

**Georgia  
Tech**



**Center for Education  
Integrating Science,  
Mathematics & Computing**



**» ANNUAL REPORT 2016**

STEM Education Innovation, Enrichment, and Research

**STEM @ GATECH**

**Georgia  
Tech**



## MESSAGE FROM THE EXECUTIVE DIRECTOR

At CEISMC, we have the privilege of collaborating with world-class Georgia Tech students, staff and faculty to strengthen the K-12 STEM pipeline, work with hundreds of teachers across the state to improve STEM teaching and learning and engage thousands of Georgia students in exciting, hands-on STEM activities. Our work is so gratifying as we see teachers adopt innovative curricula and instructional methods and students exercise their natural curiosity and desire to learn. We believe that our research and programming is transformative, positively influencing students' confidence, leadership and achievement. Our research findings support this, demonstrating significant gains in interest, academic skills, communication, leadership, and college attendance associated with participation in CEISMC programs. Every once in a while, however, we receive other evidence of CEISMC's impact, such as this excerpt from letter sent by a parent of a former CEISMC participant:



January 4, 2017

Dear CEISMC Coordinators and Staff:

Happy New Year! I just wanted to write a note of thanks to all involved in the CEISMC program as you played a part in my daughter's recent success. My daughter attended various CEISMC workshops and summer programs several years ago when she was in Elementary and Middle school. Your programs helped her love of science and engineering grow. Understanding that I was a single mom with a disability, your program was kind enough to offer her a scholarship for partial and sometimes full amounts of the programs, making it possible for her to attend.

She went on to become captain of her Lego Robotics Team in middle school and her team won several awards the two years she served as captain. Her love of Science continued to grow and as she prepares to graduate high school this May, she has AP Chemistry, AP Biology and AP Physics on her transcript.

The seeds you planted ten years ago have blossomed, and my daughter is now an amazing budding scientist. She was recently accepted to college Early Decision where she plans on majoring in Environmental Science. She received a scholarship to cover full tuition, room and board for four years.

I can never thank you enough for the scholarships you offered to my daughter to help her cover the cost of CEISMC programs she attended at Georgia Tech. Her success is your success. I believe the future of world is in better hands thanks to programs like yours instilling a love of Science, Technology and Engineering into children just like my daughter.

I wish your program and all your wonderful educators much continued success!

With utmost thanks and appreciation,

What a wonderful way to start the New Year!

In 2016, the staff at CEISMC engaged in strategic planning, grant writing, cutting edge research and deep, sustained school partnerships. We conducted teacher workshops, summer camps, after school programs and student competitions. We hosted Science Olympiad, Atlanta Science Festival events, and First Robotics. As you read through our Annual Report, we hope that you will get a sense of the magnitude and scope of what was accomplished last year. We look forward to another year of success and are hopeful we can continue to offer opportunities and inspiration to students and teachers in Georgia and beyond.

Warm regards,

A handwritten signature in black ink, appearing to read 'Lizanne DeStefano'. The signature is fluid and cursive, written on a white background.

**Lizanne DeStefano**

Executive Director, CEISMC

## MISSION STATEMENT

The Center for Education Integrating Science, Mathematics, and Computing (CEISMC) enhances PreK-12 and post-secondary STEM education by drawing upon the expertise and scholarly contributions of the Georgia Tech community. CEISMC advocates for and leads systemic changes to increase STEM interest and achievement for all students, especially those underrepresented in STEM. CEISMC's research efforts allow for the identification and dissemination of evidence-based best practices in STEM education.

## VISION

CEISMC will define and exemplify effective STEM education to maximize students' readiness to excel in a rapidly changing world. We are leaders in influencing significant curricular, pedagogical, social and policy reform efforts that will shape STEM education and workforce development.

## CEISMC'S GOALS

**» GOAL 1 - INSPIRING STEM ENRICHMENT AND OUTREACH FOR STUDENTS**  
Excite, engage, and accelerate PreK-12 students through high-quality academic and hands-on STEM enrichment programs. Partner with the Georgia Tech faculty and students, as well as businesses, non-profits, and education communities to expose PreK-12 students to leading-edge research and 21st Century STEM careers.

**» GOAL 2 - INTENSIVE PROFESSIONAL DEVELOPMENT FOR STEM EDUCATORS**  
Empower teachers to advance student interest and learning in STEM. Offer professional learning experiences that focus on cutting-edge STEM content and model effective, active, and inquiry-based pedagogy. Utilize digital platforms, innovative tools, social media, and online communities to create professional learning experiences that erase the geographic and temporal boundaries for learning.

**» GOAL 3 - LOCAL AND SUSTAINABLE COMMUNITY PARTNERSHIPS**  
Cultivate sustained PreK-12 school and community partnerships to develop model sites in STEM. Engage teachers and students in on-going experiences with Georgia Tech faculty and students to improve STEM teaching and learning.

**» GOAL 4 - INNOVATIVE STEM EDUCATION**  
Design and develop innovations that advance the educational frontier in STEM. Create effective curricula that incorporate inquiry and problem-based learning, culturally authentic practice, high standards, and advanced technologies that work in a broad array of educational settings.

**» GOAL 5 - CRUCIAL RESEARCH AND IMPACTFUL EVALUATION OF STEM EDUCATION**  
Advance PreK-12 STEM education through educational research and evaluation. Document the impact of innovative curricula, teacher professional learning experiences, and novel STEM programs on student learning, with an emphasis on students traditionally underrepresented in STEM.

**» GOAL 6 - DYNAMIC OPPORTUNITIES FOR GEORGIA TECH COMMUNITY ENGAGEMENT**  
Create opportunities for the Georgia Tech community to engage and serve PreK-12 students and teachers and the community at large. Assist Georgia Tech faculty in developing innovative educational initiatives inspired by their novel and creative STEM research and teaching. Initiate and coordinate outreach experiences for Georgia Tech students and staff to broaden their horizons, promote community engagement, and inspire a culture of service.

# OUR GEORGIA TECH PARTNERS

## Georgia Tech Colleges and Schools

College of Computing - School of Computational Science and Engineering  
College of Design - Center for Assistive Technology and Environmental Access  
College of Design - School of Architecture  
College of Design - School of City and Regional Planning  
College of Design - School of Industrial Design  
College of Design - School of Music  
College of Engineering - Department of Biomedical Engineering  
College of Engineering - School of Aerospace Engineering  
College of Engineering - School of Chemical & Biomolecular Engineering  
College of Engineering - School of Civil and Environmental Engineering  
College of Engineering - School of Electrical and Computer Engineering  
College of Engineering - School of Industrial & Systems Engineering  
College of Engineering - School of Material Science and Engineering  
College of Engineering - School of Mechanical Engineering  
College of Liberal Arts - School of Literature, Media, and Communication  
College of Liberal Arts - School of Public Policy  
College of Sciences - School of Biological Sciences  
College of Sciences - School of Chemistry and Biochemistry  
College of Sciences - School of Earth and Atmospheric Science  
College of Sciences - School of Physics  
College of Sciences - School of Psychology

## Georgia Tech Campus Units

Georgia Tech Brook Byers Institute for Sustainable Systems  
Georgia Tech Campus Recreation Center  
Georgia Tech Center for Career Discovery and Development  
Georgia Tech Center for Teaching and Learning  
Georgia Tech Government and Community Relations  
Georgia Tech Hispanic Scholarship Fund  
Georgia Tech Office of Development  
Georgia Tech Professional Education  
Georgia Tech Research Institute  
Georgia Tech Institute Diversity  
Georgia Tech Office of the President  
Georgia Tech Serve, Learn, Sustain

