



July 15-16, 2019

**Virginia Tech
Blacksburg, Virginia**

Table of Contents

	Page
Welcome from the Organizers	2
Keynote Speaker	3
STEMABILITY Parent and Student Schedules	4-5
Description of Student Sessions	6-8
Description of Parent Sessions	9-10
STEMABILITY Student Volunteers	11
Contributions and Donations	12



Welcome to Virginia Tech and STEMABILITY 2019

STEMABILITY remains a unique opportunity to learn about science, technology, engineering, and mathematics (STEM) along with the rights, responsibilities, and strategies for a successful transition from high school to college.

We believe that the most valuable aspect of STEMABILITY is the interaction with successful college students who share their perspectives and experiences. Some of our STEMABILITY volunteers are students with disabilities who have succeeded in learning and college living experiences.

A core group of faculty from Virginia Tech's College of Engineering, College of Liberal Arts and Human Sciences, the Services for Students with Disabilities, and Accessible Technologies Lab has collaborated to plan and deliver the STEMABILITY program. STEMABILITY is funded by the National Science Foundation, Student Affairs, and Office of Inclusion and Diversity, but this program would not exist without our collaborators and volunteers who have donated their time, expertise and resources. We are grateful you are here to participate in this program, and grateful to our partners for lending their expertise.

Sincerely,

The STEMABILITY Organizers:

Raffaella De Vita, Ph.D.

Associate Professor, Biomedical Engineering Department, College of Engineering, Virginia Tech

Alex Leonessa, Ph.D.

Associate Professor, Mechanical Engineering Department, College of Engineering, Virginia Tech

Ashley Shew, Ph.D.

Assistant Professor, Science, Technology, and Society, College of Liberal Arts and Human Sciences, Virginia Tech

Keynote Speaker



Dr. Ted Conway

Dr. Conway has 40 years of experience working in the government, academic and industrial sectors. He currently serves as the Head of the Biomedical and Chemical Engineering and Sciences at the Florida Institute of Technology. Before that, he served as Program Director at the National Science Foundation, Division of the Engineering Directorate, for General & Age Related Disabilities Engineering Program (GARDE), National Robotics Initiative (NRI), and Broadening Participation Research Initiation Grant in Engineering Program (BRIGE), Chemical, Bioengineering, Environmental & Transportation Systems Engineering (CBET), NSF Science and Technology Center (STC), Emergent Behaviors of Integrated Cellular Systems” (EBICS). He previously was as Program Director for the Research in Disabilities Education (RDE) program in the Education and Human Resources (EHR) Directorate.

Dr. Conway served as Associate Dean for Research, School of Education, at Virginia Commonwealth University and held mechanical engineering faculty positions at University of Central Florida and University of Akron.

He received his B.S. degree in Chemistry from Florida State University and his master and doctoral degrees from the University of Illinois at Urbana-Champaign in Theoretical and Applied Mechanics in the College of Engineering. He worked at the Department of the Navy, Naval Underwater Systems Center in Newport, and the Naval Research Laboratory. He was a Research Scientist with Olin Corporation, Quality Control Director with Oil-Dri Corporation and Polymer Engineer with Michelin Americas Research & Development.

