

# STEM INSTITUTE FOR IMPROVING STUDENT ENGAGEMENT AND OUTCOMES

May 20 - 22, 2019 | Atlanta, GA



## ***Boost STEM student engagement on your campus for improved retention and success.***

### **OVERVIEW**

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Many institutions struggle to attract and retain STEM students, especially from within historically underrepresented demographics. Oftentimes, incoming STEM students enter higher education underprepared to handle the rigor of academic programs, resulting in higher attrition rates. On the other hand, even minor improvements in the curriculum, student support, and faculty training can have a considerable impact on retention and satisfaction rates.

Join us for this comprehensive conference supplemented with a pre-conference workshop to learn how to engage STEM students for success through:

- Tailored student support systems
- Inclusive teaching and learning experiences
- Targeted faculty training initiatives
- Facilities considerations to create inclusive and supportive spaces

This program will combine student support, pedagogy, and rethinking curriculum and spaces in a way that impacts student engagement, retention, and success.

### **PRE-CONFERENCE WORKSHOP**

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#### **Space Matters: Designing STEM Learning Environments that Foster Inclusion and Student Success**

Contemporary pedagogies, curricula, and cultures that promote inclusion and student success in STEM require consideration of the built environments that support them. In this session, you and your peers will learn through example the elements that characterize 21st century STEM learning environments and the strategies employed to bring key stakeholders and resources together to successfully execute a STEM facilities project. Both new construction and renovation projects will be considered.

### **WHO SHOULD ATTEND**

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STEM academic administrators will benefit from strategies presented on developing and implementing initiatives that promote student success. This conference will also be valuable for faculty and academic support staff who interact directly with students and who aim to improve student persistence and success.

Academic administrators and support staff are encouraged to attend as teams to benefit from the shared training experience.

### **BRING YOUR TEAM AND SAVE!**

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Save over 15% when you register three or more colleagues.

# AGENDA

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## **Day 1 | May 20, 2019**

### **Continental Breakfast (included in workshop registration fee) and Registration for Pre-Con Attendees**

8:30 - 9:00 a.m.

### **Pre-conference Workshop: Space Matters: Designing STEM Learning Environments that Foster Inclusion and Student Success**

9:00 a.m. - 12:00 p.m.

Contemporary pedagogies, curricula, and cultures that promote inclusion and student success in STEM require consideration of the built environments that support them. In this session, you will learn through example the elements that characterize 21st century STEM learning environments and the strategies employed to bring key stakeholders and resources together to successfully execute a STEM facilities project. Both new construction and renovation projects will be considered.

### **Lunch for Pre-Con Attendees (included in workshop registration fee)**

12:00 - 1:00 p.m.

### **Registration**

12:30 - 1:00 p.m.

### **Welcome and Introductions**

1:00 - 1:30 p.m.

### **Turning Retention Opportunities into Programs**

1:30 - 2:45 p.m.

This first session will allow you to start examining current and potential programming options that will serve your retention plan. Our faculty will share examples of new program models to help align current and new efforts.

### **Break**

2:45 - 3:00 p.m.

### **Proactively Preparing Incoming Students**

3:00 - 4:00 p.m.

Underprepared students entering the rigor of post-secondary STEM education pose challenges for faculty, deans, and all student support staff. Waiting on these students to arrive and then trying to accommodate them will deflate both resources and student motivation. We will examine new approaches to secondary intervention and bridge programs to better prepare incoming STEM students.

### **Working Session and Day 1 Wrap Up**

4:00 - 4:30 p.m.

In this final session of the day, you will have an opportunity to consider the ideas you have heard in Day 1 and begin to prioritize your STEM engagement needs.

# AGENDA

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## **Day 1 (CONTINUED)**

### **Networking Reception (included in registration fee)**

4:30 - 5:30 p.m.

## **Day 2 | May 21, 2019**

### **Continental Breakfast (included in registration fee)**

8:30 - 9:00 a.m.

### **Day 2 Welcome**

9:00 - 9:15 a.m.

### **Inclusive Learning Experiences for Student Success in STEM**

9:15 - 10:30 a.m.

The success of all STEM students, particularly those underrepresented in STEM fields, depends on classroom and laboratory experiences that are engaging and inclusive. In this interactive session, you will explore through data, example, and practice the ways in which SCALE-UP and other 'active learning' pedagogies promote inclusive and effective learning in STEM classes.

### **Break**

10:30 - 10:45 a.m.

### **Addressing the Curriculum Bottleneck**

10:45 a.m. - 12:00 p.m.

One of the biggest challenges in STEM retention is helping students succeed through first and second year bottleneck courses. Explore innovative models for redesigning STEM curriculum to remove the challenging course sequences that cause retention setbacks.

### **Lunch (included in registration fee)**

12:00 - 1:00 p.m.

### **Developing Faculty to Create Engaging Learning Experiences**

1:00 - 2:15 p.m.

One of the key factors in engaging students and retaining them to graduation is having professors who make STEM content exciting, relevant, and engaging and who know how to reach diverse learners. You will learn about North Dakota State University's Gateways program, an NSF-funded initiative that helped STEM faculty learn key instructional practices that help students be successful. You will gain ideas for shifting mindsets as well as professional development considerations.