# OUR EXTERNAL PARTNERS

## Colleges and Universities

Atlanta Metropolitan State College  
Carnegie Mellon University  
Chattahoochee Technical College  
Colorado State University  
Columbia University  
Cornell University  
Emory University  
Florida State University  
Georgia Gwinnett College  
Georgia Highlands College  
Georgia Southern University  
Georgia State University  
Howard University  
Indian Institute of Technology Madras  
Indiana University  
Kennesaw State University  
Morehouse College  
Morehouse School of Medicine  
Purdue University

Rice University  
Southern Polytechnic State University  
The Ohio State University  
University of California, Berkeley  
University of California, San Diego  
University of Chicago  
University of Georgia  
University of Illinois at Urbana-Champaign  
University of Illinois's NCSA  
University of Michigan  
University of Minnesota Twin Cities  
University of North Georgia  
University of Pittsburgh  
University of Tennessee  
University of Texas at Austin  
University of Virginia  
University of West Georgia  
Valdosta State University

## Georgia School Districts

Atkinson County School System  
Atlanta Public Schools  
Barrow County School System  
Bibb County School District  
Buford City Schools  
Cherokee County School District  
Clarke County School District  
Clayton County Public Schools  
Cobb County School District  
Columbia County School District  
Commerce City Schools  
Dawson County Schools  
DeKalb County School District  
Douglas County School System

Effingham County Schools  
Forsyth County Schools  
Fulton County Public Schools  
Griffin-Spalding County School System  
Gwinnett County Public Schools  
Hall County Schools  
Henry County Schools  
Liberty County School System  
Madison County School District  
Marietta City Schools  
Monroe County Schools  
Newton County Schools  
Rockdale County Public Schools  
Savannah-Chatham County Public School

## Corporations and Organizations

32<sup>nd</sup> Street Media  
ArkFab  
ArtsNow Learning  
Atlanta Science Festival  
Bill & Melinda Gates Foundation  
Candler Field Museum, The  
Captain Planet Foundation  
Caterpillar Inc.  
CETPA  
Code.org  
Discovery Education  
East Lake Foundation  
Findings Group, The  
Four Corners Primary Care Centers, Inc.  
General Electric  
Georgia Power  
Girl Scouts of Greater Atlanta  
Google  
Gwinnett County Youth Project

Hispanic Organization Promoting Education  
Horizons Atlanta  
Jülich Supercomputing Centre  
Latin American Association  
Mexican American Legal Defense and Educational Fund  
Mundo Hispánico  
National Center for Atmospheric Research  
Porsche Cars North America  
The Shodor Education Foundation  
Siemens Foundation  
Southeastern Universities Research Association  
Spalding Regional Hospital  
Sumika Polymers North America  
Truly Living Well Center for Natural Urban Agriculture  
United Parcel Service  
Univision 34 Atlanta  
U.S. Green Building Council  
Wells Fargo  
YELL! Academy

## GOAL 1 - INSPIRING STEM ENRICHMENT AND OUTREACH FOR STUDENTS

Today's world demands a greater understanding of advances in science, technology, engineering, and mathematics (STEM). Inspiring and nurturing the desire to explore STEM at an early age is crucial in the education of students from Prekindergarten to High school (PreK-12). CEISMIC'S summer programs, weekend workshops, community outreach, and STEM competitions leverage the resources and expertise of Georgia Tech to provide a strong foundation for future success in STEM. Each year, CEISMIC's student enrichment programs in STEM exposes over 11,000 young scholars to advanced topics through engaging hands-on learning experiences.



### **AmeriCorps**

This year 20 AmeriCorps members from Georgia Tech provided academic tutoring to 300+ students, academic mentoring to 80+ high school students and engage 250+ students in service. Also, the AmeriCorps members leverage an additional 200+ volunteers that are involved in providing tutoring and support to the service sites.

### **CEISMIC at Georgia Tech Savannah**

CEISMIC at Georgia Tech Savannah focuses on year-long K-12 programs for Savannah and surrounding counties to ensure students in Georgia receive the best possible preparation in science, technology, engineering, and mathematics (STEM). Programs are offered to more than 1,400 Kindergarten through high school children throughout the year like STEM enrichment and outreach programs, the Science Olympiad, Girl Scouts programming, and FULL STEAM Ahead summer camps.

### **The STEM Academy at Bartlett**

The STEM Academy at Bartlett developed a new Maker Mentor Program at The STEM Academy at Bartlett. The six-week after school mentorship program paired middle school girls enrolled at the STEM Academy with high school girls from H. V. Jenkins High School of Engineering to challenge the norms and stereotypes that prevent some girls from reaching their full STEM potential.

### **Teacher Institute for Area STEM Educators**

The Teacher Institute for Area STEM Educators created a week-long Teacher Institute for 15 area STEM educators that featured studies of the CSS Georgia and Savannah Harbor Expansion Project.

### **Girl Scout Days**

Eight Girl Scout days were hosted on the Savannah campus. These Saturday programs were designed to engage more than 200 girls ages 5 through 18 to further develop their understanding and passion for STEM.

### **Elementary Science Olympiad**

The Regional Elementary Science Olympiad (ESO) hosted more than 150 students from Chatham, Effingham, and Liberty Counties participating. Marshpoint Elementary and Hesse Elementary tied for first place and advanced to the state competition in Atlanta.



### Elementary Computing through Music Mixing

EarSketch, a computational music remixing platform created by Georgia Tech professors Jason Freeman and Brian Magerko, is designed to teach computer coding to high school students by having them remix music to create original music compositions. The EarSketch Steam Pipeline project is a collaboration between Dr. Freeman and CEISMC to develop and implement a version of EarSketch that is for elementary and middle school students. Using the free digital music mixing online platform, these younger students receive an introduction to coding and computational thinking in a summer camp setting, with the goal of increasing the pipeline of underrepresented students into post-secondary STEM+Arts (STEAM) disciplines. 48 students attended this year's program.



### FIRST LEGO League

The FIRST LEGO League (FLL) is an international competition for 4th through 8th-grade students that promotes creative STEM thinking through robotics. CEISMC coordinates one of the largest regional FLL tournaments in the country, with over 650 teams and 6000 students from Georgia and the bordering states of Tennessee and North Carolina. The 2015-16 Georgia competition included 27 first-round Regional events, 8 second-round Super-Regional events, and two State Championship competitions, held at Georgia Tech and the University of Georgia.



### Georgia Science Olympiad

The Science Olympiad is a nationally recognized competition for enhancing science education and interest in science. The competition is for teams of up to 15 students competing in 23 different age-related events. CEISMC hosted the High School Regional Science Olympiad Tournament Division C with 17 teams of high school students from the metro Atlanta area. This year's winners were Lambert High School in third place, Rockdale Magnet School for Science and Technology in second place. Milton High School took first place. These winning teams went on to compete in the state Science Olympiad Tournament held at Emory University.



### GE Girls

In partnership with General Electric, CEISMC hosts a week-long summer program for 28 female middle school introducing them to exciting opportunities in Science, Technology, Engineering, and Mathematics (STEM) for college and beyond. Students participate in a variety of hands-on learning activities focused on STEM, meet female STEM college students and professional women that share their experiences, conduct team based research, and present their findings in a capstone session.



