

Girl Scout STEM Day

Hosted by Binghamton University via Zoom

September 26, 2020



BINGHAMTON
UNIVERSITY
STATE UNIVERSITY OF NEW YORK



WELCOME MESSAGE

WELCOME TO BINGHAMTON UNIVERSITY'S FIRST ANNUAL GIRL SCOUT STEM DAY!



Andrea Palmeri

We are excited to have you join us on a day of tours, talks, and hands-on science and engineering. From the plants and animals in our parks to the technology we use to communicate with each other, science is all around us. Understanding science not only helps us make our way in the world, but allows us to make it better. Girls and women everywhere are using science and engineering to make positive changes. Our speakers and workshop leaders will tell you why they became scientists and engineers and how they are changing the world TODAY. Hopefully, they will inspire you in some way to continue on in STEM so that you can make your own mark on the world.

We hoped to have you join us in person, but as with everything these days we have had to adjust. So, please join us virtually in our labs, ask our scientists and engineers questions, and learn the fun of STEM!

Andrea Palmeri

Managing Director, NSF Center for Energy-Smart Electronic Systems (ES2)

Michael Jacobson

Director, Office of Strategic Research Initiatives

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AGENDA

9 - 9:10 a.m.	Welcome and review of the morning activities
9:10 - 9:30 a.m.	Building Bodies on Chips - Gretchen Mahler
9:30 - 9:50 a.m.	My Journey in STEM - Tracy Hookway
9:50 - 10:15 a.m.	Virtual Tour of Analytical and Diagnostics Laboratory (ADL) - Jenny Amey
10:15 - 10:25 a.m.	STRETCH BREAK
10:25 - 10:50 a.m.	3D Printing Demonstration - Benson Chan
10:50 - 11 a.m.	Logistics of breakout sessions and conclusion of program
11 a.m.	Breakout sessions to work on badges Badge will take roughly 1-1.5 hours to complete



SPEAKERS



Gretchen Mahler

Position title at Binghamton University: Associate Professor of Biomedical Engineering, Associate Dean of the Graduate School

Degree: BS, Chemical Engineering; PhD, Chemical and Biomolecular Engineering; post-doc, Biomedical Engineering

What I do at Binghamton: I am mostly a teacher and a scientist. I teach a class on human physiology and my lab does research in tissue engineering and the creation of organs on a chip. I spend half of my time in the Graduate School, where I work with graduate students and faculty from all departments on campus.

What I like most about my job: Research is my favorite. It is exciting to be constantly learning new things and trying to understand experimental data.

What I do for fun: I have a husband, three kids, two dogs, fish, chickens, and a rabbit. I like to spend time with all of them! I also like to hike, ride my bike, and read.



Tracy Hookway

Position title at Binghamton University: Assistant Professor

Degree: PhD in Biomedical Engineering

What I do at Binghamton: I run a research laboratory that studies how the heart works when it is healthy and when it is diseased. We use stem cells to make miniature models of the heart and of blood vessels. This can help us come up with new therapies to treat people when part of their heart is injured. In addition to research, I teach classes about the materials and processes we use in biomedical engineering.

What I like most about my job: I love the fact that everything we study is something new. Nobody knows the answers to the questions we are asking so every day leads to exciting discoveries.

What I do for fun: I love to cook and I love most outdoor activities. I am also a figure skater and I play ice hockey!



LAB DEMONSTRATION LEADS



Jenny Amey

Position title at Binghamton University: Research Scientist

Degree: Chemistry PhD

What I do at Binghamton: I work in a laboratory where I use many different types of scientific instruments to analyze complex materials. Each scientific instrument generates a specific data set, similar to a specific puzzle piece. When I use many different instruments to analyze a complex material, I build up lots of unique puzzle pieces. Each of these unique pieces fit together to create a complete puzzle. Therefore, I can see an accurate, scientific description of the material I want to learn and teach others about.

What I like most about my job: My job is different every day because I work on so many different types of complex materials. I also like to teach University students how to safely use the scientific instruments in my lab and help advise them on their complex materials research.

