National Center for Civil and Human Rights gave students the opportunity to design digital tours for visitors to the Spark of Conviction human rights exhibit and the Rolls Down like Water civil rights exhibit. The students were challenged to think about the Center as a key way that visitors encounter and interpret the local, national, and international importance of civic engagement as a democratic practice that can safeguard justice in communities both near and distant.

3:20 P.M. – 3:35 P.M.

Creative Fabrication: A SENCERized Introduction to User-Centered Design and Fabrication for Engineering

Klaus 1116 West - Off Atrium

Susan Reiser, reiser@unca.edu

University of North Carolina Asheville

As the host institution of SENCER Center of Innovation South (SCI-South), UNC Asheville has adopted the SENCER approach in disciplines throughout the college, including mechatronics engineering. One example is Creative Fabrication: Art Meets Technology. For the last five years, Susan Reiser and Rebecca Bruce have taught Creative Fabrication, an engineering course with a theme of disability as diversity. In this course, we work with subject matter experts from Mountain Area Health Education Collaborative (MAHEC) and sculpture faculty at UNC Asheville, to guide students in the development of assistive devices that address the full human condition of our clients – senior residents of a public housing apartment in Asheville, North Carolina. In each year's intergenerational and multidisciplinary collaboration, the students focus on creating devices that address both the functional needs and the aesthetic preferences of their clients. This is a service-learning effort lead by interdisciplinary faculty and executed by student teams comprised of engineering students teamed with art or new media students. The pedagogical focus of this course includes the acquisition of a common skill set for all students: 3D modeling, the elements of art and principles of design, user-centered design and testing, and experience with manual and digital fabrication techniques. Additionally, the course strives to hone twenty-first century skills such as communication, creativity, critical thinking, and respect and understanding of diversity acquired through interdisciplinary team work and engagement with differently-abled clients.

In this presentation, Susan Reiser will share her and Rebecca's approach to formulating and delivering Creative Fabrication including teaching resources, insights on formulating and guiding interdisciplinary teams, and ideas for how user-centered design and design thinking can be applied to different service-learning experiences. We will explain how UNC Asheville's STEAM Studio @ the River Arts Maker Place, our new interdisciplinary 12,000 square-foot fabrication center, plays a key role in the formulation and delivery of Creative Fabrication.

We will also share information about the SENCER Center of Innovation South and its available services.

3:40 P.M. – 3:55 P.M.

Project-based Course on Health and Humanitarian Systems

Klaus 1440

Pinar Keskinocak, pinar@isye.gatech.edu

Georgia Institute of Technology

This course focuses on using quantitative methods for informing decisions in health and humanitarian applications, with the goal of improving efficiency and effectiveness in the use of resources, and positive outcomes for the public. Students participating in the course complete a group project (with a partner organization) and also read and discuss publications on relevant course topics. Each project has two major goals: a) develop decision-support tools or recommendations to aid and improve decision-making in practice, and b) share any new learnings or results with the broader community (e.g., via peer-reviewed journal publications or conference presentations).

3:40 P.M. – 3:55 P.M.

How National Labs can Influence STEM Education

Klaus 2456

Melvyn Morris, mmorris@bnl.gov
Brookhaven National Laboratory

Brookhaven National Laboratory is a multi-disciplinary lab located on Long Island in New York. The Office of Educational Programs (OEP) conducts program in STEM education from early childhood through university students and professors. OEP programs reflect the science that is being conducted at BNL as well as responding to the national issues of increasing participation of underrepresented minority students and faculty. Programs range from computer coding workshops to synchrotron science training for faculty and students, to school, community, and government partnerships in various environmental programs. Additionally BNL is partnering with national, state and local universities to develop working research agreements.

3:40 P.M. – 3:55 P.M.

Institute on Teaching and Mentoring

Klaus 1116 East - Off Atrium

Robert Belle, bob.belle@sreb.org
Southern Regional Education Board (SREB) Doctoral Scholars Program

In this session, information will be provided on how institutions can partner with Southern Regional Education Board (SREB) and the Institute and support the attendance to the Institute of their URM Ph.D. scholars that seek a career as faculty in the academy. Information will be provided on the goals of the Institute, format, benefits, and costs to participate.