### **Horizons Atlanta at Georgia Tech**

Horizons Atlanta at Georgia Tech seeks to help children of limited financial means find success in school, prevent the Summer Slide and set and achieve goals for themselves including high school graduation and participation in post-secondary educational experiences. The program currently serves 105 students. Horizons is committed to the development of the whole child through experiences that build problem-solving skills, foster awareness of community responsibility, instill respect for oneself and others, and encourage a life-long interest in learning. All students learn to swim building confidence and an awareness of safety. The program currently serves 1st through 8th graders. Hands-on project based STEM + Art (STEAM) learning is a core component of this program.

### **InVenture Challenge**

The aim of the K-12 InVenture Challenge at Georgia Tech is to foster design thinking, innovation, and entrepreneurial thinking in K-12 student inventors. The program extends the collegiate success of Georgia Tech's InVenture Prize competition to the K-12 level and provides a framework, curriculum, and competition that can be used by K-12 teachers in a variety of disciplines. Over 1800 students from 40 schools participated. The state finals are held annually at Georgia Tech featuring top teams from participating schools. Winning teams are invited to attend the National Invention Convention and Entrepreneurship Expo.



### **Kids Interested in Discovering Science Club**

Kids Interested in Discovering Science Club (K.I.D.S. CLUB) is a program that is held 6 Saturdays each year designed to enhance and encourage curiosity and enthusiasm for science, mathematics, engineering, and technology. Students in grades 2nd - 12th and parents are invited to join the 12 - 14 student-centered, hands-on discovery sessions. During each meeting, students in grades 2nd - 5th experience three different hour-long activities. Older students spend the entire time on a single in-depth topic. Activities included water rocketry, electromagnets, lemon batteries, mobile game and app development, LEGO® Robotics, and much more. Over 1800 students attend KIDS Club each year.



### **Siemens Competition in Math, Science, and Technology – Region Six**

The Siemens Foundation established the Siemens Competition in Math, Science & Technology in 1999. The competition is the nation's premier science research competition for high school students seeks to promote excellence by encouraging students to undertake individual or team research projects. It fosters intensive research that improves students' understanding of the value of scientific study and informs their consideration of future careers in these disciplines. Scholarships for winning projects range from \$1,000 to \$100,000. Students can compete individually or as a member of a two or three-person team. Georgia Tech is the hosting institution for the Siemens Competition in Region Six, comprised of Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia and Puerto Rico.



## Programs Enriching Accelerated Knowledge in STEM

Programs Enriching Accelerated Knowledge in STEM (PEAKS) offers over 24 hands-on summer enrichment programs for future engineers and scientists. These programs provide exciting inquiry-based STEM learning opportunities in advanced topics not typically available to pre-college students in traditional school settings. Over 675 Elementary through High School students attended Summer PEAKS. Examples of projects include mobile game and app creation, bio-robotics, product design, roller coaster physics, animatronics, environmental sustainability, the psychology of attention, Biolgnite, Industrial Systems Engineering, and a host of other leading-edge subjects.

## Research, Experiment, Analyze, Learn (R.E.A.L.)

Research, Experiment, Analyze, Learn (R.E.A.L.), an initiative of the Georgia Intern-Fellowships for Teachers (GIFT) program, provided research and community-based business internships for 53 high school students from populations underrepresented in STEM. Teams of high school students spent five weeks during the summer conducting research in university laboratories under the supervision of a GIFT teacher and Georgia Tech researcher or interning at local STEM-focused businesses. R.E.A.L. is made possible through grant support from the Siemens Foundation, The UPS Foundation, and Porsche Cars of North America-Porsche Care Network.



» More than 11,000 pre-college STEM students are impacted yearly by CEISMC outreach, after-school programs, and competitions.

## GOAL 2 - INTENSIVE PROFESSIONAL DEVELOPMENT FOR STEM EDUCATORS

CEISMC seeks to provide Georgia's PreK-12 educators with the tools they can use in their classroom to create a better understanding of STEM that is relatable to their students. CEISMC empowers teachers with opportunities to bring back real-world context and experiences to their classroom through internships at Georgia Tech and businesses. As an example of the program's success, the 2017 Georgia Teacher of the Year was a CEISMC intern. CEISMC also develops and facilitates symposiums and sustained programs with Georgia educators that expose them to the latest pedagogical methods that provide their students with active hands-on STEM learning experiences.



### ArtsNow Impact

This arts integration (AI) project is a partnership between ArtsNow, CEISMC, the Cherokee County School District, and Clayton County Public Schools. It seeks to explore the depth to which an arts integration model can be implemented while measuring its impact on student achievement. CEISMC provided 15 teachers at three Title I schools with comprehensive professional development in the daily use of arts integration in all academic disciplines. The goal was to empower both faculty and students to become peer mentors and to demonstrate the ability of the teachers to author highly useful arts integrated instructional units. Preliminary results show that students in participating schools improved academically compared to other similar schools in their systems through the project.

### Atlanta Science Festival STEM Mini-Conference for Teachers

The STEM Mini-Conference for middle and high school mathematics and science teachers focused on real-world applications of STEM. The conference features activity-based sessions conducted by faculty and graduate students from Georgia Tech, Clayton State University, and other USG institutions. 300 teachers attended this event.

### Code.Org Regional Partner

The goal of the Code.org partnership is to increase K-12 computer science education throughout Georgia in a local and sustainable fashion. CEISMC worked with 27 districts and 36 schools that are implementing Code.org's AP Computer Science Principles (CSP) curriculum. Ongoing teacher support workshops were organized and hosted by CEISMC on the GT campus during the school year. Over 1400 students were impacted.

### Georgia Intern-Fellowships For Teacher (GIFT)

The Georgia Intern-Fellowships for Teachers (GIFT), a collaborative between Georgia-based universities, businesses and K-12 school districts provided 55 K-12 (STEM) teachers with paid 4-7 weeks summer internships in research laboratories and companies. Teachers designed/conducted experiments, interpreted data, and communicated findings in research labs or gained hands-on experience in industry settings, applying STEM concepts to workplace problems. They also learned first-hand about skills needed for STEM careers. Since its inception in 1991, GIFT has facilitated 2,031 internships for teachers.





**Dr. Raquel Lieberman**  
College of Sciences

**Casey Bethel**  
Georgia's 2017 Teacher of the Year

## » GIFT Fellow Casey Bethel Named Georgia 2017 Teacher of Year

An extraordinary science teacher and mentor at New Manchester High School in Douglasville, Casey Bethel, Georgia's 2017 Teacher of the Year personifies the power of university-school partnerships enabled by programs like the Georgia Intern-Fellowships for Teachers (GIFT). Designed to provide Georgia K-12 science, technology, engineering, and mathematics (STEM) teachers hands-on experiences in the applications of math and science in university research and business workplaces, GIFT transforms teaching and the learning of science, technology, engineering, and mathematics.

When asked 'what got you started in the GIFT program,' Bethel responded that after a few years of teaching, I hit a wall, I was unsatisfied with my students' progress. A mentor of mine advertised the GIFT program as a means of broadening my background. I tried it and saw immediate results. Spending summers in the College of Sciences Lab of Dr. Raquel Lieberman, my wealth of knowledge has grown, and my teaching practices have improved. He concluded, "the challenge of educating the next generation of problem solvers and world leaders is just as important as the race to cure cancer, and teaching is the best way to make a difference."