### **Break**

2:15 - 2:30 p.m.

# AGENDA

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## Day 2 (CONTINUED)

### Breakout Session

2:30 - 3:45 p.m.

#### Option 1: Promoting Student Success through Building Community in STEM

A key element of successful, inclusive STEM programs is a strong sense of STEM community cultivated within and beyond the classroom. In STEM communities, students find support systems and cultivate STEM identities that foster resilience and persistence. Participants will examine models of successful programs including integrated science curricula, living learning communities, and cohort programs to identify opportunities for cultivating STEM communities on their own campuses.

#### Option 2: Rethinking 2-year/4-year Partnerships

Both 2-year and 4-year institutions benefit when they have strong support systems in place for transferring students. By closely partnering with nearby institutions, STEM programs are able to develop tightly aligned articulation agreements as well as provide social/emotional support for transferring students. In this discussion, you will have a chance to explore how to build a STEM partnership between 2-year and 4-year institutions, mutually benefiting enrollment and completion rates.

### Wrap Up

3:45 - 4:00 p.m.

## Day 3 | May 22, 2019

### Continental Breakfast (included in registration fee)

8:30 - 9:00 a.m.

### Models for Recruiting Underrepresented Groups

9:00 - 10:15 a.m.

One of the key factors in getting students to enroll in STEM programs is making certain that they can see themselves being academically and socially successful in these fields. This includes having faculty and peer-mentors from diverse backgrounds so that students feel connected to the program. In this hour, you will hear several models of how institutions have impacted recruiting and enrollment for underrepresented groups in STEM fields.

### Break

10:15 - 10:30 a.m.

### Evaluating Programmatic Success

10:30 - 11:45 a.m.

This final conference session will focus on strategies for using data to help you evaluate the success of your current STEM retention programs in order to make decisions about which programs to scale up, make adjustments to, downsize, or cut altogether.

### Conference Wrap Up, Questions, Evaluations

11:45 a.m. - 12:00 p.m.

## INSTRUCTORS

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### Melissa Dagley

**Executive Director, Center for Initiatives in STEM, University of Central Florida**

Dr. Melissa Dagley serves as PI of the NSF-funded STEP 1b program “Convincing Outstanding-Math-Potential Admits to Succeed in STEM (COMPASS),” and Director for the formerly NSF-funded “EXCEL:UCF-STEP Pathways to STEM: From Promise to Prominence.” She is a Co-PI for the Girls EXCELLing in Math and Science (GEMS) and WISE@UCF industry funded women’s mentoring initiatives. In addition to guiding undergraduates towards a successful path in STEM, Dr. Dagley directs the STEM K-12 outreach and teacher training initiatives for the Colleges of Science and Engineering and Computer Science and leads a fellows program for faculty interested in STEM education and education research. Through iSTEM, Dr. Dagley works to promote and enhance collaborative efforts on STEM education and research by bringing together colleges, centers, and institutes on campus—as well as other stakeholders with similar interest in STEM initiatives. Her research interests lie in the areas of student access to education, sense of community, retention, first-year experience, living-learning communities, and persistence to graduation for students in STEM programs.

### Steven P. Girardot

**Associate Vice Provost for Undergraduate Education, Georgia Institute of Technology**

Steven P. Girardot has more than ten years of higher education experience and earned both a BS in Chemical Engineering and a Master’s Degree in Chemistry from Georgia Tech. He completed his doctorate in Chemistry and Environmental Health at Emory University, and a Master of Public Health (MPH) degree in Epidemiology from the Emory University Rollins School of Public Health.

Dr. Girardot has extensive background in student transition, retention, and success. Steven’s experience includes serving as the founding director of Georgia Tech’s Center for Academic Success and co-chairing Georgia Tech’s Complete College Georgia Steering Committee. He also served as the Director of the Office of Success Programs (which included new student orientation, first-year seminars, sophomore programs, tutoring, and academic support programs); Assistant Director for TA and Graduate Student Programs at Tech’s Center for the Enhancement of Teaching and Learning (CETL); and Program Coordinator at Tech’s Center for Education Integrating Science, Mathematics, and Computing (CEISMC)— where he managed tutoring programs that linked Tech students to local elementary schools. In addition to his administrative positions, he teaches Freshman Seminar (GT1000) and Freshman Chemistry.

### Nathan Klingbeil

**Professor, Department of Mechanical & Materials Engineering, Wright State University**

Prior to his current role, Dr. Klingbeil served as Dean of the College of Engineering and Computer Science from 2013-2018. He is the lead investigator for Wright State’s National Model for Engineering Mathematics education, which has been supported by over \$5.0M in grants from the National Science Foundation. He held the university title of Robert J. Kegerreis Distinguished Professor of Teaching from 2005-2008, and served as the college’s Director of Student Retention and Success from 2007-2009. Prior to his appointment as Dean, he served as Associate Dean for Academic Affairs, where he established the CECS Student Success Center to support large-scale changes in the college’s recruitment and retention initiatives. He has received numerous awards for his work in engineering and STEM education, and was named the 2005 Ohio Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and Council for Advancement and Support of Education (CASE).