3:40 P.M. – 3:55 P.M.

Women in Science and Engineering (WISE): Undergraduate Academic Excellence through Curriculum, Service, Research, Mentoring, and Leadership

Klaus 1116 West - Off Atrium

Angela Kelly, angela.kelly@stonybrook.edu
Stony Brook University

The WISE Honors Program at Stony Brook University implemented a newly designed four-year honors-level curriculum for first year students beginning in the 2017-18 academic year. WISE Honors offers educational and professional science, technology, engineering and mathematics (STEM) opportunities for undergraduate female students at the university by facilitating individual, institutional, and social change. The main goals of the program are to: (1) provide academic excellence; (2) promote professional development; (3) facilitate research opportunities; (4) establish and maintain community outreach; (5) encourage global collaboration; and (6) enact inclusive strategies. The four-year curriculum is the first of its kind in the United States, designed to promote excellence in academics, research, service and leadership. Along with the curriculum, students participate in an innovative mentoring program through the entire duration of their undergraduate study. This presentation will highlight key aspects of the WISE Honors Program, focusing on academic requirements, while also discussing key features of the program's formative evaluation process.

4:00 P.M. – 5:00 P.M.

Four Models for Incorporating Civic Engagement into the STEM Curriculum: Stories from Georgia Tech

Klaus 1116

Facilitator Jennifer Hirsch, *Georgia Institute of Technology*

This session will share some Georgia Tech models to inspire thinking about how session participants can advance their own work around civic engagement and STEM education.

SUNDAY, FEBRUARY 11, 2018

8:00 A.M. – 9:00 A.M.
Klaus Building Atrium

BREAKFAST

9:00 A.M. – 9:30 A.M.

PLENARY SESSION VI: ISSUES AND PROSPECTS OF STEM IN AFRICA: EXPERIENCE OF KOREAN OFFICIAL DEVELOPMENT ASSISTANCE

Klaus Building Room 1116

Speaker Introduction: David Ferguson, *Stony Brook University*

Plenary Address: Jinsang Lee, *SUNY Korea*

Africa, as the least developed continent on earth, has been slow to adapt the changing socio-economic environment at global level. Most of African countries are hardly achieved industrial promotion. Many of them are heavily depended upon foreign assistance to run their own countries. It is required to find new ways of developing Africa which STEM could be a good strategy for development. A few donors carried out some STEM programs in Africa. Korea has been active on STEM in developing countries too. It is known that one of the key success factors of Korean development was the promotion of science and technology which was possible with strong education especially on STEM. Many recipient countries are interested in learning the Korea experience. The presentation will bring issues and prospects of STEM in Africa, reviews some STEM projects in Africa, and discuss about how Korea has been trying to promote STEM in African countries. There will be some suggestions to donors on STEM.

9:30 A.M. – 10:00 A.M.
Klaus Building

NETWORKING BREAK

10:00 A.M. – 11:20 A.M.
Klaus Building Classrooms

TALK BLOCK III

10:00 A.M. – 10:15 A.M.

Designing an Undergraduate Engineering Curriculum with an Internationally Focused Liberal Arts Concentration and On-Site Project

Klaus 1440

Edward Segal, edward.m.segal@hofstra.edu
Hofstra University

Student engineering projects implemented through organizations such as Engineers for a Sustainable World and Engineers Without Borders are targeted toward improving the lives of individuals through sustainable development. To make these projects more successful for all parties involved, engineering students can complement their technical courses with liberal arts courses focused on the culture, language, etc. of the communities in which they will be working. This presentation will describe a proposal to create an integrated undergraduate engineering curriculum with an internationally focused liberal arts concentration and on-site project. Through the proposed initiative, students focus most of their liberal arts classes on Latin American culture, history, politics, economics, and literature as they work toward completing a summer engineering project in Latin America. The host country benefits from the permanent structure or system designed and executed by engineering students that have considered not only the technical, but also the social implications of the project. Students gain a sense of the interconnectedness of the world, a proficiency in working as team members on a practical design project positively affecting the lives of many people, and an experience that many potential employers would find attractive in a candidate for full-time employment.