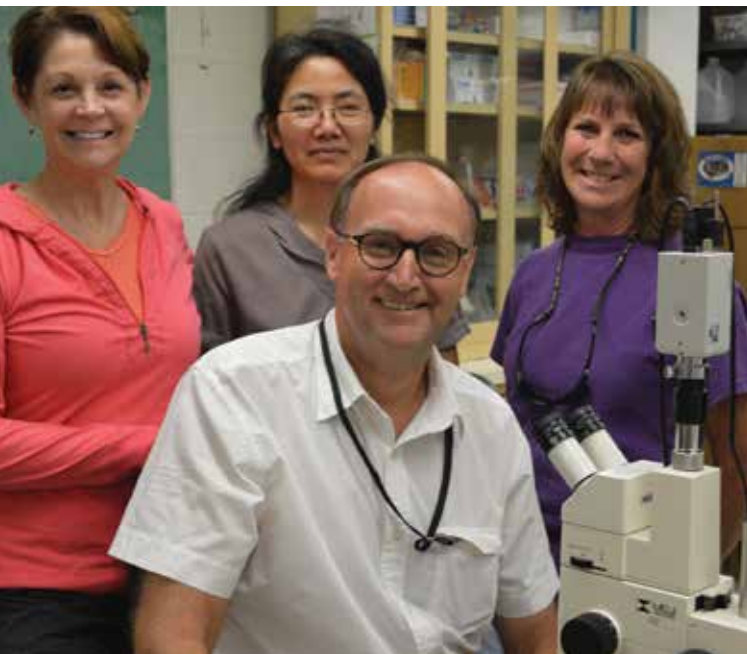
Now a bona fide biochemistry lab researcher in addition to being an excellent teacher, Bethel has had co-authored research papers published in *The Journal of Chemical Education* and the prestigious research journal *Nature*. His teaching and research contributions are examples of how collaboration between universities, industries, and K-12 educators can radically improve the way educators teach and prepare students.



### **Google - Douglas County Computer Science for All**

The Douglas County “Computer Science for All” initiative works to bring the highest-quality K–12 Computer Science (CS) education to every student in Douglas County by the end of the 2018-2019 school year. The initiative is a public-private partnership of local education, industry, non-profit, state government, and higher education that share a common interest in transforming Computer Science education in Douglas County schools. This initiative seeks to prepare students to be successful in the 21st century by inspiring them and developing their computational thinking skills. It also works to expand CS learning opportunities for all Douglas County students to better prepare them for college, the future economy, and STEM-related job opportunities.

Georgia Tech’s role is to provide guidance and assistance to Douglas County on creating and implementing their plan to offer CS in all schools. This includes participating on the district CS task force, identifying teacher PD opportunities such as those offered by Code.org, and answering CS program related questions as needed. This year 10 teachers participated.



### **Partnerships for Research, Innovation, And Multi-Scale Engineering (PRIME) RET Research Experiences for Teachers Program**

The National Science Foundation supported (NSF Award #1407187) PRIME RET site is a collaboration between faculty in the Georgia Tech College of Engineering, CEISMC, Metro Atlanta School Districts, K-12 educators, and art consultants. It supports the growing interest in combining disciplines such as art and STEM (STEAM) to exploit student’s preferred visual and active learning styles. The PRIME RET site immersed 48 middle and high school teachers over three years in 7-week mentored research experiences with engineering faculty at Georgia Tech. PRIME RET participants developed art-integrated engineering lesson plans that explore and build different habits of mind that are important in engineering as a profession, thereby increasing engineering literacy and improving understanding of fundamental science and math principles.



### **Science of Sustainability: Using Inquiry and Design Thinking to Facilitate a Transdisciplinary Approach to Learning**

The Science of Sustainability project aims to reduce the achievement gap between high performing and low performing schools, with particular emphasis on the Georgia Performance Standards (GPS) and the Next Generation Science Standards (NGSS). 42 High school social studies and science teachers from Fulton County and Atlanta Public Schools received pedagogical and content training developed by CEISMC in collaboration with the Georgia Tech School of Public Policy and the School of Earth and Atmospheric Sciences. The training focuses on the physical and social systems of local sustainable communities. Course units include food and waste systems, water and ecological systems, and energy and climate systems. Learning experiences connect real-world application of science concepts with social studies including economics, governance, and civic engagement to inform decisions that create sustainable communities.



» Over 1000 PreK-12 teachers benefit from CEISMC's STEM professional development and internship programs annually.

## GOAL 3 - LOCAL AND SUSTAINABLE COMMUNITY PARTNERSHIPS

CEISMC cultivates sustainable partnerships with PreK-12 districts and schools to provide ongoing support in STEM learning. Working with school leadership and STEM teachers CEISMC creates and implements high-quality STEM education curricula that meet the Georgia Standards of Excellence. Our newest partnership with M. R. Hollis Innovation Academy has exposed students and teachers to cutting-edge tools as well as support for the development of after-school STEM programs.

### Drew Charter School

Through funding from the East Lake Foundation, Bill and Melinda Gates Foundation, and the Governor's Office for Student Achievement, CEISMC is partnering with Drew Charter School on several initiatives that engage students and teachers from kindergarten through 12th grade. In the Elementary and Junior Academies, CEISMC assists in the implementation of literacy and language development activities through the Georgia Tech Arts and STEAM program with the Ferst Center, a summer STEAM Academy, and professional development for literacy and enrichment teachers. In the senior academy, CEISMC supports students in the completion of Drew's cradle to college model by providing tutors and mentors as well as facilitating a summer bridge program for about 100 students as they transition from 8th grade to high school.

### GoSTEM

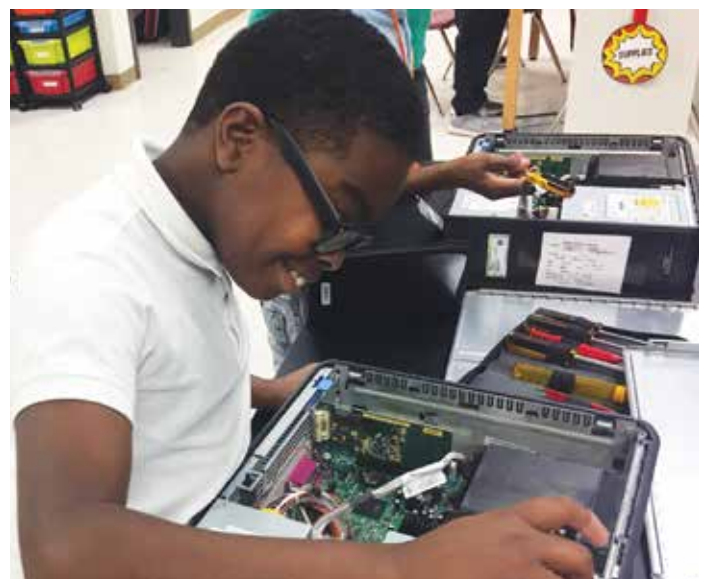
GoSTEM is a collaboration between Georgia Tech and the Gwinnett County Public School District to enhance the educational experience of Latino students in Georgia and strengthen the pipeline of these students into post-secondary STEM education. The project's long-term goal is to create a research-supported model for how technical universities, school systems, and philanthropic foundations can partner to promote academic achievement in STEM fields among Latino K-12 students. The GoSTEM model includes both programs that foster college preparation and STEM interest within a defined cohort of students from one high school/middle school cluster at Gwinnett County Public Schools, specifically the Meadowcreek Cluster; and activities open to the broader metro Atlanta community. GoSTEM impacted 133 teachers and 4388 students in 2016.

