

POLY PREP

PRESENTS



W.I.S.E.

WOMEN IN SCIENCE & ENGINEERING

—

NOVEMBER 11, 2018

Schedule of Events

9:00–9:30

Drop Off & Registration | LEGACY GYM

9:30–10:30

Welcoming Remarks & Keynote Speaker | THEATRE

10:30–12:00

First Workshop

12:00–1:15

*Lunch | COMMONS

Mindfulness Activity | LEGACY GYM

College Fair | LEGACY GYM

1:15–2:45

Second Workshop

2:45–3:15

Dessert | COMMONS

3:15–4:00

Q&A Session, Thank You's & Group Picture | CHAPEL

*Please be advised, due to food sponsorship, we are unable to assist with dietary restrictions and food allergies.

Special Thanks

Board Co-Chairs:

Susanna Furfaro P'13, '15 & Robert Sabbagh '87, P'27, '30

Poly Administration & Staff, Planning Committee & Donors

Keynote Speaker



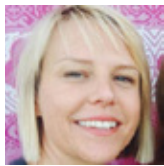
Nina Tandon

Nina Tandon is CEO and Co-Founder of EpiBone, the world's first company growing living human bones for skeletal reconstruction. She is the co-author of *Super Cells: Building with Biology*, a book that explores the new frontier of biotech.

Nina has also been awarded Crain's New York, Forty Under 40; Ernst & Young, Winning Woman; and Goldman Sachs, 100 Most Intriguing Entrepreneurs. She has a Bachelor's in Electrical Engineering from the Cooper Union, a Master's in Bioelectrical Engineering from MIT, a PhD in Biomedical Engineering, as well as an MBA from Columbia University.

Her PhD research focused on studying electrical signaling in the context of tissue engineering, and she has worked with cardiac, skin, bone, and neural tissue.

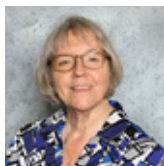
Workshop Speakers



Shannon Comer

Shannon Comer teaches 7th and 8th grade science at Poly. Although this is only her second year at Poly, she has been

a science educator for more than 17 years. She has taught high school Earth Science and Biology, as well as physical and life science to middle school students. Her adventures in education have taken her to many places around the world, from testing the water quality of Newtown Creek, to designing environmental education curriculum in Uganda and exploring the glaciers of the Swiss Alps. Shannon was the advisor of the "Making Things" club last year and enjoys incorporating STEAM projects into her units.



Marie Corkhill

Marie Corkhill has been teaching at Poly Prep for 41 years. During that time, she has taught AP Biology and Form I Science, as

well as some reading and math classes. She is currently teaching 5th- and 6th-grade science (her favorite classes) and is one of the coaches for the Middle School Science Olympiad team. Before coming to Poly, Marie worked in the Education Department at the American Museum of Natural History.



Becca Del Monte

Becca Del Monte is a product engineer at OXO, where she builds and tests kitchen tools from egg poachers to cheese

graters. In previous jobs, she has worked on faucets, LED light fixtures, and vibrators, but designing for food has been by far the most delicious. She studied product design at Stanford University and loves to combine technical and creative work to make real-world stuff that everyone can use.



Emily Giurleo

Emily Giurleo is a Poly Prep alumna (Class of 2013), who is passionate about education and software. She graduated

from MIT with a degree in computer science, and works as a software developer at Codecademy. She is interested in using technology to help children learn about math and science and hopes to one day found her own educational technology startup or become a teacher.



Juliette Guarino-Berg

Juliette Guarino-Berg is the Lower School Science Teacher at Poly Prep, where she teaches life, physical, and Earth sciences to

students in kindergarten through fourth grade. She is also a co-advisor of the Lower School Ecology Action Team, which focuses on environmental initiatives. She received her Bachelor of Arts in Biological Sciences from Binghamton University and her Master of Science in Childhood Education from Hunter College. Her passions lie in developing and implementing STEM curricula for elementary-age students.



Kari Jacobsen

Kari Jacobsen has specialized in evaluating and improving train safety, including conducting

accident investigations, performing full-scale testing, and developing safety standards over the last 16 years. Kari earned a B.S. and M.S. in Mechanical Engineering from Tufts University and has authored over 20 technical publications on train safety. She was one of four women in her undergraduate class of 42 mechanical engineers. Kari resides in Oakland, CA and teaches yoga classes locally, as well as yoga retreats in Costa Rica and Bali. Her goal is to do meaningful work that helps people be safe, healthy, well-balanced, and stress-free.



Alexa Jan

Alexa Jan is a rising junior at MIT studying Computer Science and Electrical Engineering, with a concentration in

Education. She has a background in machine learning, autonomy, and virtual reality and has worked everywhere from Pittsburgh, PA at Google to Santiago, Chile at InstaGIS, a startup specializing in finding trends from map data. Originally from the Bay Area, she grew up among technology and believes that the greatest innovations come from a team of diverse voices and backgrounds. When she's not in front of her computer, she enjoys ballroom dancing and rock climbing.



