2019 Summer STEM Exploration Camps!

FIRST® & MINDSTORMS Robotics, 3D Printing, STEAM Fashion, Virtual Reality, Inventing, Game Design and more for ages 6 to 18 give students' opportunities to learn interesting topics not typically offered in school. These camps employ a hands-on approach introducing STEM concepts, linking projects and processes to real-world, professional applications, in addition to visits from professionals in related fields. Students expand their career horizons as they are introduced to the inspiring faculty and facilities of the beautiful SUNY Polytechnic Institute campus in Utica, NY.

An exciting summer of STEM EXPLORATION is ahead!

APPLY EARLY- camps fill quickly! https://sunypoly.edu/k12-outreach/stem-camps

It's not just a camp - it's an education - and a pathway to a possible career!

Need-based scholarships are available by indicating on the online registration form linked above that your family qualifies for free or reduced lunch at school.

Week 1:   FULL! (Week 2 JUNIOR Camp still has a few spaces) Intro to *FIRST* LEGO League ~JUNIOR~ Robotics (FLL JR)

Mon- Thurs, **July 8-11, 2019**   Half Day: 9am – 12pm   **Ages 6 - 8** (K-3rd grades) $125

Instructors: Kathy Fava, Educator; John Fava, Mechanical Engineering major at Rensselaer Polytechnic Institute

6-8 year olds will learn basic engineering, building and programming skills using LEGO® Education WeDo sets, ultimately applying these newly learned concepts to make their designs come to life! They will record their journey and design process in an engineering notebook along the way. Camp will focus on celebrating discovery, problem solving, and teamwork.

Week 1: STEAM Fashion Week

Mon- Thurs, **July 8-11, 2019**   Half Day: 9am – 12pm   Ages 12--18 (6th-12th grades) $125

Instructors: Justin Eberley, Holland Patent Middle School Science Teacher; Tina Betz, Professional Artist/Sculptor

Ready to create your own fashion rules? During our STEAM Fashion Week you will complete various design challenges aimed to expand your creativity. Sketch designs, learn patterning and sewing basics by participating in unconventional challenges using fun and amazing materials. You'll be designing your own textile and creating fashion accessories to complete a "look" designed and created head-to-toe by YOU!

Week 1: Young Inventors

Mon- Thurs, **July 8-11, 2019**   Half Day: 1pm – 4pm   Ages 9-14 (4th -9th grades) $125

Instructors: Justin Eberley, Holland Patent Middle School Science Teacher;

Owen Buckingham, Robotics Engineering major at Worcester Polytechnic Institute

Have you ever wanted to invent something? This workshop will show you how to create your own fantastic invention. Students will create 3 dimensional models/prototypes during the workshop and at home. They will present their invention to enthusiastic and knowledgeable SUNY Poly "Sharks" (like the TV show, *Shark Tank*) and the best invention will be recognized with a certificate.

Week 2: Intro to *FIRST* LEGO League ~JUNIOR~ Robotics (FLL JR)   (repeat of previous FLL JR Camp)

Mon- Thurs, **July 15-18, 2019**   Half Day: 9am – 12pm   **Ages 6 - 8** (K-3rd grades) $125

Instructors: Kathy Fava, Educator; John Fava, Mechanical Engineering major at Rensselaer Polytechnic Institute

6-8 year olds will learn basic engineering, building and programming skills using LEGO® Education WeDo sets, ultimately applying these newly learned concepts to make their designs come to life! They will record their journey and design process in an engineering notebook along the way. Camp will focus on celebrating discovery, problem solving, and teamwork.

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100 Seymour Road Utica, NY 13502

Week 2: Mystery and Crime Solvers!

Mon- Thurs, **July 15-18 , 2019**   Full Day: 9am – 3pm   Ages 12 -18 (6th-12th grades) $225

Justin Eberley, Holland Patent Middle School Science Teacher

Students will be Crime Scene Investigators at a crime scene we will stage. Learn how law enforcement solves crimes and meet real professionals in these fields. We will participate in an Escape Room activity! You'll use tools and techniques to collect evidence. Learn how a crime is solved and how Math, Biology, Chemistry & Physics play a major role in any inv kiestigation! We will learn about CSI Careers, Crime Scene analysis, Blood Analysis, Fiber and Hair Analysis, Fingerprint Analysis, DNA Analysis, Odontology (teeth), Entomology (bugs), Paleontology (bones), Facial Recognition, Chromatography techniques, & more! ---- Will you be able to solve the perfect crime?