### Integrated Computer Science (iCS)

The goal of the 3-year iCS project is to develop and study the efficacy of an integrated computer science curriculum for grades 3-5. Student capacity and affinity for computer science in a STEM-focused, project-based elementary school serving an urban, low-income community is being examined. The project is creating model curricula for integrated computer science and guides the revision of national standards by the International Society for Technology Education (ISTE). The project leverages collaborations between Georgia State University's College of Education, Georgia Institute of Technology CEISMC, the urban K-8 school Centennial Academy in Atlanta Public Schools, professionals mentors in computer-science-related businesses, and the leading national professional organization for K-12 technology/computer science educators (ISTE).

### M. R. Hollis Innovation Academy

CEISMC is working with the principal, school leadership team and STEM teachers of M. R. Hollis Innovation Academy to develop and implement high-quality STEM content tied to the EL Education curriculum and Georgia Standards of Excellence. The partnership between CEISMC and Hollis has exposed students and teachers to cutting edge tools such as Hummingbird Robotics and Message from Me, as well as offered support for the development of after-school STEM programs. STEM teachers participate in weekly professional development that includes skill and curricular development, and are then given support as they implement these new skills and projects in their classrooms. A key component of this partnership is the inclusion of CEISMC staff on the school leadership team, allowing for input in high-level decision making. This partnership is made possible through a grant from the Arthur M. Blank Foundation Pipeline Project.





» CEISMC cultivates sustainable partnerships with PreK-12 districts and schools to provide ongoing support in STEM learning.

## GOAL 4: INNOVATIVE STEM EDUCATION

**STEM Integration in Education** - Integrated STEM learning has gained traction in K-12 education as one possible way to address our national STEM education challenges. How this is done, and the implications for student learning and teacher classroom practice is one focus of K-12 educational innovation work at CEISMC.



# STEM »

### Advanced Manufacturing and Prototyping Integrated to Unlock Potential (AMP-IT-UP)

AMP-IT-UP is a National Science Foundation funded (NSF Award # 1238089) Math and Science Partnership (MSP) between Georgia Tech and the Griffin-Spalding County School System (GSCS). CEISMC curriculum developers have created middle school engineering, math, and science instructional units that promote inquiry learning and that integrate across multiple STEM practices, primarily those related to data—i.e. the collection of the data (experimental design), how data is represented (data visualization), and how decisions are made based on data (data-driven decision making and scientific argumentation). The APM-IT-UP curriculum materials also emphasize engineering design, invention, and entrepreneurship, and are available for download at [ampitup.gatech.edu](http://ampitup.gatech.edu).

### Ecosystem Impacts of Oil and Gas Inputs to the Gulf (ECOGIG)

Ecosystem Impacts of Oil and Gas Inputs to the Gulf (ECOGIG) is a multi-institutional research consortium whose mission is to understand the environmental impacts of natural and anthropogenic hydrocarbon inputs on deepwater ecosystems in the Gulf of Mexico. As part of the education and outreach arm of this consortia, CEISMC is developing and designing one-week module lessons for middle school science classes that focus on connecting research from ECOGIG with science practices that emphasize the Next Generation Science Standards.

### Science Learning Integrating Design, Engineering and Robotics (SLIDER)

SLIDER is an National Science Foundation supported (NSF Award #0918618) DRK-12 project that developed a project-based physical science curriculum that integrates design, engineering, and robotics within the context of 8th-grade physical science. The units were iteratively designed and tested in classrooms spanning diverse ethnic, socio-cultural, gender and geographic lines and are available for free download at [slider.gatech.edu](http://slider.gatech.edu).







» CEISMC's innovative programming is reaching over 360 STEM classrooms in more than 200 schools across the state of Georgia.

**Culturally Relevant Educational Interventions** - CEISMC develops educational interventions that utilize culturally relevant and authentic practices to increase student engagement, motivation, and persistence in STEM.

### **Culturally Authentic Practice to Advance Computational Thinking in Youth: CAPACiTY**

During 2015-2016, CEISMC conceived of a project to develop a new curriculum for the high school Introduction to Digital Technology course. The proposed course, funded by the National Science Foundation (NSF Award #1639946) through the STEM+C program, will teach computational thinking to students using problem-based and inquiry strategies that enable students to pursue questions of personal interest while mastering technical skills and the NGSS cross-cutting concepts. The goal of the program is to engage under-represented minorities and girls better in learning skills that will enable them to have success in later computer programming courses.

### **EarSketch**

EarSketch is a STEM + Art (STEAM) intervention that teaches computer programming through music mixing. The programming platform was developed by Georgia Tech professors Jason Freeman and Brian Magerko. CEISMC has partnered with EarSketch as part of a National Science Foundation (NSF Award #1417835) DRK-12 project to create a high school Computer Science Principles course curriculum that includes EarSketch, to create professional development for teachers, and to implement the program in diverse schools within Georgia. The CEISMC team is also investigating what factors enhance or impede implementation of authentic STEAM tools in different school settings by using systems modeling.



**Digital Learning for Teachers** - Digital tools are becoming ubiquitous in learning. CEISMC professional development experts push the envelope in online learning by creating highly interactive courses that promote and model inquiry learning.



### **Project-Based Inquiry Learning (PBIL)**

This digital course, initially developed by CEISMC with support from NASA, offered 142 K-12 teachers in 2016 the opportunity to explore project-based inquiry learning (PBIL) in an instructor-facilitated, semi-synchronous and highly interactive digital environment. The course supports teachers in using PBIL to enhance conceptual understanding, critical thinking, scientific reasoning, and problem-solving, and includes project work that participants can apply to their practice and make an immediate impact in their classrooms.

### **Sustainability Research Network (SRN) Online Course for K-12 Teachers**

The National Science Foundation supported (NSF Award #1444745) SRN is a multi-institutional collective of scientists, industry leaders, and policy partners who are committed to building better cities of the future through innovations in infrastructure design, technology, and policy. The work of the SRN focuses on ways to reimagine infrastructure—energy grids, transportation networks, green spaces, and food and water systems. To broaden the SRN's reach and achieve a depth of understanding among the public, CEISMC is designing an online course for K-12 teachers to learn about sustainability and how to teach effectively with the concept. The course will conclude with teachers connecting with the SRN partnering sites and universities to achieve ongoing engagement among K-12 students, teachers, and the SRN.

## GOAL 5: CRUCIAL RESEARCH AND IMPACTFUL EVALUATION OF STEM EDUCATION

**Engineering Education Research** - Researchers in CEISMC pursue questions related to K-12 engineering education and its relationship to science education. For example, the study will assess how conceptual ideas from one field help facilitate knowledge acquisition in the other and how best to assess student mastery of the Engineering Design Process. The (AMP-IT-UP) National Science Foundation funded (NSF) project focuses on measuring the impact of middle school engineering and technology courses on student learning. The curriculum utilizes the Engineering Design Process (EDP) as a sequential or iterative process to guide instruction related to engineering design. As part of this funded research, CEISMC developed valid and reliable assessments for grades 6 through 8 which informed the development and implementation of a sophisticated engineering curriculum. Additionally, an electronic Engineering Design Process Log was developed to guide the engineering design process, its documentation, and its assessment. This tool is currently in wide use across the nation.

Articles published by CEISMC researchers related to this work:

Alemdar, M., Lingle, J., Moore, R., Wind, S. (2016). Developing an Engineering Design Process Assessment Using Think-Aloud Interviews. *International Journal of Engineering Education*.

Moore, R., Alemdar, M., Lingle, J., Newton, S., Rosen, J., Usselman, M. (2016). The Engineering Design Log: A Digital Design Journal Facilitating Learning and Assessment. *Proceedings of the 2016 American Society for Engineering Education Annual Conference*. New Orleans, LA.