## INSTRUCTORS

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### **Jill M. D. Motschenbacher, M.Ed., Ph.D.**

**Associate Director of the Office of Teaching and Learning, North Dakota State University**

Jill Motschenbacher has been with North Dakota State University since 2014 and has been with the Office of Teaching and Learning since 2016. Her professional focus involves educational program development and management, instructional improvement projects, assessment program implementation, science, technology, engineering, and math (STEM) educational reform, and university-wide administrative initiatives at North Dakota State University. Motschenbacher works to provide opportunities for faculty, instructional staff, and graduate students to advance in individual- and discipline-focused scholarship in the area of teaching and learning, with an aim of creating pathways that lead to student success, professional development, and institutional transformation. Motschenbacher currently serves as a co-PI for the National Science Foundation-funded Gateways-ND grant (2015-2020), which provides training, mentoring, and peer support for STEM faculty and instructors across the university in student-centered teaching practices and teaching quality improvement.

Motschenbacher received her Ph.D. (2012) in Crop, Soil and Environmental Sciences, with a major in Soil Physics and a focus in the biogeochemical cycling and sustainability of rice-based cropping systems, from the University of Arkansas. She completed an M.Ed. (2007) in the Administration of Higher Education and a B.S. (2006) in Agribusiness, with a minor in Environmental Science, from Middle Tennessee State University. In addition, Motschenbacher completed various engineering schools in the U.S. Navy and served for four years (1996-2000) aboard the USS Sacramento (AOE-1) as an Interior Communications Electrician. Prior to transferring to North Dakota State University, she completed a research and extension education postdoc in the Department of Agricultural and Biosystems Engineering at Iowa State University and two United States Agency for International Development (USAID) food security-based projects in rice mechanization and maize postharvest production losses in Wang'uru, Kenya and Iganga, Uganda.

### **Erin Pitts**

**Success Coach, Bridges to Baccalaureate Program, Front Range Community College**

Erin has worked for access and success in higher education for 12 years. She has experience with GEAR UP, TRiO, former foster youth, and degree mapping for completion. Erin currently serves as the Success Coach for Bridges to Baccalaureate (B2B) at Front Range Community College (FRCC) in Fort Collins, CO. B2B is designed to recruit and retain more diverse students in the biomedical and behavioral sciences, with a focus on transfer from FRCC to Colorado State University (CSU) and involvement in undergraduate research. Erin spends most of her time advising students 1-1, as well as collaborating with her CSU colleagues on deciphering curriculum, policies, and transfer admission.

### **Jill Sible**

**Assistant Provost for Undergraduate Education, Virginia Tech**

At Virginia Tech, Jill Sible led an innovative cell biology research program for a decade. Then, six years ago, she moved into university administration to work for the improvement of the undergraduate learning experience. She introduced her campus to the SCALE-UP concept and spearheaded the design and construction of SCALE-UP classrooms and adoption of the associated pedagogy at Virginia Tech. Sible has led over \$9M in sponsored research projects including \$5M in STEM education grants. She is currently the lead investigator for projects funded by the National Science Foundation, National Institutes of Health, and Howard Hughes Medical Institute, all of which focus on increasing success, retention, and diversity among undergraduate programs in STEM.

Sible is a National Academy of Sciences Education Fellow in the Life Sciences. Her current projects include leading a dramatic revision of Virginia Tech's general education curriculum to be more integrated, outcomes-oriented and infused with contemporary pedagogy. She has also worked on the vision and programming for Virginia Tech's new classroom building, scheduled to begin construction this fall. Sible continues to teach courses in cell and molecular biology, developmental biology, and cancer biology and cites the learning experiences she shares with her students as her greatest professional reward.



## ACADEMIC IMPRESSIONS STAFF

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### **Elizabeth Ross Hubbell**

#### **Senior Program Manager**

Elizabeth Ross Hubbell is an educator, author, and speaker with more than 20 years' experience across many levels of education. She serves as Program Manager for Student Affairs where she conducts market research on current trends and issues impacting Higher Education, collaborates with subject matter experts, and designs professional learning experiences. Her primary topics of interest include women in higher ed leadership and new innovations in advising and career services. Prior to joining Academic Impressions, Elizabeth served as a K12 consultant, focusing on instructional strategies and technologies. She has presented at ASCD, ISTE, Colorado TIE, Learning Forward, SREB, NSBA's T+L, and EARCOS conferences. Elizabeth is a former Montessori teacher.



## LOCATION

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***May 20 - 22, 2019 | Atlanta, GA***

***Hotel:***

Atlanta Marriott Northwest at Galleria  
200 Interstate North Parkway, SE  
Atlanta, GA 30339  
770.952.7900

**Room rate:**

\$170 + tax

**Room block dates:**

The nights of May 19, 20 and 21, 2019.

**Room block cutoff date:**

April 26, 2019.

Reserve Your Room: Please call 770.952.7900 and indicate that you are with the Academic Impressions group to receive the group rate. Please book early - rooms are limited and subject to availability.

# The Academic Impressions Experience



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