Nicole Karpf De Castillo

Nicole Karpf De Castillo is an architectural designer living in Los Angeles, CA. She earned her master's

degree from the Southern California Institute of Architecture in 2013, and is a specialist in Building Information Modeling. For the past four years, she has worked on civic, commercial and adaptive reuse projects in the Los Angeles area. She enjoys learning about new technologies, and is currently learning how to create virtual and augmented reality experiences for her projects. In her free time, she loves to run, hike, and camp in the desert.



Stacey Lebitz

Stacey Lebitz is a Solution Architect at Ericsson where she defines solutions for measuring the quality of services in

telecommunications networks. She studied Electrical Engineering and has a B.S. from Case Western Reserve University and a M.S. from Princeton University.



Sarah Lee

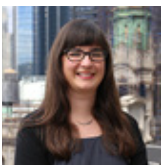
Sarah Lee is a product manager at Symbiont, a blockchain startup, where she works with business and engineering

teams to transform the financial services industry. Sarah is also active in STEM education. She has spent the past five years as a volunteer teaching and designing computer science curriculums in NYC public schools with TEALS (tealsk12.org). She has a bachelor's degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute.

**Sonja Lindberg '16**

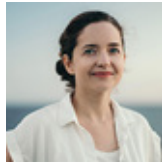
Sonja Lindberg is a Poly Prep alumna and currently a junior studying Computer Science and Management and concentrating in

Theater at MIT. Outside of class, she enjoys singing, dancing, reading, volleyball, musical theater, dabbling in rugby and kickboxing, watching gaming Let's Plays, and listening to podcasts (RT, MFM, NPR, and TED). She also loves to speak French and visit her family in Sweden and China while exploring the world through travel. In the past, she's worked in Stockholm, Sweden at Accountor AB, has spent a summer living and working on Location Privacy Mechanisms research in Grenoble, France, has had a great time with web design projects at MIT, and has spent her most recent summer in Washington, D.C. developing a Natural Language Processing platform at Booz Allen Hamilton, a consulting firm. On campus, she is a Sigma Kappa sister and class rep, consultant for the MIT Consulting Group, and Freshman Associate Advisor.

**Angie Neefus**

Angie Neefus is a licensed Professional Engineer in the State of New York. She designs and specifies structural glass and

specialty structures as a structural/façade engineer at Eckersley O'Callaghan. She has experience designing everything from art installations to 650-foot-tall residential towers and has projects located in New York City and around the world. She has a particular passion for the renovation and reuse of existing buildings and has worked with the NYC Department of Buildings on a project to standardize how existing buildings are altered. Angie has wanted to work with buildings for as long as she can remember and attributes a lot of her passion early on to her love of LEGOs.

**Luisa Pereira**

Luisa Pereira is an artist, engineer, and musician based in Brooklyn. Her interactive music projects have been shown around

the world. Venues include the Museum of Contemporary Art in Santiago de Chile, the Loop Summit in Berlin, and the New Museum's Art and Technology Incubator in New York City (where she was an inaugural member). As a designer and engineer, Pereira builds interactive and generative systems in collaboration with artists, brands, and production studios. Her work spans concept development, interaction design, software engineering, and hardware prototyping. Her clients include Samsung, Hermés, and Google. As an educator, she has developed creative computation teaching materials and curriculum for the NYC Department of Education and the Processing Foundation. She has taught at NYU Tisch's ITP, the School of Visual Arts, the School for Poetic Computation, and the Interactive Media Arts program at NYU Shanghai.

**Ella Schwartz**

Ella Schwartz is a Poly Prep alumna (Class of 1992) and received bachelor's and master's degrees in engineering

from Columbia University. She works as a cybersecurity specialist with the U.S. federal government on strategic technology initiatives. She holds a Department of Defense-issued top secret clearance to support her role. She is also the author of several nonfiction science books for young readers. Her debut, IS IT OKAY TO CRACK THE CODE? (Bloomsbury, 2018), is the first book in a nonfiction STEM-based middle grade series, exploring concepts in cryptography and internet security.

**Kelley Surun**

Kelley Surun is a designer and maker of places, spaces, and things. Prior to moving to New York in 2012, she worked

in Boston, MA for 10 years. She received both her B.F.A. in Industrial Design and her Master of Architecture degree from the Massachusetts College of Art and Design. This education, in addition to her varied onsite experiences combine to influence how she designs each aspect of object, home, or workplace with which people interact. A vinyasa yoga instructor, Kelley integrates elements of mindfulness and introspection into her designs and artwork, creating moments for her audience to stop and reflect.