What I do for fun: Ski, bike, run, hike, swim, photograph nature, drink coffee with friends.



Benson Chan

Position title at Binghamton University: Associate Director of the Integrated Electronics Engineering Center

Degree: B.S. Mechanical Engineering, Masters in Engineering Science

What I do at Binghamton: I run a research center at Binghamton University that focuses on how electronics are made. We look at what new technologies are coming, how we can integrate these changes into existing electronics, how to make them last longer and what kinds of problems we can face.

What I like most about my job: Meeting new people looking for help in their electronics, finding out their problems and talking to them to understand how we can help solve their problems. The other part is working with students on their projects and helping them with finding jobs when they graduate.

What I do for fun: I build stuff with my 3D printers at home, I also have a laser engraver which I have been learning and building projects with wood, glass and stone. I am also an Assistant Scout Master with the Boy Scouts for a troop in Vestal as well as a Chapter Adviser for the Order of the Arrow to help older scouts. Scouting has been a great part of my life. The skills learned as well as the friends that you make will stay with you for the rest of your life.



BADGE LEADS



Danielle Anzelone

Position title at Binghamton University: Girls Who Code Community Outreach member

Degree: Computer Science

What I do at Binghamton: I'm a teaching instructor for Girls Who Code and part of our Community Outreach team which helps to recruit new members.

What I like most about my job: I love Girls Who Code's mission of bringing young girls' attention to the STEM field.

What I do for fun: When my friends and I have spare time, we'll go hiking or take a trip to Ithaca to see a waterfall.



Nicole Dates

Position title at Binghamton University: Sophomore Industrial and Systems Engineering student

Degree: Industrial and Systems Engineering

What I do at Binghamton: Undergraduate Course Assistant for Engineering Communications, Fundraising Chair and Website Coordinator for Society of Women Engineers, and Public Relations for the Institute of Industrial and Systems Engineers

What I like most about engineering: I love math and getting to work with others to overcome challenges and accomplish great things. I love the creativity that comes with engineering also.

What I do for fun: I love skiing, traveling, surfing, and hiking!

BADGE LEADS *(continued)*



Jessica Derderian

Position title at Binghamton University: Girls Who Code Community Outreach member

Degree: Computer Science

What I do at Binghamton: I love to go on runs and visit Jazzman's cafe!

What I like most about my job: I love getting to meet and work with other girls in the area that are also interested in computer science!

What I do for fun: My friends and I have movie nights, go out to eat, and shop at least once a week!



Megan DiBella

Position title at Binghamton University: Senior Biomedical Engineering Student

Degree: Biomedical Engineering

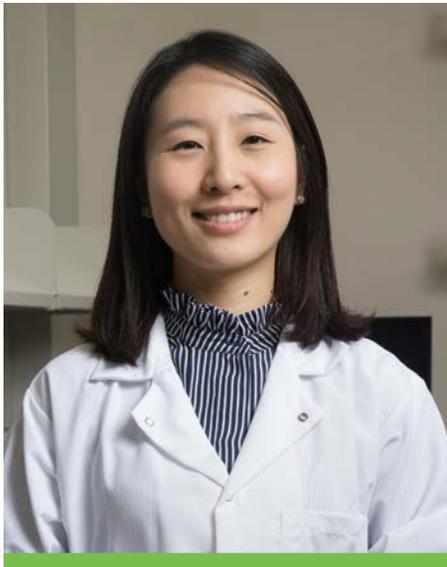
What I do at Binghamton: President of The Society of Women Engineers, BU Scholars Program

What I like most about my job: I like learning about how I can apply engineering to improve people's quality of life

What I do for fun: Piano, reading, hiking, baking, and knitting.



BADGE LEADS *(continued)*



Ahyeon Koh

Position title at Binghamton University: Assistant Professor of Biomedical Engineering

Degree: PhD

What I do at Binghamton: I have strong interests in the development of biocompatible biosensors for biomedical applications. My research has focused on exploiting science and engineering approaches that bring solutions to improve chemical and physical biocompatibilities of wearable or implantable biosensors by (1) releasing a therapeutic reagent in a controlled manner from biomedical devices, (2) employing 3D flexible and stretchable platforms with superior biomechanical properties, and (3) developing biomaterials with emphasis on bio-inspired and bio-mimic technologies. My teaching interests rely on fundamentals and recent interdisciplinary research in biosensors, bioanalytical instrumentation, biomedical devices and diagnosis, electrochemistry, and advanced analytical chemistry.

