

GELFAND OUTREACH

Rigorous - Educational - STEM Focused - Hands-on - Fun
Summer 2023 Series Classes - Carnegie Mellon University

Scholarship funds are available through gifts from several Carnegie Mellon alumni. Please see the information below to learn more.

Program Overview

The Gelfand Outreach Summer Series is designed to illuminate, encourage, and motivate our future scholars through week-long classes in science, technology, engineering, math, and arts. We value hands-on learning, creating, collaborating, and sharing ideas. We understand the importance of providing opportunities for our young learners in Pittsburgh and southwestern Pennsylvania. Our Summer Series enables local students to explore science, engage in experiments using the scientific method, build prototypes, and so much more.

Instructors

We partner with members of the Carnegie Mellon University community to present these exciting summer courses for kindergartners through ninth grade students. CMU faculty and staff design our Gelfand Outreach classes to spark learning and enthusiasm in the fields of science, technology, engineering, math, and arts. We introduce young learners to their cutting-edge discoveries in research at CMU. Gelfand Outreach teachers are scientists and educators who understand the significance of early STEM education for our youth. For more information about each instructor see the brief biography following the course description.

Application Process

Classes are open to students entering kindergarten through ninth grade. Parents register online and students are assigned to classes in the order in which we receive the registrations. Students may take one or more classes.

Location

Classes take place on Carnegie Mellon University's campus in the Oakland neighborhood in Pittsburgh, PA.

Daily Schedule

9 am – Noon. On Friday, the last day of the program, we plan to invite parents and siblings to attend the class for a presentation. Class will meet at the usual beginning time but will stop early for the presentation. You will have a chance to tour your child's classroom and visit informally with teaching staff. Information will be sent home as this plan depends on Carnegie Mellon's guidelines for safety during the program.

Cost

Classes are \$325/\$200, 9 am-noon daily. All fees must be prepaid. Payment is expected when a child is accepted to guarantee their spot in class.

Financial Aid

Financial Aid Scholarships are available. To qualify you must submit a copy of the first page of your IRS Tax Form 1040 from the past year. We are able to offer scholarships through a gift provided by Carnegie Mellon alumnus Bernard Meisner (S '71) and other donors to support students in Gelfand Outreach classes.

Rigorous

Educational

Hands-on



Dr. Gizelle Sherwood

A SUMMER OF CHEMISTRY GRADES 4-6

June 26th - 30th

Students will experience how chemistry applies to everyday life activities through participation in hands-on activities and demonstrations. They will learn fundamental chemistry concepts such as the three states of matter, chemical bonding, and much more! They will explore various fields of chemistry including but not limited to Cosmetic, Environmental, Polymer, Forensic and Kitchen Chemistry. In this hands-on class students will be working in a lab and participating in lecture demonstrations to explore the amazing world of chemistry. Safety is essential! We will teach them how to work in a safe environment while having fun. To ensure all safety measures are met we ask that all students must wear close-toed shoes and long pants to the class. We will be working in a CMU chemistry lab and will provide lab aprons and safety goggles for additional safety precautions.

Dr. Gizelle A. Sherwood is currently an Associate Teaching Professor at Carnegie Mellon University. She earned her Ph.D. in 2008 where her research focused on the effects of aggregation on the photophysics of oligomers related to MEH-PPV and CN-PPV. She primarily lectures Modern Chemistry, the sophomore year Analytical Chemistry labs as well as a Cosmetic Chemistry course. She is passionate about engaging students in discussion of the application of Chemistry to everyday life and has been involved in several outreach programs working with both the Boy Scouts of America and the Leonard Gelfand Center.



Kathie Stilinovich

FORM AND FUNCTION GRADES K-2

July 10th - 14th OR July 17th - 21st

Discover how things are made and how they function! We will discuss both man-made materials and objects in nature. We will talk about the design process, build as engineers, test our builds, and revise our ideas. Students will keep a journal of ideas and designs just like real engineers. Each day there will be different stem building challenges from building a marble maze, boat, bridge and much more! Sign up if you like to build!

Kathie Stilinovich spent her childhood living in Brussels, Belgium and living up and down the California coast. She graduated from Pacific Oaks College in Pasadena with a Bachelor of Arts in Early Childhood Education and Development. She has over 30 years of experience working in the field as a teacher. She is currently a kindergarten teacher at CMU's Children's School. Before moving to Pittsburgh, Kathie and her family lived in Boise, Idaho. They loved the small city to raise their two daughters. Once their girls left to pursue their dreams in other cities, Kathie and her husband decided they needed a new adventure on the other coast. They love Pittsburgh and all it has to offer. Kathie and her husband love to bike ride, walk their dogs, get coffee, and explore Pittsburgh.