10:00 A.M. – 10:15 A.M.

Scientific and Technological Innovation: The Exploration of Risk Aversion, Job Security and Workforce Development In Catalyzing STEM Fields

Klaus 1447

Jonelle Bradshaw de Hernandez, jonelle.bradshaw@stonybrook.edu
Stony Brook University

A transformational scientific and technological workforce (STW) is an ecosystem of individuals and firms working together to create innovation. An essential element of this system is human capital. One element of this systemic pathway is to prepare the labor force through higher education. An important decision for each student is college major choice. Scholarly research has demonstrated that several determinants impact an individual's decision to enter a specific major however research shows that a limited amount of studies look at college major choice in STEM and even less has been done on scientific and technological fields within STEM, that is STEM majors minus social sciences, psychology, medicine and others.

10:20 A.M. – 10:35 A.M.

REU Program in Costa Rica

Klaus 1440

Adriana Baltodano, adriana.baltodano@tropicalstudies.org
Organization for Tropical Studies

The Organization for Tropical Studies has been running NSF REU programs in Costa Rica for the past 16 years. Over 500 students have benefited from the summer-long research experience, where they have learned to conduct field research in some of the world's most renowned biological stations: La Selva and Las Cruces, in Costa Rica. This program is oriented to give opportunities to underrepresented minorities in STEM that will help them develop research skills. In this presentation, M.Sc. Adriana Baltodano will provide details of the program's history, lessons learned and stories of success.

10:20 A.M. – 10:35 A.M.

Science and Engineering for Social Good: On-ramp to the Road to Hell?

Klaus 1447

Glenn Odenbrett, gxo2@case.edu
Case Western Reserve University

Symantec CTO Darren Thomson recently wrote, "Engineers are great at solving problems, but they are not trained or motivated to think about what unintended consequences might arise from their inventions."

As we consider how to engage our science and engineering students in projects that benefit humanity, how can we ensure that such projects won't have unintended consequences that create thornier problems than their projects are designed to solve?

This presentation will review the history of some engineering "marvels" with devastating unintended consequences. While the focus will be on the consequences for large ecosystems like the Laurentian Great Lakes and plans to restore them, the lessons learned are relevant to defining the role of science and engineering in addressing gaps in access to the benefits of 21st century technology. A major emphasis will be on how the humanities and social sciences can assist in students' reflecting ethically on the potential unintended consequences of their attempts to address these gaps - and how to avoid them.

10:40 A.M. – 10:55 A.M.

Using Science, Technology, and Service to Encourage People to Solve the World's Biggest Problems

Klaus 1440

R. Antonio Herrera, ramon.herrera@stonybrook.edu
Stony Brook University

Science, technology, and education underlie major advancements in our society but also contribute to the biggest challenges and problems afflicting our lives now and in the future. Solving these issues is no small feat, it is often thought that it requires a comprehensive approach from scientists, scholars, and engineers to find bold solutions. Question: who is qualified to solve issues? The answer: every person who cares enough to try and is willing to think creatively! As a systems biologist and lover of technology my experience is that science, engineering, and education are vital to developing our society as a whole, but also uplifts individuals to be creative and to inspire others.

Here, I will share my experience in two areas; as a Stony Brook University IRACDA Postdoctoral Scholar learning pedagogy from the Center for Inclusive Education and mathematical modeling, and computational biology to ask broad questions about the nature of temporal regulation during organism development and disease. The presentation will also share my service with Team Exponent to bring disruptive education, team building, and creative ideation through fast-paced Exponential Sprints to people of all kinds. Taken together, I have found that promoting science, engineering, education, and technology has intrinsic power and value which can be used to inspire experts, hobbyists, enthusiasts, and even young children to form teams with the goal of finding ways to solve our world's biggest problems.

10:40 A.M. – 10:55 A.M.