**21st Century Skills Assessment and Student Engagement** - 21st-century skills encompass skills such as collaboration, teamwork, problem-solving, and creativity. Using various validated instruments, researchers at CEISMC assess the impact of educational interventions on students' mastery of such skills. Additionally, the effect, across many CEISMC research and evaluation projects, of educational interventions on student engagement were also investigated.

### AMP-IT-UP

21st Century Skills and student engagement also has been investigated as part of the AMP-IT-UP project. Some of the other effects that are measured include exploring how participation affects academic engagement, content understanding, knowledge transfer, and student persistence in STEM. Other related research topics include the professional development of the teachers who are using the AMP-IT-UP materials, the fidelity of the curriculum enactment, and the development of science and engineering assessment instruments. AMP-IT-UP is also developing a theoretical model for understanding changes to the complex system that is education by utilizing resources from an interdisciplinary team that includes experts in both engineering and the social sciences.



### Westminster Schools Research and Evaluation

The purpose of this research, conducted by the CEISMC Research and Evaluation group, was to measure the impact of school-led initiatives implemented in support of Westminster Schools' Learning for Life Vision, a component of a newly adopted strategic plan, upon many student outcomes. These efforts included providing support for student-centered teaching practices such as Project-Based Learning to impact students' 21st-century skills. The majority of the research included measuring skills such as creativity, critical thinking, problem-solving, communication, collaboration, and leadership.



**Research on STEM Integration and Science Learning in Education** - Integrated STEM learning has gained traction in K-12 education as one way to address our national STEM education challenges. How this is done, and the implications for student learning and teacher classroom practice is one focus of K-12 educational research at CEISMC. This research strand is supported through the NSF-funded AMP-IT-UP and SLIDER projects.



### **Complex System Modeling**

K-12 and higher education are complex, dynamic systems affected by environment-specific factors regarding both actors (students, teachers, administrators, school districts, community) and attributes of those actors (cognitive, conative, emotional/affective). Educational policy research has investigated some of these factors and their impacts on reform. Much less studied, but potentially extremely useful, is the application of concepts from disciplines such as industrial and systems engineering. Through AMP-IT-UP funding, CEISMC supported a dissertation and hosted a symposium in 2016. The symposium was designed as an interdisciplinary exchange of theories, models, and methods among researchers interested in modeling, implementing, and understanding reforms in K-12 and higher education settings. Through the Earsketch project, the CEISMC research team is also investigating what factors enhance or impede implementation of authentic STEAM tools in different school settings by using systems modeling.

Mital, P., Moore, R.A., Llewellyn, D.C. (Under Review). Education System Intervention Modeling Framework. Production and Operations Management.



**Improving Undergraduate Courses** - As part of the National Science Foundation (NSF) funded AMP-IT-UP project, CEISMC's Research & Evaluation Group works very closely with Mechanical Engineering faculty and graduate students at Georgia Tech to improve introduction level engineering courses. This project focuses on conducting educational research in introductory level mechanical engineering courses.

Hilton, E., Li, W., Newton, S.H., Alemdar, M., Pucha, R., & Linsey, J. (2016). The development and effects of teaching perspective free-hand sketching in engineering design. Presented at the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. Charlotte, NC.

Pucha, R., Utschig, T.T., Newton, S.H., Alemdar, M., Moore, R., & Noyes, C. (2016). Critical and creative thinking activities for engaged learning in graphics and visualization course. Proceedings of the 2016 American Society for Engineering Education Annual Conference. New Orleans, LA.

**Evaluation of K-12 Educational Programs and Interventions** - CEISMC Research and Evaluation group utilizes a mixed method approach employing both qualitative and quantitative data sources to determine the impact of numerous K-12 programs and interventions. The evaluation of these interventions focuses on measuring student outcomes as well as teacher professional development impact on classroom practices.

## Collaborative Research: Georgia STEM Accessibility Alliance

The GSAA served is a National Science Foundation funded (NSF award #1027655) alliance between Georgia Institute of Technology, the University of Georgia, Georgia Perimeter College and three public secondary school districts to support the overall goal of increasing the postsecondary STEM degree and career attainment of individuals with disabilities. The CEISMC Research & Evaluation Team works collaboratively with GSAA program leadership, University of Georgia Evaluation group and external evaluation, Findings Group, to track progress on their specific goals and evaluate the extent to which the program is successful in providing effective intervention technologies and materials for virtual learning in Georgia.

## Evaluation of Atlanta Science Festival

Since 2014, the Atlanta Science Festival (ASF) has held an annual public celebration of science and technology. Scientists and educators from museums, local schools, universities, and companies use a variety of hands-on activities, facility tours, inspiring presentations, and riveting performances to expose the Atlanta community to science through 100 individual events each year. Each year, the festival culminates with the ASF Expo, held at Centennial Olympic Park in downtown Atlanta. The CEISMC Evaluation team has been the sole evaluators of the festival for the past three years. During the most recent ASF Expo, the Evaluation Team conducted interviews with attendees and collected surveys taken in-person on iPads, available in both English and Spanish.

## Evaluation of 21st Century Literacy in the Making Project

Drew Charter School's 21st Century Literacy in the Making grant provides innovative maker space resources and exposure to digital literacies. The grant achieved its goals through coding, programming, digital storytelling with the goals of eliminating summer learning loss, increasing teachers' pedagogical content knowledge, supporting more rigorous and creative project-based learning (PBL), and accelerating students' 21st Century Skill development. The CEISMC Research and Evaluation team provides program leadership with valuable data to inform program implementation and measure the extent to which the program is meeting its goals. The evaluation is a mixed-methods design, utilizing quantitative and qualitative evaluation methods including surveys, focus groups, and classroom observations to collect data that describes teacher and student experiences in the program. Also, the evaluation team provides the Georgia Governor's Office of Student Achievement (GOSA), the funding agency, with summative evaluation reports that describe program progress and achievements (<https://ceismc.gatech.edu/evaluation-group/projects/drew-charter-school-partners-innovation-and-partnership-expansion-innovation-grants>).

## Longitudinal Study of PBIL and College Readiness

This 4-year grant from the Bill and Melinda Gates Foundation provides the critical investment in an array of areas at the Drew Charter School Senior Academy including promoting teacher professional development in Common Core, STEM + Art (STEAM) and Project Based Learning. As part of this effort, the CEISMC Research & Evaluation Group collects a range of data sources including interviews, classroom observations, and documents, to conduct case study research exploring the relationship between project-based learning and college and career readiness. Specific case study research projects include a yearlong study of an interdisciplinary project-based learning course and a 4-year longitudinal study of the college and career readiness trajectories of Drew Charter School Senior Academy students.



**Evaluation of Higher Education Programs and Interventions** - Universities are always striving to improve undergraduate and graduate education. An integral part of this process is collecting data to determine the impact of curricular changes on student learning and engagement, and to inform classroom practice. Below are the programs that CEISMC Evaluation & Research group served as an external evaluator.



### **Atlanta Clinical and Translational Science Institute (ACTSI)**

The ACTSI was created in 2007 as one of a national consortium of Clinical and Translational Science Institutes funded by the National Center for Advancing Translational Sciences at the National Institutes of Health. In Atlanta, the ACTSI is a unique and equal partnership between Emory University, the Georgia Institute of Technology, and the Morehouse School of Medicine. CEISMC contributed evaluation expertise to the ACTSI, where Dr. Meltem Alemdar directed the ACTSI Tracking and Evaluation Program, one of 10 programs that contribute to the efforts of the ACTSI. An important component of this evaluation was Social Network Analysis (SNA). SNA allowed the ACTSI leadership to visualize collaborations occurring at multiple levels of the program, including within and between institutions, ACTSI programs, and among individual investigators.