**Debbie Van Ryn**

Debbie Van Ryn is a science teacher and the Middle School Sustainability and Service Learning Coordinator at

Poly Prep. Prior to teaching at Poly, she taught science in Austin, TX, Providence, RI, and Washington, D.C. She has also done forest science related research at Cornell University and with the Forest Trust, a non-profit in New Mexico. She hopes for her science classes to allow students to be, even if only temporarily, scientists and engineers. She loves being outdoors, cycling, hiking, camping, canoeing and more, and tries to live a sustainable life.

**Jenny Young**

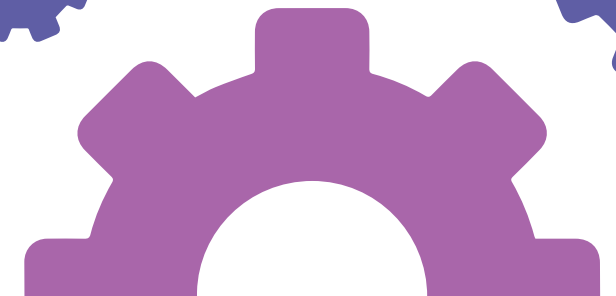
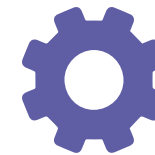
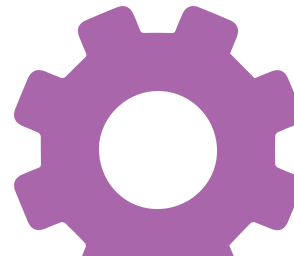
Jenny Young has a degree in mechanical engineering from Purdue University. She grew up working alongside her father in

his garage shop and doing projects with her mother. From an early age, she was exposed to the joys of building and designing things from found items. She also has a special place in her heart for teaching girls about the coolness of math and science. She lives in a 450-square-foot apartment in Manhattan with her incredible husband, little girl, and baby boy. As her parents always told her growing up, "You can be whatever you want to be in life!" She lives by this philosophy and hopes to inspire it in others.

**Gretchen Ziegler**

Gretchen Ziegler works as an API developer at Vitals, where she builds software that helps people find great doctors and estimate

how much their healthcare will cost. She also volunteers as an instructor for New York On Tech, a technology education program that teaches high school students to code. Before programming professionally, she taught high school English and drama. She earned her B.A. in theater at Skidmore College and her M.A. in education at New York University.



Workshops: Grades 5–7

A Site For Sore Eyes

Emily Giurleo

A famous female scientist has hired YOU to design and code her new website! In this workshop, you will be introduced to the principles of web development, including the use of HTML tags and CSS styling. By the end, you will have designed, coded, and deployed your own web page.

Build a Grumpy Robot

Jenny Young

Team up with your buddies to build a grumpy robot that knocks anything over that gets in its way! You will build the robot and then program it using software similar to Scratch. This session will be a fun and funny introduction to robotics!

Cracking The Code

Ella Schwartz

This workshop will discuss the world of cybersecurity and computer engineering. We will explore concepts of cyber espionage, code breaking, and hacking. Topics that will be discussed will include history of codes and ciphers, encryption and security technologies and how they work, famous ciphers, and other relevant cybersecurity topics. The workshop will be extremely interactive and will challenge participants to crack codes like real cryptoanalysts.

Designing for Food

Becca Del Monte

If you love to cook or eat food, you know that there are all sorts of gadgets to make it easier—but there are still so many problems to solve! Work with a product engineer to design a new tool for your favorite food, and build a prototype to test out your idea. This workshop looks at where product ideas come from and how they become real.

Designing for Fun: Treasure Grabber

Marie Corkhill

Engineers tackle all sorts of problems and come up with solutions. Often these are practical and help to make our lives healthier and safer, but sometimes they can be silly and just for fun. In this workshop, you will design and build a treasure grabber that can move over a surface and pick up items along the way. Once constructed, you will test it and modify it to prepare for a series of contests.

Introduction to Cybersecurity

Juliette Guarino Berg

Have you ever wondered about the computer science and engineering behind keeping us safe online? In this workshop, you will learn about the different identity authentication methods used on smart devices and the Internet—in other words, when you log in to an account, how does it know that it is definitely YOU? Then, you will begin your journey to becoming a cybersecurity expert by learning how science and math are used to outsmart hackers!”

Light It Up!

Shannon Comer

Our cell phones have a flashlight mode, but have you ever wished that you had earrings that glowed? Or perhaps your dog would benefit from a light-up collar? Maybe you’d like a glow-in-the-dark bookmark. In this workshop we will be exploring the use of LED lights. You are welcome to bring in an object you’d like to add some light to or you can utilize the cardboard and LEDs we supply.