STEM on the MOVE: Engaging Undergraduate Non-Majors in Engineering

Klaus 1447

Alice Hunt, ahunt@uga.edu
University of Georgia

In 2016, UGA began an initiative called STEM on the MOVE, designed to build science literacy and capacity among non-STEM majors by incorporating science into humanities courses. To this end, a 'library' of inexpensive, portable analytical instruments that could be used in Humanities courses to provide students with hands-on STEM learning was created. To date STEM on the MOVE has engaged more than 300 undergraduates in disciplines from English to Art. Given the success, and the relatively low cost of the program, we believe it could be widely adopted and implemented at most institutions. In this presentation participants will share some of the successes, lessons learned, and strategies for integrating experiential STEM learning into the Humanities.

10:40 A.M. – 10:55 A.M.

The Impact of Septic Systems on Long Island's Aquifer- An Interdisciplinary Study

Klaus 1116 East - Off Atrium

Candice Foley, foleyc@sunysuffolk.edu
Suffolk County Community College

Suffolk County Community College is one of six institutions in New York working with the National Center for Science and Civic Engagement (NCSCE) who received special funding from the Helmsley Charitable Trust to promote STEM student success through civic engagement. The Suffolk project focuses on water quality, a critical citizen science issue on Long Island (NY).

Students enrolled in courses from four different disciplines- chemistry, journalism, engineering science, and construction technology- have explored this issue as a common theme and have identified and proposed solutions to the problem of water quality degradation, mainly due to Nitrogen loading.

This topic is of particular interest since Long Island's drinking water is drawn from a sole-source aquifer and the primary means of waste disposal is through individual cesspools/septic tanks, particularly in Suffolk County, the easternmost county on Long Island. An important component of the project was to use the Science Education for New Civic Engagements and Responsibilities (SENCER) approach to teaching and learning. The SENCER approach features the teaching of course content through the lens of student identified issues and proposed solutions. The societal effects of the implementation of proposed solutions are also considered. This presentation will highlight lessons learned from this Citizen Science project including insights from student research, dialogue and assessments of all stakeholders.

11:00 A.M. – 11:15 A.M. Experiential Learning Programs at Stony Brook University

Klaus 1440

Carrie-Ann Miller, carrie-ann.miller@stonybrook.edu
Stony Brook University

Stony Brook University is committed to experiential learning and encourages students to engaging in either a service learning, research, or an internship opportunity. This presentation will highlight four programs that incorporate the pedagogies of project-based learning and service learning. In 2008, Ms. Miller co-founded the STEM Collaborative, which host both the TechPEP and STEM Tech programs. These programs engage students in project based and service learning in Science, Technology, Engineering and Mathematics (STEM) education and introduces them to mentors. Stony Brook collaborates with community members/organizations in high need communities and with underserved populations. Each STEM Tech club determines the issues that they will addressed. The Engineer Design Model is the framework used to address the issue. Mosquitoes Be Gone and The Humanology Project are two interdisciplinary global internships founded by students and supported by a team of interdisciplinary faculty and staff. All four programs have engage students in active learning in ways that builds their confidence and competence in STEM, while teaching them to think critically about important issues. Students apply their classroom knowledge to real life situation. Reflection is an ongoing learning tool and encouraged throughout all programs. Merging students' academics with real world issues opens their eyes to how science, technology, engineering, mathematics (STEM) and art humanities (STEAM) is applied to promote social good.

11:00 A.M. – 11:15 A.M. The Importance of Summer Research Experiences for Community College Student Success

Klaus 1447

Ariana Arciero-Pino, avarcier@utep.edu
Benjamin Flores, bflores@utep.edu
University of Texas System LSAMP

This session will discuss the importance of involving community college students in summer research experiences as they transition to four year institutions. We will provide a brief description of each community college in the UT System LSAMP, including student profiles, and describe the opportunities that our Alliance provides for community college student involvement. Data will be presented that will demonstrate the positive impact that these activities have had on the students who have participated.