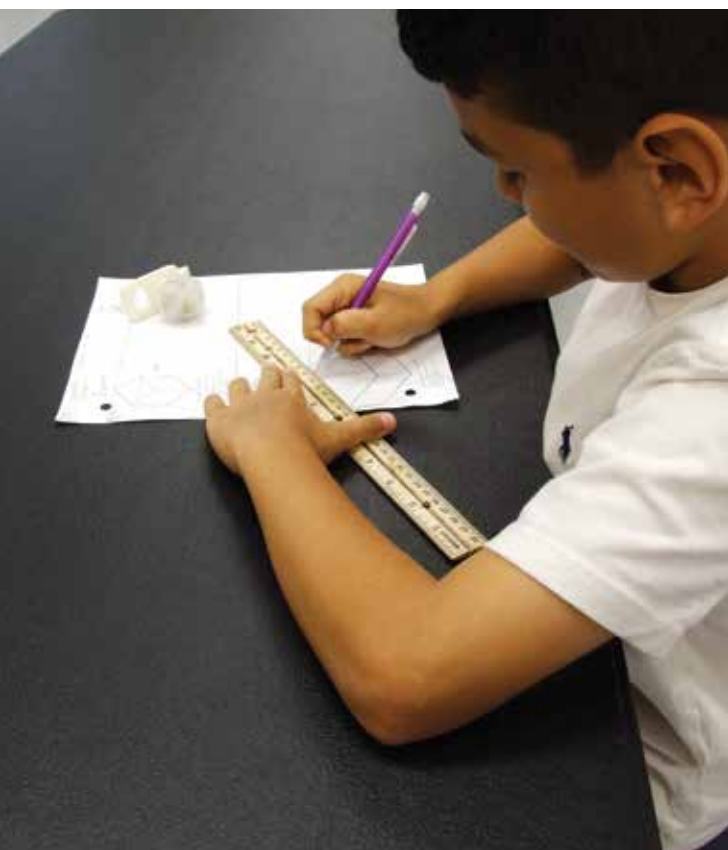
### **Noyce Program Evaluations**

CEISMC Research & Evaluation group serves as the external evaluator for National Science Foundation funded (NSF Award #1035451) two Robert Noyce Scholarship Program. Overall, the evaluation for both programs aimed to answer the question, “To what extent has the program been successful in achieving its goals?”

**Recruiting and Retaining Teacher Leaders in Physics and Chemistry** - This program was developed to address the need for more Science, Technology, Engineering, and Mathematics professionals to pursue teaching careers in K-12 schools.

### **The Pipeline to Teacher Preparation in Chemistry and Physics**

- The program aims to recruit high school and early college STEM majors into secondary chemistry and physics programs with a teacher certification option.



### **Evaluation of REU SITE: Research Experience for Student Veterans in Advanced Manufacturing and Entrepreneurship**

This National Science Foundation funded (NSF Award #1359019) three-year REU Site program at the Georgia Institute of Technology, directed by GA Tech’s Manufacturing Institute, enhances the educational experience of undergraduate students in the fundamental principles of advanced manufacturing science and technology. The CEISMC Research & Evaluation group conducts the external evaluation utilizing a mixed-method evaluative design.

### **Wider Implementation of STEM Educational Reforms Practices Planning Grant**

This planning grant provides faculty at the University of West Georgia’s College of Science and Mathematics (COSM) with increased support in the use of evidence-based teaching and learning practices. The CEISMC Research and Evaluation group provide external evaluation for this National Science Foundation Improving Undergraduate STEM Education funded project (NSF Award #1347719). The evaluation provides both quantitative and qualitative data that will advance knowledge and contribute to the growing literature on evidence-based teaching and learning.

**The National Science Foundation (NSF) Science and Technology Centers** - The National Science Foundation (NSF) Science and Technology Centers (STCs) integrative partnership program supports innovative, sophisticated, and potentially transformative research and education projects that require large-scale, long-term awards. STCs conduct research through partnerships among academic institutions, national laboratories, industrial organizations, and other public/private entities, and via international collaborations, as appropriate. They provide a means to undertake important investigations at the interfaces of disciplines and fresh approaches within disciplines. The National Science Foundation established the Science and Technology Centers Program in 1987. Dr. Lizanne DeStefano leads all four of the following programs. For all of these projects, the evaluation approach utilized is the values-engaged, educative (VEE) approach (Greene, DeStefano, Hall, & Burgon, 2006). The VEE approach, developed with NSF-HER support, defines high-quality STEM educational programming which effectively incorporates cutting-edge scientific content, effective pedagogy, and sensitivity to diversity and equity issues.

### **Blue Waters**

Blue Waters is one of the most powerful supercomputers in the world, and is the fastest supercomputer on a university campus. Scientists and engineers across the country use the computing and data power of Blue Waters to tackle a wide range of challenging problems, from predicting the behavior of complex biological systems to simulating the evolution of the cosmos. CEISMC conducts the external evaluation of Blue Waters Community Engagement program including the Blue Waters Fellows program, the Petascale Institute, the Blue Waters Internship program, the Virtual School and the Annual Symposium. In 2016, the evaluation was expanded to investigate the impact of petascale computing on the research process. (NSF Award #ACI-0725070 and #ACI-1238993)

### **Center for Brains, Minds, and Machines (CBMM)**

The Center for Brains, Minds, and Machines (CBMM), a multi-institutional NSF Science and Technology Center (NSF Award number #1231216) headquartered at MIT, is dedicated to developing a computationally based understanding of human intelligence and establishing an engineering practice based on that knowledge.

### **CCI Phase II: Center for Sustainable Nanotechnology (CSN)**

The Center for Sustainable Nanotechnology is a multi-institutional partnership, including the University of Wisconsin, University of Minnesota, Tuskegee University, Johns Hopkins University, Augsburg College, Northwestern University and GA Tech. (NSF Award #1503408)

### **Center for Engineered Mechanobiology (CEMB)**

The Center for Engineered Mechanobiology (NSF Award ##) is an NSF Science and Technology Center funded in 2016 at Penn and Washington University St. Louis. Its mission is to identify and harness the mechanical functions of both plants and animal at the cellular level. CEISMC serves at the external evaluator for the Center's Education programs including the high school programs, Research Experience for Teachers, Research Experience for Undergraduates, and graduate and postdoctoral training.

### **Emergent Behaviors of Integrated Cellular Systems Science Technology Center (EBICS)**

Funded by NSF (NSF Award #0939511) in Fall 2010, this STC is an integrative partnership that spans three universities: The University of Illinois at Urbana-Champaign (Illinois), Massachusetts Institute of Technology (MIT) and Georgia Institute of Technology (GT).

### **XSEDE: The Extreme Science and Engineering Discovery Environment**

XSEDE is a NSF-funded single virtual system that scientists can use to share computing resources, data, and expertise interactively. (NSF Award #1053575)



## GOAL 6: DYNAMIC OPPORTUNITIES FOR GEORGIA TECH COMMUNITY ENGAGEMENT

CEISMC partners with many Georgia Tech faculty to develop initiatives that support teacher STEM knowledge. Many of these projects are supported by the U.S. Department of Education through the Math and Science Partnership program, and the Improving Teacher Quality state grants.