Structural Engineering—Reaching New Heights

Angie Neefus

Every year, buildings around the world get taller and taller—the tallest building under construction will top out at over 3,200 feet (that’s a kilometer!). In this workshop, participants will work together in teams to build the tallest possible structure with a limited amount of resources. We will learn about some of the fundamental structural engineering concepts including load path and member forces, as well as other construction considerations such as collaboration and material efficiency.

Structure: In Support Of Architecture

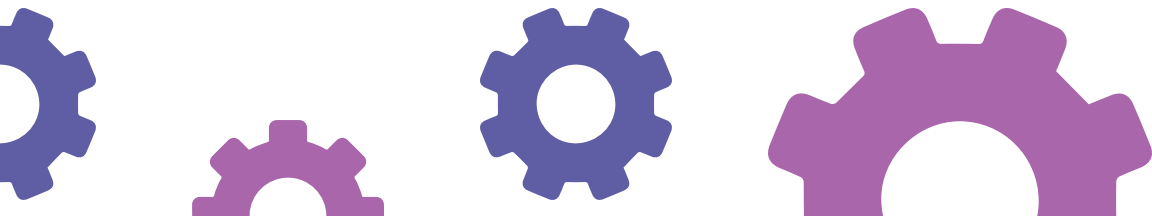
Kelley Surun

Architects are tasked with designing buildings, but engineers are tasked with making them stand up. Structural engineers are constantly presented with challenges of creating structural systems for new and existing buildings. They collaborate with architects to incorporate use and design into their proposed ideas. They work to ensure that buildings stand up to applied forces such as gravity, weight, and weather. In this workshop, we will be designing and constructing simple structures to support an increasing amount of weight. We will be working in teams to brainstorm and collaborate on ideas, build models, and present them for testing. Each group will have time to construct and then reconstruct their models to stand up to the applied forces. Come ready to join forces with your fellow designers, engineers, and builders to learn more about the intersection of structure and architecture.

Working in Teams to Create Solutions

Stacey Lebitz

Engineers have to work in teams in order to find solutions. In this workshop you will work with teams to learn how to approach solving a problem. You will learn about planning vs. prototyping when solving problems. You will also learn concepts to use when programming including thoroughness and debugging. These concepts will be explored through the use of two fun food challenges.



Workshops: Grades 8–12

Build with Data

Nicole Karpf de Castillo

In this workshop participants learn how 3D models are used as a design tool. Using the modeling tool, Rhinoceros, groups of students will be able to evolve the design of a model. They will also compare and contrast the analog and digital design process.

Escape the Code

Gretchen Ziegler

Most video games rely on the principle of conditional branching - the idea that specific actions will occur when certain conditions are met. In this workshop, you and a team will use this principle to design and code your own “Dungeon Escape” console game. Based on the choices that a player makes, they will either successfully escape or be doomed to roam the dungeon of your code...forever.

Code Your Own Choose-Your-Adventure Game

Sonja Lindberg and Alexa Jan

You enter a mysterious room and see two doors before you... Which do you choose? What lies beyond? In this workshop students will get the chance work with a CS undergrad to code up their own mini choose-your-own-adventure game and learn some cool programming concepts in Python.

Creative Coding with p5

Luisa Pereira

In this hands-on workshop, we will introduce the building blocks of computer programming by creating visual compositions using p5.js. As you draw repeating, translucent, mouse-following rectangles, lines, and circles, you will learn about variables, loops, if statements, and interactivity. This workshop is designed especially for beginners. Zero programming experience is expected.

Learn to Think Like a Computer Without a Computer

Sarah Lee

Do you know how computers run so fast? We expect computers to process information as quickly as possible so that we don't have to spend a long time watching progress bars and the spinning wheel that appears when computers are thinking about something! This interactive workshop will teach you different ways computers work faster. Be prepared to get involved and up on your feet!

The Stable Meow-Age Problem

Emily Giurleo

Your local animal shelter is having an adoption event. They need to match hundreds of cats with potential owners, and they could use your help! In this workshop, you will learn about computer algorithms. What are they? How do you write an algorithm? And how can they be used to find a new home for every cat?

Sustainable Cities

Debbie Van Ryn

What would your ideal city of the future look like? How would it impact the earth? What would it need to keep it going? In this workshop, we will design, discuss and redesign our ideas for future cities we want, while also ensuring they are sustainable. You will learn about the resources cities need and how they can obtain them without adversely impacting the earth and its inhabitants.

Train Scene Investigation

Kari Jacobsen

A passenger train collides with a highway truck at 60 mph causing the train to derail and dozens to be injured. You are called in the middle of the night and must go the accident site to piece together what happened. As you arrive on scene with your steel toe boots and hard hat, you must uncover the forensic evidence and stories that turn chaos and tragedy into knowledge and lessons learned.



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