What I like most about my job: I love working with students. All my student researchers have brilliant ideas and enthusiasm in science. In our research group, we have diverse groups of cultures, gender, and ethnicities.

What I do for fun: I used to play drums in the band but not often nowadays. I listen to pop music and watch travel and cooking videos in my free time.



Michelle Pao

Position title at Binghamton University: Girls Who Code Marketing Manager

Degree: Biomedical Engineering

What I do at Binghamton: I usually dabble in graphic design for organizations on campus; I create visuals behind the scenes for our Fall Festival and Spring Fling concert!

What I like most about my job: Creating visuals and spreading the opportunities that our club offers are so fulfilling.

What I do for fun: I like to do personal projects such as painting banners for my room or designing a mock label for a Starbucks mug.



BADGE LEADS *(continued)*



Sherine Sawwan

Position title at Binghamton University: Girls Who Code Community Outreach member

Degree: Computer Science

What I do at Binghamton: I am constantly trying new foods and roaming around the library.

What I like most about my job: I love the community of like-minded women that Girls Who Code builds.

What I do for fun: My favorite thing to do is probably find somewhere cozy with a good book and coffee.



Anju Sharma

Position title at Binghamton University: Senior Scientist

Degree: PhD in Physics

What I do at Binghamton: I work as a staff scientist in the Analytical and Diagnostics Laboratory, a centralized, multi-user lab facility at Binghamton University. I am in charge of non-destructive (NDT), surface analytical and metrology techniques such as x-ray CAT scan, Ultrasound imaging, Atomic Force Microscopy, profilers and spectrometers for chemical analysis etc. I use NDT techniques to look inside all kinds of objects to determine their internal structure, flaws and defects without opening them up. Using surface analytical techniques, I study nanostructure, topography and atomic/molecular level physics/chemistry of all kinds of complex materials. I train graduate and undergraduate students on how to employ these techniques in their research projects.

What I like most about my job: Since our lab supports the entire university community as well as local and non-local companies, I come across new devices, components and exciting materials on a daily basis. This allows me to learn new things almost every day. I like working with high-tech instruments to understand complex structure, chemistry and physics of materials by using electrons, sound and electromagnetic waves from IR, visible light to x-rays. Isn't that cool? I also enjoy working with students and other lab users, and sharing my knowledge and experiences in the lab.

What I do for fun: I like to read, watch nature documentaries, listen to light/soft music, cook, meditate and travel.



BADGE LEADS *(continued)*



Amber Simpson

Position title at Binghamton University: Assistant Professor, Mathematics Education

Degree: PhD; Curriculum & Instruction: Mathematics Education

What I do at Binghamton: I teach courses to prepare students to teach mathematics in elementary, middle, and high schools. I also provide free STEM events for families in the local area.

What I like most about my job: My favorite thing about my job is the really cool research I do with students and adults around STEM education.

What I do for fun: I enjoy hiking and cross-stitching.



Kathleen Starr

Position title at Binghamton University: Junior Mechanical Engineering Student

Degree: Mechanical Engineering, Sustainability minor

What I do at Binghamton: External Events Coordinator of The Society of Women Engineers, National Society of Leadership and Success, and Women's Club Lacrosse

What I like most about my job: I like being able to share experiences, knowledge, and opportunities with other females in STEM.

What I do for fun: I enjoy being outdoors, skiing, hiking, and traveling.



Jasmin Zelaya

Position title at Binghamton University: Girls Who Code External Manager

What I do at Binghamton: I speak with Girls Who Code sponsors so we can fund our program and add more exciting elements.

What I like most about my job: I love being a part of an organization that strives to show girls their full potential!

What I do for fun: I like keeping myself busy at all times, I'm currently in a group project to build a race car.