STEMABILITY Schedule, Monday, July 15

TIME	STUDENT	PARENT
8:30-9:15 am	Check-in and Parking Passes Location: Goodwin Hall - luggage in van to be taken to residence hall	
9:15-10:15 am	Welcome <i>Dr. Raffaella De Vita, Professor, Biomedical Engineering & Mechanics and Mechanical Engineering, and Dr. Ashley Shew, Assistant Professor, Science, Technology, and Society</i> Keynote Speaker <i>Dr. Ted Conway, Program Director, Florida Institute of Technology,</i> Location: Goodwin 135	
10:15-10:30 am	Breaks and intros with students in Goodwin 340 and parents in Goodwin 440	
10:30am-12:00 pm	Assistive Technologies: Tools for Learning 10:30 am-12:00 pm <i>Hal Brackett and Christa Miller, Accessible Technologies</i> Location: Goodwin 340	Your Child and STEM Careers 11:00 am-11:30 am <i>Dr. Ted Conway, FIT</i> Location: Goodwin 440
12:00-1:30 pm	"Due South BBQ" Lunch - Location: Goodwin 135	
1:30-4:30 pm	STEM Activities Treat a Tumor: Dr. Jennifer Munson, 1:30-2:00pm Materials with Memory: <i>Dr. Reza Mirzaeifar and Dr. Shima Shahab</i> 2:05-2:35pm Light and Optics: <i>Dr. Yizeng Zhu and Shuo Yang</i> , 2:45-3:15 pm Student Research: <i>Dr. Keri Swaby</i> and Students, 3:20-3:50 pm Disability Community in Higher Ed <i>Ashley Shew and Martina Svyantek</i> , 4:00-4:30pm Location: Goodwin 340	Assistive Technologies: Tools for Learning <i>Hal Brackett and Christa Miller, Accessible Technologies</i> , 1:30-2:45 pm Financial Aid: Tips for Parents <i>Financial Aid's Diane Roberson</i> , 3:00-3:30pm Transitioning the Family: Changing Roles <i>Dr. Carolyn Shivers, Human Development</i> , 3:45-4:15 pm Location: Goodwin 440
4:30-5:15 pm	Walk with Group and Check-In Peddrew-Yates Residence Hall	Virginia Agreements with Community Colleges <i>Dr. Pablo Chalmeta, New River Community College</i> Location: Goodwin 440
5:15 pm and on	Group Dinner at D2, 5:15-6:15 pm Recreation, 6:30-8:30 pm	Parents relax and explore Virginia Tech and Blacksburg

STEMABILITY Schedule, Tuesday, July 16

TIME	STUDENT	PARENT
7:45-9:00 am	Checkout at 7:45 am and Breakfast at 8:15 am at D2	Breakfast on your own
9:00-10:30 am	<p align="center">Expert Panel <i>Lauren Haacke and Peter Woods, 9:00-9:45am</i></p> <p align="center">Getting Accommodations in College <i>Michael Brown, Services for Students with Disabilities, and Matt Newton, TTAC, 9:45-10:30am</i></p> <p align="center">Location: Goodwin 340</p>	<p align="center">Advocacy and Accommodations <i>Michael Brown, Services for Students with Disabilities, and Matt Newton, TTAC 9:00-9:45am</i></p> <p align="center">Expert Panel <i>Lauren Haack and, Peter Woods, 9:45-10:30am</i></p> <p align="center">Location: Goodwin 440</p>
10:30-10:45 am	Break in Goodwin 340	Break in Goodwin 440
10:45 am-12:15 pm	<p align="center">Therapy Dogs and Cook Counseling <i>Trent Davis with Moose, Derek, and maybe Wagner, 10:45-11:15am</i></p> <p align="center">Lego Robotics Workshop <i>Garret Burks, 11:15-12:15am</i></p> <p align="center">Location: Goodwin 340</p>	<p align="center">People are welcome to peek in on the Therapy Dog session in 340, otherwise this is a free block of time.</p> <p align="center">Disability Community in Higher Ed <i>Dr. Ashley Shew and Martina Svyantek 11:30 am-12:15 pm</i></p> <p align="center">Location: Goodwin 440</p>
12:15-1:30 pm	“Panera” Lunch Location: Goodwin 135	
1:30-3:00 pm	<p align="center">STEM Activities</p> <p>Mathematics of Ocean Modeling: <i>Dr. Traian Iliescu 1:30-2:00pm</i></p> <p>Exploring Human Movement: <i>Dr. Robin Queen and Laura Dickerson, 2:00-2:30pm</i></p> <p>Bug Zoo: <i>Whitney Weaver and outreach team, 2:30-3:00pm</i></p> <p align="center">Location: Goodwin 340</p>	<p align="center">Resources through Centers for Independent Living <i>Tiffany Allison and Belle Ierardi, New River Valley Disability Resource Center, 1:30-2:15 pm</i></p> <p align="center">Success in Science and Engineering <i>Dr. Raffaella De Vita, 2:30-3:00pm</i></p> <p align="center">Location: Goodwin 440</p>
3:00-5.00 pm	Guided Tour of STEM Research Labs: HDSRL, TREC, WARE, STRETCH	

STEMABILITY Student Session Description

Monday, July 15

Assistive Technologies: Tools for Learning

Hal Brackett and Christa Miller, Accessible Technologies, 10:30 am-12.00 pm

Students will learn about assistive technologies (AT) that are commonly available at Virginia Tech and other institutions. They will learn how these technologies are utilized by college students. Hardware and software products will be presented and compared to high school technology products.