Mimi Wertheimer

JUNK BOTS GRADES K-2

June 26th - 30th

What are robots and what makes robots work? Can robots really take over the world? In this class, we'll build different types of robots and learn about batteries, LED, circuits, electricity, and more. We'll explore how engineers build machines and make modifications to our robots to really make them buzz, rattle, and move! Draw and design your own junkbot, bringing it to life with household items! Have fun with science and technology while learning to think like a robotics engineer. The sky's the limit!

Miriam "Mimi" Wertheimer works as the Director of Student Instructor Development and K-12 Community Partnership at The Leonard Gelfand Center for Service Learning and Outreach. In this capacity she collaborates with CMU faculty, staff, and students to share their research, energy, and expertise in the regional education community. Additionally, she works as Advisor for the Student College (StuCo), Act 48 facilitator for Teacher Professional Development at CMU, and Coordinator of the LGC Tutoring program. She has a Master of Arts in Teaching from Chatham University (K-6). Prior to joining the CMU community Mimi worked in public, private, and charter schools, teaching everything from Early Childhood Education to Middle School English Language Arts.



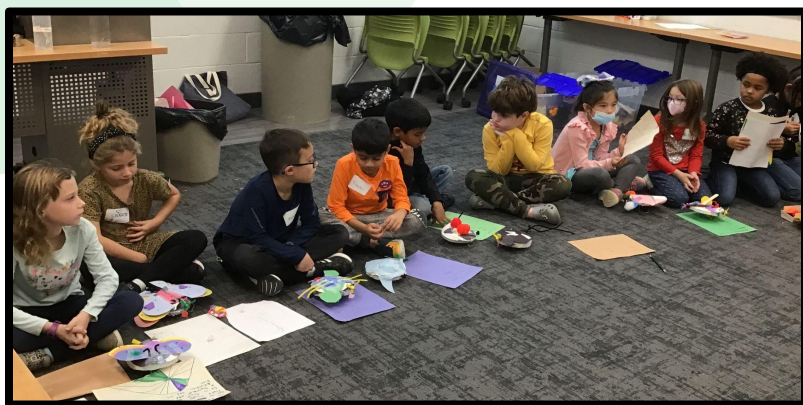
B. Reeja Jayan

SPECIAL! 3 DAY CLASS FOR STUDENTS IN GRADES 7-9 **LEARN ENGINEERING USING MINECRAFT** GRADES 7-9

June 28th - 30th

THIS 3 DAY CLASS IS FOR STUDENTS WHO ARE FAMILIAR WITH MINECRAFT AND HAVE A MINECRAFT ID. THE TIME WILL NOT BE SPENT TEACHING THE GAME BUT WILL FOCUS ON USING MINECRAFT TO LEARN ENGINEERING. Learn how real engineers build and launch rockets in Minecraft. What about building a Robot in Minecraft? Imagine the strongest material in the universe. Can Minecraft teach you how to build it? Interested in video games? Do you play Monopoly? Learn how to make your own fun and educational game in Minecraft. Do you collect stones? Did you know Minecraft can build and help you learn about precious stones like diamonds? Do you want to become an Engineer @ CMU? Come learn how to do this while playing Minecraft!

B. Reeja Jayan is an Associate Professor in Mechanical Engineering and Dean's Early Career Fellow at Carnegie Mellon University (CMU). She also holds courtesy appointments in Materials Science and Engineering, Chemical Engineering, and Electrical & Computer Engineering departments. She leads the Adaptive Experimentation Thrust at the Air Force Research Laboratory (AFRL) Center of Excellence at CMU. Her multidisciplinary lab explores ways by which electromagnetic fields can synthesize materials hitherto unavailable to conventional synthesis routes. These low temperature processed materials directly grow on flexible, lightweight substrates, enabling structurally integrated energy and sensing. Dr. Jayan is a strong believer in game-based learning methodologies that she uses extensively in her undergraduate and graduate engineering courses. Dr. Jayan is a recipient of the 2018 National Science Foundation (NSF) CAREER Award, 2017 Army Research Office (ARO) Young Investigator Award, 2016 Air Force Office of Scientific Research (AFOSR) Young Investigator Award, CMU Engineering Dean's Early Career Fellowship, the George Tallman Ladd Research Award, the Donald L. and Rhonda Struminger Faculty Fellowship, the Berkman Faculty Development Fund, and Pittsburgh Magazine's 40 Under 40 Award. Her research is also funded by the Department of Energy (DOE), Defense Advanced Research Project Agency (DARPA), and by private sponsors.