This presentation will broaden the current literature and body of knowledge in determining STEM major choices through the examination of to focus in on science of two variables that have played a limited role in the research literature in STEM and Science & Technology literature, risk aversion and job security. In addition to the contribution of broadening the current literature and body of knowledge in determining STEM major choices to Science & Technology major determinants, this presentation will introduce risk perception and job security as taste shifters in the process of S & T college major choice. In order to provide context for this issue this presentation we will briefly outline a foundation of issues facing the U.S. science and technological innovation ecosystem. These issues include the debate about STEM labor shortage, the science and technological crisis of diversity and its impact on social and technological innovation for all. Closely intertwined with these issues are the risk and job security perceptions of these future workers. These unexamined relationships are the crux of this presentation.

11:00 A.M. – 11:15 A.M. **Training Engineers for Community Engagement**
Klaus 1116 East - Off Atrium

Thomas Woodson, thomas.woodson@stonybrook.edu
Stony Brook University

Even though successful engineers must engage with the community for their projects to succeed, they are not taught basic community engagement techniques during their education. A team of faculty at five different universities developed a community engagement workshop that introduces science and engineering graduate students and early professionals to the complexities and challenges of community engagement and development. During the two-day workshop participants engaged in a variety of exercises that taught them to listen to their community partners, look beyond the technology, and empower the community. This poster/presentation describes the workshop's learning objectives, design, activities and results from the evaluation. The results from this presentation will help other educators develop courses and programs to train holistic engineers for the social good.

11:20 A.M. – 12:00 P.M. **CLOSING SESSION**
Klaus 1116

Biosketches of Plenary Speakers and NCSCE Staff



Edward Coyle

Director of the Arbutus Center for the Integration of Research and Education
Georgia Institute of Technology
kyle.simmons@ncsce.net

Edward J. Coyle is the John B. Peatman Distinguished Professor of Electrical and Computer Engineering at the Georgia Institute of Technology and a Georgia Research Alliance Eminent Scholar. He is the Founder and Director of the Vertically Integrated Projects (VIP) Program, which integrates research and education by embedding large-scale, long-term teams of undergraduates in the research efforts of faculty and their graduate students. He is also the Director of the VIP Consortium, a set of 26 universities that have VIP Programs and work together to improve and disseminate it. Dr. Coyle was a co-recipient of the U.S. National Academy of Engineering's 2005 Bernard M. Gordon Prize for Innovation in Engineering and Technology Education. In 1998, Dr. Coyle was elected a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for his contributions to the theory of nonlinear signal processing. He has received a number of other awards, including the 1997 Chester F. Carlson Award from the American Society for Engineering Education and the 1986 Best Paper Award from IEEE Signal Processing Society. His current research interests include systemic reform of higher education, signal and information processing, and wireless and sensor networks.



David Ferguson

Distinguished Service Professor, Technology and Society, and Provost's Scholar
Stony Brook University
david.ferguson@stonybrook.edu

David Ferguson holds a Ph.D. from the University of California, Berkeley where he studied mathematics and mathematics education. He is a distinguished service professor in the Department of Technology and Society in the College of Engineering and Applied Sciences at Stony Brook University. He holds affiliated appointments in Applied Mathematics and Statistics, and Computer Science. In addition to his departmental responsibilities, he holds the position of Provost's Scholar for Leadership and Transformation in Diversity. He helped to establish the Department of Technology and Society at SUNY Korea. He has directed numerous projects, including a dozen NSF projects, aimed at improving science, technology, engineering, and mathematics (STEM) education at both the undergraduate and graduate levels. His research and teaching thrusts are in the areas of problem solving, advanced technologies in the learning and teaching of mathematics and science, and socio-technological decision-making. Dave is a New York State and national leader in programs to enhance the participation of underrepresented groups in science and engineering. He directs two NSF-funded projects in this area: the SUNY Louis Stokes Alliance for Minority Participation (LSAMP), and the Alliance for Graduate Education and the Professoriate-Transformation Project (AGEP-T). He is PI on Stony Brook's Science and Technology Entry Program (STEP) and Collegiate Science and Technology Entry Program (CSTEP)—both funded by the New York State Education Department. He is the recipient of several awards: the U.S. Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM), the Archie Lacey Award of the New York Academy of Sciences, and the Engineering Educator Award of the Joint Committee on Engineering of Long Island. Dave is also a Co-Principal Investigator for SENCER.