Afternoon STEM Activities, 1:30-4:30 pm

Guest presenters will engage students in STEM activities and talk about how engineering and science are used to study nature and our surroundings as well as build and design new structures.

Treat a Tumor, 1:30-2:00 pm

Dr. Jennifer Munson, Assistant Professor, Biomedical Engineering and Mechanics

The presentation will briefly introduce brain tumors and their treatment. The hands-on activity will allow participants to treat a "brain tumor."

Materials with Memory, 2:05-2:35 pm

Dr. Reza Mirzaeifar, Assistant Professor of Mechanical Engineering

Dr. Shima Shahab, Assistant Professor of Mechanical Engineering

We will demonstrate how some materials have memory. They can be deformed to a new shape, but they always memorize their initial shape!

Playing with Light, 2:45-3:15 pm

Dr. Yizheng Zhu, Assistant Professor of Electrical and Computer Engineering

Shuo Yang, Research Assistant

The presentation will briefly introduce light and its applications in communication and medicine. The hands-on activities will teach fun properties of light.

Undergraduate Research in Science and Engineering, 3:20-3:50 pm

Keri Swaby, University Undergraduate Research Coordinator and Scieneering Program Manager, and undergraduate researchers

What is research? How can it change your life and improve the lives of others? Undergraduate students from summer research programs at Virginia Tech will share their personal experiences in a unique and fun interactive format.

Disability Community in Higher Education, 4:00-4:30 pm

Dr. Ashley Shew and Martina Svyantek, Disability Alliance & Caucus of Virginia Tech

We'll give a brief historical sketch about disability organizing on college campuses and talk about disability community advocacy on this campus.

STEMABILITY Student Session Description

Tuesday, July 16

Expert Panel: Succeeding in College, 9:00-9:45 am

Lauren Haacke and Peter Woods

This group of students can answer your questions about the experience of receiving accommodations in college and how to navigate the system as a college student.

Getting Accommodations in College, 9:45-10:30 am

Michael Brown, Services for Students with Disabilities

Matt Newton, Virginia's Training and Technical Assistance Centers

Disability personnel will discuss the criteria to receive accommodations in college and what services are provided. Students will also learn how to discuss their accommodations with their professors.

Therapy Dogs and Cook Counseling, 10:45-11:15 am

Trent Davis with Moose, Derek, and maybe Wagner

Counselor Trent Davis is bringing some of the Cook Counseling Center pack to talk about what Cook has to offer students and about therapy dogs at Virginia Tech.

LEGOs Build Real-World STEM Knowledge, 11:15 am-12:15 pm

Garret Burks, Mechanical Engineering

LEGO Mindstorms provide an extraordinary tool to actively engage students in a number of STEM areas such as computer science, science, technology, engineering, and mathematics, while building teamwork and fostering creativity. Students can learn, create, and innovate in hands-on projects by using this robotic toolkit.

Afternoon STEM Activities, 1:30-2:30 pm

Guest Engineers and Science Researchers

Guest lecturers will demonstrate how engineering and science are used to study nature and our surroundings as well as build and design new structures.

Mathematics of Ocean Modeling, 1:30-2:00 pm

Dr. Traian Iliescu, Mathematics

This is a friendly introduction to some of the mathematical models that we developed to study the large scale ocean circulation. Numerical simulations and their relationship to ocean flows are discussed.

Exploring Human Movement, 2:00-2:30 pm

Dr. Robin Queen, Associate Professor of Biomedical Engineering and Mechanics, Associate Professor of Orthopaedic Surgery, and Laura Dickerson, Research Assistant. This session will teach the basic concepts of human movement through interactive demonstrations of commonly used analysis techniques.

Bug Zoo, 2:30-3:00 pm

Whitney Weaver and the Department of Entomology Outreach Team

The outreach team from Entomology will give a short presentation about careers in entomology before letting students check out their bug zoo.

Guided Tour of STEM Research Labs, 3:00-5:00 pm

STEMABILITY Faculty and Students

Visit STEM research facilities on Virginia Tech's campus as part of this guided tour. Listen to faculty and researchers share career opportunities and college majors.