RESEARCH @ CMU GRADES 6-8

July 17th - 21st

Students will be introduced to faculty members and graduate students who conduct cutting-edge science, computer science, and engineering research at Carnegie Mellon. Through discussions, tours, and hands-on activities participants will learn about studies that are designed to solve societal problems, application of science and mathematics content that they are learning in school, and about pathways to careers in STEM fields.



Dr. Ioannis Gkioulekas

Dr. Ioannis Gkioulekas is an assistant professor at the Robotics Institute of Carnegie Mellon University, where he has been since 2017. Before that, he was a PhD student at Harvard University, and even before that an undergrad student at the National Technical University of Athens, Greece. He works on computational imaging, which can be broadly described as coming up with systems that combine imaging (optics, sensors, illumination) and computation (physics-based modeling and rendering, inverse algorithms, learning) in innovative, unexpected, and meaningful ways. Particular problems he is interested in, include imaging around walls or through skin, material acquisition, differentiable rendering, and the integration of physics-based simulation, learning, and optics. He is also more broadly interested in computer vision and computer graphics. For his work he has received the Best Paper Award at CVPR 2019, a Sloan Research Fellowship, and an NSF CAREER Award.



Dr. Noelia Grande Gutiérrez

Dr. Noelia Grande Gutiérrez is an Assistant Professor of Mechanical Engineering at Carnegie Mellon University. Her research lies at the intersection of computational engineering and cardiovascular medicine. Her research group, the Biomedical Flows Simulations & Multiscale Modeling (BioSiMM) Lab, develops and applies computational methods to analyze blood flow in a patient-specific way. These models aim to provide data that would help understand cardiovascular disease and contribute to more personalized patient care. Before joining Carnegie Mellon University, she was a postdoctoral researcher at the University of Pennsylvania. She graduated with a Ph.D. in Mechanical Engineering from Stanford University in 2019. She obtained an M.S. in Engineering Sciences from the University of California, San Diego, an M.S. in Biomedical Engineering from the University of Barcelona, and her B.S. in Aerospace Engineering from the Technical University of Madrid.



Dr. Amanda Krause

Dr. Amanda Krause is an assistant professor in the Materials Science and Engineering Department at Carnegie Mellon University. Before joining CMU, she was an assistant professor of MSE at the University of Florida from 2019 to 2022. She received her B.S. and M.S. in Materials Science and Engineering from Virginia Tech, and her Ph.D. in Materials Science from Brown University. Her research focus is engineering ceramic interfaces and microstructures for improving properties.



Dr. Linda Peteanu

Dr. Linda Peteanu has been a teacher and researcher in the Department of Chemistry at Carnegie Mellon University for almost 30 years. She has taught several laboratory and lecture courses in physical and analytical chemistry and has hosted numerous undergraduate researchers in her laboratory. In her research she uses microscopy-based techniques to characterize molecules used in photovoltaics and light emitting diodes. She has been actively engaged in science outreach to K-12 students and to the general public through the Phipps Conservatory "Meet a Scientist" program. She is passionate about engaging students in science and research projects at a young age.

Women in Biomedical Engineering (BME): members will also present during the week featuring 3D printing activities.

SCIENCE AND ENGINEERING SAMPLER GRADES 3-5

July 10th - 14th

Students will visit a variety of labs and spaces at Carnegie Mellon to learn about cutting edge research. Faculty, graduate students and staff in science, engineering and computer science will share information, demonstrations and hands-on activities to help Sampler participants develop a broader understanding of what it means to work as a scientist or engineer. Students will summarize the information that they have learned and make connections between the research activities and the content they are learning in school.



Alex Gourley

Alex Gourley is a PhD student in mechanical engineering working on additive manufacturing at CMU. He was born and raised in Iredell County, North Carolina. Alex went to Duke University and double majored in mechanical engineering and chemistry. While at Duke he played on the football team as a center for the offensive line. He was a member of the Duke Motorsports team and worked one summer for a NASCAR team. Outside of his studies, Alex enjoys playing video games, music, and woodworking.



Dr. Oliver Kroemer

Dr. Oliver Kroemer is an assistant professor at the CMU Robotics Institute. His research interests are in machine learning and robotics, with a focus on learning for grasping and manipulation. Before joining CMU, Oliver was a postdoctoral researcher at the University of Southern California. He received his Master's and Bachelor's degrees in engineering from the University of Cambridge in 2008, and he defended his Ph.D. thesis at the Technische Universitaet Darmstadt in 2014.