### The Bio-Inspired Design (BID) Learning Community

The Bio-Inspired Design (BID) Learning Community is a collaboration between Georgia Tech's Center for Bio-Inspired Design, the School of Biology, the College of Architecture, and CEISMC. The overall goals were to increase the biology content knowledge of teachers by focusing on integrating bio-inspired design concepts in STEM subjects and boosting instructional skills in the use of inquiry-based, real-world applications and systems thinking strategies. The CEISMC evaluation team led the evaluation of the BID program, and teachers also participated in the CEISMC Georgia Intern Fellowships Intern program (GIFT) at the Georgia Tech Center for Bio-Inspired Design.

### EYES On the Universe - STEM Connections

EYES On the Universe - STEM Connections is a STEM partnership between Fulton County Schools, the Georgia Tech School of Physics, and CEISMC to deepen the STEM content knowledge of sixth-grade mathematics and science teachers by using the Aloha Telescope to stimulate interest in astronomy and STEM learning. The program included a field trip to Young Harris College Planetarium and Observatory.



### The Summer Workshop in Marine Science (SWiMS)

The goal of SWiMS, which was designed and implemented by Dr. Frank Stewart in the Georgia Tech School of Biology, is to use Georgia marine science research to enhance standards in middle and high school Life and Earth Science education. Through lectures by faculty, discussion, and lesson planning sessions, and hands-on lab and field exercises, the 5-day SWiMS course disseminated teaching modules developed around cutting-edge marine science by Georgia researchers. CEISMC collaborated with Dr. Stewart on teacher recruitment and program implementation. 16 teachers participated in the workshop.



### School System Math and Science Partnerships

CEISMC collaborated with two schools systems (Gwinnett County Public Schools and Newton County Schools) in ongoing Department of Education-funded MSP programs to increase the mathematics and science content knowledge of K-8 teachers. In these programs, CEISMC recruited Georgia Tech faculty, and graduate students to team with educational specialists and provide professional development to teachers. CEISMC also conducted classroom observations and provided pedagogical support.



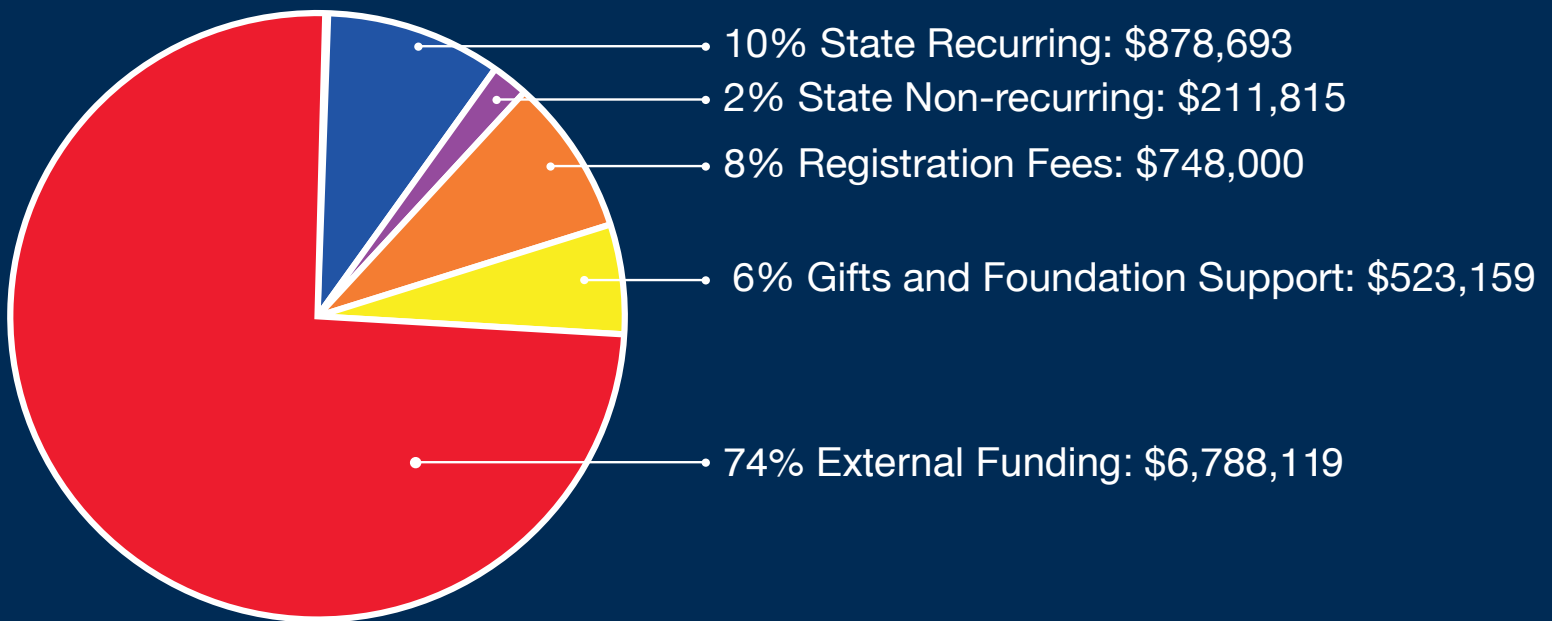
## Tech to Teaching

The mission of Tech to Teaching is to train undergraduate and graduate students in pedagogy and preparing them for a career in education. The Tech to Teaching (T3) project, funded by the National Science Foundation (NSF award #0833434), was a collaboration between the Center for the Enhancement of Teaching and Learning (CETL) and CEISMC that developed and institutionalized the infrastructure needed to promote teaching careers at both the K-12 and collegiate level. T3 created a robust Pre-Teaching program that provides information to Georgia Tech students about the different pathways into teaching, as well as education-related courses at both the undergraduate and graduate levels. T3 also developed internships and education immersion experiences to help students explore teaching as a career option. This route to teaching careers garners support from all levels of the Georgia Tech community.



## CEISMC FUNDING SOURCES

### FY 2016 FUNDING \$9,149,786



» 88% of CEISMC funding is from external sources.

# AWARDS & COMMITTEE MEMBERSHIP

## AWARDS



**Dr. Meltem Alemdar**  
Associate Director for Educational Research and Evaluation  
Georgia Tech's Institute Diversity 2016 Leadership Excellence Award



**Dr. Jamila Cola**  
Research Scientist  
2016 Mike Neden STEM Champion Award from the ISEA, International STEM Education Association



**Alba C. Gutierrez**  
Educational Outreach Coordinator II  
2016 The Service to the Community Award

## COMMITTEE MEMBERSHIP

**Meltem Alemdar**  
Associate Director for Educational Research and Evaluation

**Serve Learn Sustain (SLS) Assessment Committee**

**Sirocus Barnes**  
Program Director

**MLK Planning Committee, MLK Sunday Supper Coordinator**

**Lizanne DeStefano**  
CEISMC Executive Director

**Creating the Next in Education**

**Roxanne Moore**  
Research Engineer II

**G. W. Woodruff School of Mechanical Engineering - Faculty Advisory Committee, Research Faculty Representative**

**Georgia Institute of Technology Research Faculty Senate, Member**

**Analia Rao**  
Educational Outreach Manager, GoSTEM

**Chair for Recruitment and Retention**

**Hispanics Or Latinos and Allies (HOLA)**

**Employee Resource Group (ERG)**

**Mike Ryan**  
Research Associate II

**Faculty Senate - College of Science**

**Chris Thompson**  
Associate Director of Student Enrichment

**State of Georgia K-12 CS Task Force**

# MEET THE CEISMCM STAFF



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