STEMABILITY Parent Session Description

Monday, July 15

Your Child and STEM Careers and Opportunities, 11:00-11:30 am

Ted Conway, Department Head, Florida Institute of Technology

Meet with the Department Head of the Biomedical Engineering Department at the Florida Institute of Technology. Learn about Science, Technology, Engineering, and Math (STEM) and what it means to students and about the opportunities they may have in these fields.

Assistive Technologies: Tools for Learning, 1:30-2:45 pm

Hal Brackett and Christa Miller, Accessible Technologies Lab

Parents will learn the basics about the accessible technologies (AT) that are commonly available in college and how they are utilized. Hardware and software products that can be helpful to college students will be presented and compared to high school technology products.

Financial Aid: Tips for Parents, 3:00-3:30 pm

Diane Roberson, Assistant Director for Client Services, University Scholarships and Financial Aid

This presentation will provide an overview of the financial aid process and what families can do to secure the best financial aid package. The presentation will address FAFSA, loans, grants and scholarships and explain how financial aid and costs are determined.

Transitioning the Family: The Changing Roles of Parents and Siblings, 3:45-4:15pm

Carolyn Shivers, Assistant Professor, Department of Human Development

Parents will learn about helpful ways to reduce family/siblings/students stress during the college transition.

Virginia Agreements with Community Colleges, 4:30-5:15pm

Pablo Chalmeta, Department Head, New River Community College

Starting a university career at a community college has been made simple. The Virginia Community Colleges have articulation agreements with many Universities and Colleges in Virginia that offer students the opportunity to transfer as 3rd year students. All the core curriculum requirements are satisfied at the completion of the Community College degree and are guaranteed to transfer. Pablo will be talking specifically about New River Community College, but the information provided applies to all Virginia Community College System schools.

STEMABILITY Parent Session Description **Tuesday, July 16**

Getting Accommodations in College, 9:00-9:45 am

Michael Brown, Services for Students with Disabilities

Matt Newton, Virginia's Training and Technical Assistance Centers

Disability personnel will discuss the criteria to receive accommodations in college and what services are provided. Students will also learn how to discuss their accommodations with their professors.

Expert Panel: Succeeding in College, 9:45-10:30 am

Lauren Haacke and Peter Woods

This group of students can answer your questions about the experience of receiving accommodations in college and how to navigate the system as a college student.

Disability Community in Higher Education, 2:30-3:00 pm

Ashley Shew and Martina Svyantek, Disability Alliance & Caucus of Virginia Tech

We'll give a brief historical sketch about disability organizing on college campuses and talk about disability community advocacy on this campus.

Resources through Centers for Independent Living, 1:30-2:15 pm

Belle Ierardi and Tiffany Allison, New River Valley Disability Resource Center

Centers for Independent Living, a national movement by disabled people for disabled people, provide transitions services, peer support, educational resources for independent living, and information & referral to community and state disability services.

Success in Science and Engineering, 2:30-3:00 pm

Raffaella De Vita, STEMABILITY Organizer

Faculty members from Virginia Tech will discuss their student expectations in their classes and answer questions and discuss their work in STEM fields.

Guided Tour of STEM Research Labs, 3:00-5:00 pm

STEMABILITY Staff and Leaders

Visit STEM research facilities on Virginia Tech's campus. Listen to faculty and researchers share career opportunities and college majors.

STEMABILITY Student Volunteers

Department of Biomedical Engineering and Mechanics

Alyssa Huntington, STRETCH Lab

Justin Dubik, STRETCH Lab

William Snyder, STRETCH Lab

Jose Monclava, STRETCH Lab

Department of Mechanical Engineering

Garret Burks

Bo Pang

Alex Fuge

Department of Science, Technology, and Society

Joshua Earle

Hanna Herdegen

Service for Student with Disabilities

Lauren Haacke

Peter Woods

Accessible Technologies

Martina Svyantek



The STEMABILITY Organizers would like to give special thanks to **Ted Conway**, Head of the Biomedical Engineering Department at the Florida Institute of Technology, the **National Science Foundation** and the Office of Inclusion and Diversity and Division of Student Affairs at Virginia Tech for their funding to support the 2019 STEMABILITY program.

We would also like to thank the following organizations for their donations, services and contributions:

Virginia Tech

Accessible Technologies Staff
College of Engineering Labs
Services for Students with Disabilities

Our Community

Due South Barbeque
Panera Bread
VT Conferences and Guest Services
New River Valley Disability Resource Center
Virginia's Training and Technical Assistance Centers