Dr. Sneha Narra

Dr. Sneha Narra received a Master of Science in computational mechanics, and a Master of Science and doctorate in mechanical engineering from Carnegie Mellon University (CMU). After receiving her doctorate, she worked as a postdoctoral research associate at the Next Manufacturing Center at CMU. She then served as an assistant professor in the materials and manufacturing program at Worcester Polytechnic Institute, before joining CMU as an assistant professor in fall of 2021. Dr. Narra's additive manufacturing process design research lies at the intersection of process modeling including numerical, analytical, and semi-analytical methods, processing experiments, materials characterization, and data-driven analysis. As an instructor, Narra's goal is to help her students learn effectively in a comfortable environment and spark interest in them to explore outside the classroom. To meet this goal, she adopts a teaching philosophy that builds on creating an inclusive learning environment, active participation from students, learning through real-world examples and demonstrations, and assessment techniques optimized for long-term retention and exploration. Outside the classroom, Narra is passionate about mentoring women in engineering. Specifically, she participates in outreach activities, educates students about professional development opportunities, and provides opportunities to conduct research in interdisciplinary topics.



Dr. Jerry Wang

Dr. Jerry Wang is an Assistant Professor of Civil and Environmental Engineering, and Chemical Engineering (by courtesy) and Mechanical Engineering (by courtesy), at Carnegie Mellon University. He received his BS in 2013 from Yale University (Mechanical Engineering, Mathematics and Physics), SM in 2015 from MIT (Mechanical Engineering), and PhD in 2019 from MIT (Mechanical Engineering and Computation). He performed postdoctoral research at MIT in chemical Engineering. He was a member of the inaugural cohort of the Provost's Inclusive Teaching Fellowship at CMU, was the 2020 recipient of the Frederick A. Howes Scholar Award in Computational Science and the 2016 MIT Graduate Teaching Award in the School of Engineering and is an alumnus of the Department of Energy Computational Science Graduate Fellowship and the Tau Beta Pi Graduate Fellowship. Wang directs the Mechanics of Materials via Molecular and Multiscale Methods Laboratory (M5 Lab) at CMU, which focuses on computational micro- and nanoscale mechanics of fluids, soft matter, and active matter, with applications in Civil and Environmental Engineering across the nexus of water, energy, sustainable materials, and urban livability.



Craig Weeks

Craig Weeks is a PhD student in mechanical engineering working on computational fluid dynamics modeling of metal additive manufacturing processes. He is from Portland, Oregon and completed his undergraduate studies at Oregon State University, where he majored in mechanical engineering with a double minor in aerospace engineering and computer science. Craig was part of the hybrid and liquid-engine rocket teams at Oregon State, and interned at the NASA Glenn Research Center in Cleveland, OH working on electric aviation. In his free time, Craig enjoys trail running, playing piano and guitar, and discovering hikes in and around Pittsburgh.

GELFAND OUTREACH

Summer 2023 Series Classes

One week classes are \$325.00 each, the 3 day class is \$200.00, all classes are conducted from 9:00 AM to noon at Carnegie Mellon University.

Class Name	Dates	Grades	Brief Description
Junk-Bots	June 26 - 30	K-2	What are robots and what makes robots work? Explore how engineers build machines and make modifications to robots. Draw and design your own junkbot, bringing it to life with household items!
A Summer of Chemistry	June 26 - 30	4-6	Learn fundamental chemistry concepts such as the three states of matter, chemical bonding, and much more! Explore various fields of chemistry including but not limited to Cosmetic, Environmental, Polymer, Forensic and Kitchen Chemistry.
Learn Engineering Using Minecraft	June 28 - 30	7-9	Learn how real engineers build and launch rockets in Minecraft. What about building a Robot in Minecraft? Imagine the strongest material in the universe. Can Minecraft teach you how to build it? Interested in video games? Do you play Monopoly? Do you want to become an Engineer @ CMU? Come learn how to do this while playing Minecraft! COST: \$200
Form and Function	July 10-14 OR July 17-21	K-2	Discover how things are made and how they function! Learn about the design process, build as engineers, test your builds, and revise your ideas. This class will be offered two different weeks. Pick the week that best fits your schedule.
Science & Engineering Summer Sampler	July 10-14	3-5	Visit labs and areas at CMU to learn about cutting edge research! Faculty, graduate students and staff in science, engineering and computer science will share information, demonstrations and hands-on activities.
Research @ CMU	July 17-21	6-8	Students will be introduced to faculty members and graduate students who conduct research at Carnegie Mellon. Discuss, tour, and participate in hands-on activities.

To apply for scholarship funds, please submit a copy of the first page of your IRS 1040 tax form from last year.