Norman Fortenberry

Executive Director

American Society for Engineering Education

n.fortenberry@asee.org

Dr. Norman Fortenberry, is executive director of the American Society for Engineering Education (ASEE). The Executive Director of ASEE has the direct and full-time responsibility for executive and administrative management of the continuing operations and Headquarters functions of ASEE and serves as secretary to the Board of Directors. Fortenberry was appointed to his post in May 2011. ASEE is an international society of individual, institutional, and corporate members founded in 1893 and committed to promoting global excellence in engineering and engineering technology instruction, research, public service, professional practice, and societal awareness.

Fortenberry was previously the founding director of the Center for the Advancement of Scholarship on Engineering Education (CASEE) at the National Academy of Engineering (NAE). CASEE was NAE's first operating center, promoted research on teaching and learning and sought to translate research results into improved educational practices in pre-college, collegiate, and work-based settings.

Prior to joining NAE, Fortenberry served senior advisor for policy, analysis, and planning to NSF's assistant director for education and human resources. He concurrently served as director of the Division of Undergraduate Education (DUE) at the National Science Foundation (NSF). DUE is the focal point for the Foundation's efforts to enhance the quality of education for future scientists and engineers, future teachers, future technicians, and educated citizens in an increasingly technological society. While serving as director of DUE, Fortenberry also served for 2 years as director of NSF's division of Human Resource Development (HRD) – making him the first person to simultaneously serve as head of two separate NSF divisions. HRD is the focal point for the Foundation's efforts to enhance access, participation, and success in science, technology, engineering and mathematics research and education at all levels for institutions and populations underrepresented in STEM including minority serving institutions, women, underrepresented minorities, and persons with disabilities.

Before becoming a division director at NSF, Fortenberry served as Executive Director of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (The GEM Consortium), a national alliance of employers and universities dedicated to increasing the number and success of graduate degree recipients in engineering and science drawn from underrepresented minority populations.

Fortenberry began his career as a member of the mechanical engineering faculty at the Florida A&M University – Florida State University College of Engineering.

Fortenberry is a fellow of ASEE and of the American Association for the Advancement of Science. Fortenberry is the author or co-author of more than 48 peer-reviewed publications and has written proposals for funded projects exceeding \$16 million.

Fortenberry was awarded bachelor's, master's and doctoral degrees in mechanical engineering by the Massachusetts Institute of Technology.



Jennifer Hirsch

Director of the Center for Serve-Learn-Sustain
Georgia Institute of Technology
jennifer.hirsch@gatech.edu

Dr. Hirsch is an applied cultural anthropologist specializing in community sustainability, cultural diversity, experiential education, and network building. She is recognized nationally for fostering grassroots participation in sustainability, climate, and energy action planning and implementation, using a unique combination of methodologies from anthropology, popular education, asset-based community development, participatory facilitation, and museum education. Before joining Georgia Tech, she worked as an independent consultant, focusing on campus sustainability and partnering with nonprofit organizations on community sustainability projects. From 2007-2012, she led the Field Museum's Chicago program on community-based sustainability and climate change action.

Dr. Hirsch also has an extensive background in higher education administration. Between 2000-2007, she worked at Northwestern University as associate director of study abroad and then as director of Chicago Field Studies and lecturer in the Department of Anthropology. Dr. Hirsch earned her PhD in cultural anthropology from Duke University and her bachelor's degree in American culture from Northwestern University. She studied abroad at Waseda University in Japan and spent three years working in Japan for the Japanese government and Baxter Healthcare.



Danielle Kraus Tarka

Director of Programs and Operations
National Center for Science and Civic Engagement
danielle.tarka@stonybrook.edu

Danielle Kraus Tarka is the Director of Programs and Operations for the National Center for Science and Civic Engagement. She manages all national office operations and supervises the coordination of SENCER and the Center's national events, including the annual Summer Institute and Washington Symposium and Capitol Hill Poster Session. Danielle ensures linkages across the NCSCE's SENCER, GLISTEN, SENCER-ISE, SCEWestNet, Engaging Mathematics, and other developing initiatives, as well as the websites to support communication and dissemination of resources. She researches new program opportunities, leads strategic planning activities, and coordinates grant preparation and management of awarded funds, including subgrant programs. She earned her bachelor's degrees from the Pennsylvania State University and completed a nonprofit management executive certificate program at Georgetown.



Jinsang Lee

Professor, Department of Technology and Society, and Director General, Institute of International Development and Cooperation
SUNY Korea
jinsang.lee@sunykorea.ac.kr

Professor LEE, Jin-sang teaches at the State University of New York, Korea (SUNY Korea), and is Director of Institute of International Development and Cooperation. Before he joined SUNY Korea, he taught at Korea University, and Duksung Women’s University in Korea. He has teaching experience at the University of Strathclyde, UK, and Addis Ababa University, Ethiopia. He published many articles, research reports, and presented in many international conferences, seminars and workshops on development economics, education, science and technology, African economies, international development and cooperation. Between 2012 and 2016, he was a member of International Development and Cooperation Committee chaired by the Prime Minister of Korea. He was as an advisory committee member in the Ministry of Foreign Affairs, Korea. He has been the President of Korean Association of African Studies since 2016. He works with UNDP, European Union, UNESCO, African Development Bank and World Bank. Professor LEE holds his undergraduate degree in Economics from the University of Glasgow, and the M.Sc. in International Trade and Finance from Lancaster University, and awarded Ph.D. in Development Economics from the University of Strathclyde, U.K.



Greg Pearson

Scholar of K-12 Engineering Education and Public Understanding of Engineering
National Academy of Engineering
gpearson@nae.edu

Greg Pearson is a Scholar with the National Academy of Engineering (NAE) in Washington, D.C. Greg currently serves as the responsible staff officer for an NSF-funded project examining issues related to capacity building for PreK-12 engineering educators in the United States. He also directs the Chevron-funded LinkEngineering online resource that is helping guide implementation of PreK-12 engineering education. Previously, he has overseen projects addressing: post-secondary engineering technology education; STEM integration in K-12 education; standards for K-12 engineering education; the status and prospects for engineering in K-12 education; new messaging for the field of engineering; technological literacy; and content standards for the field of technology education. He has degrees in biology and journalism.



Eliza Reilly

Executive Director
National Center for Science and Civic Engagement
eliza.reilly@stonybrook.edu

Eliza Reilly is the Executive Director of the National Center for Science and Civic Engagement. Eliza has two decades of experience in the design and implementation of programs and materials to advance curriculum, academic leadership and faculty development. She has served as the Executive Director of the American Conference of Academic Deans and as a Director of Programs at the Association of American Colleges and Universities, where she was one of the original staff members for the SENCER initiative. In the last decade she has focused on campus-based faculty development and curricular integration through directorships of the Center for Liberal Arts and Society and the Phillips Museum of Art at Franklin & Marshall College, where she also had a faculty appointment in American Studies. Eliza holds a M.A. in the History of Art and a Ph.D. in American History from Rutgers University. She has been an ongoing participant in SENCER and the National Center’s other programs since 2001 and currently serves as the Executive Director for NCSCE. She is also the General Editor of the SENCER Models and the co-Editor of the journal.



Kyle Simmons

Faculty Development Events Manager

National Center for Science and Civic Engagement

kyle.simmons@ncsce.net

Kyle Simmons is the Faculty Development Events Manager for NCSCE, SENCER and related initiatives. In this role, he plans and manages NCSCE's signature annual events, the SENCER Summer Institute and the DC Symposium, and provides support for other regional meetings. He also works with regional organizations and initiatives to ensure communication and the sharing of best practices. Kyle brings with him experience from his work with the Junior Statesmen Foundation, where he planned and managed civic education conferences for high school students. Kyle holds a B.A. in political science from Howard University.