Week 3: *FIRST* Tech Challenge (FTC) Robotics & Engineering

Mon- Thurs, **July 22-25 , 2019**   Full Day: 9am – 3pm   Ages 13 -18 (7th-12th grades) $250

Instructors: Andrew Burger, Coach of FTC Team Geared Up and Software Engineer;

Owen Buckingham, Robotics Engineering major at Worcester Polytechnic Institute

with teaching assistance from local FIRST Tech Challenge team members

Learn real-world robotics and engineering principles, and computer programming in a fun and interactive way! FIRST Tech Challenge robotics challenges students to use critical thinking skills to create robots which will accomplish specific tasks in fun, high action competitions between 4 robots. Robots will be built of metal parts, hardware, electronics, multiple motors, and innovative customized components students will create. Students will build their robots to be driven using game controllers and will also program them to run autonomously. Explore the exciting worlds of design, structure, construction, mechanical and electrical engineering, Java programming, creative problem solving and teamwork!

Week 3: Digital Farm to Table: Use Virtual Reality and Real Time to Cook Bits and Bytes

Mon- Thurs, **July 22-25 , 2019**   Full Day: 9am – 3pm   Ages 9 -15 (4th-9th grades) $225

Instructors: Kristina Boylan, SUNY Poly Associate Professor in History;

Michelle Sammon, SUNY Poly Community Engagement Coordinator and Lecturer in Interactive Media and Game Design

Hungry for fun? Have an appetite to travel? Create a food and travel digital journal using the latest virtual reality and interactive technology. We'll travel the world in SUNY Poly's state of the art Virtual Reality Lab to learn about cultures and cuisines all around the globe. We'll use time-lapse photography to document the marvels of earth science, biology, chemistry, and community knowledge as we grow edible plants and bake our own bread, sharing bites at our camp's end celebration and bytes through digital communications!

Week 3 AND 4 -------- 3D PRINTER ! Build it, use it, TAKE IT HOME!
Made possible by generous support from AIR FORCE STEM

8 Days: Mon- Thurs, **July 22-July 25 AND July 29-Aug 1, 2019**

Full Days: 9am - 3pm   Ages 13-18 (7th-12th grades) $425

Instructors: Nick LeJeune, SUNY Poly Assistant Professor of Interactive Media and Game Design, and SUNY Poly students

Students will assemble their very own 3D Printer kit that this camp will provide to take home and keep! Learn how to use and maintain the 3D printer each camper will build in camp. Learn to design in 3 dimensions by using Blender, an open source 3D modeling software, as well as Autodesk Fusion 360, a professional commercial-grade software. Students will learn the skills and resources to continue designing and printing 3D models. The specialized Maker Labs in the Center for Advanced Global Manufacturing (CGAM) at SUNY Poly will be the classroom where all the magic will happen. 3D Printing professionals with careers in the field will be engaged throughout the camp as well. Campers will also be exposed to the Interactive Media and Game Design (IMGD) Labs and degree program at SUNY Poly.

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Week 4: Intro to *FIRST* LEGO League (FLL) Robotics

Mon- Thurs, **July 29-Aug 1, 2019**   Half Day: 9am – 12pm   Ages 9-12 (4th-8th grades) $125

Instructor: Nick Horth, 5th grade Teacher, Unadilla Schools; Owen Buckingham

Apply science, engineering, and math concepts, plus a big dose of imagination, to develop solutions to real-world challenges. Campers will design, build, and program LEGO MINDSTORMS®-based robots to perform autonomous "missions" on a playing field. Along the way, they will develop critical thinking, team-building, and presentation skills.

Week 5: Intro to *FIRST* LEGO League (FLL) Robotics (repeat of previous FLL Robotics Camp)

Mon- Thurs, **Aug 5-8, 2019**   Half Day: 9am – 12pm   Ages 9-12 (4th-8th grades) $125

Instructor: Nick Horth, 5th grade Teacher, Unadilla Schools; Owen Buckingham, Robotics Engineering major

Apply science, engineering, and math concepts, plus a big dose of imagination, to develop solutions to real-world challenges. Campers will design, build, and program LEGO MINDSTORMS®-based robots to perform autonomous "missions" on a playing field. Along the way, they will develop critical thinking, team-building, and presentation skills.

Week 5: 3D Video Game Animation Camp

Mon- Thurs, **Aug 5-8, 2019**   Half Day: 9am – 12pm   Ages 14-18 (8th-12th grades) $125

Instructors: Ibrahim Yucel, SUNY Poly Assistant Professor, Communication & Information Design; Nick LeJeune, SUNY Poly Assistant Professor of Interactive Media and Game Design

Students will receive instruction in the use of the Source Filmmaker video editing software to create exciting Pixar-like animations! A tour of the state of the art Interactive Media & Game Design (IMGD) facilities at SUNY Polytechnic Institute will give the students a glimpse into a possible future in this field and others such as Game Development.

Week 6: Build Your Own Virtual World (No Previous Coding Required)

Mon- Thurs, Aug 12-16, 2019   Full Day: 9am – 3pm   Ages 13--18 (7th-12th grades) $225

Instructor: Mark Baldridge, SUNY Poly Lecturer in Interactive Media and Game Design
and Owen Buckingham, Robotics Engineering major at Worcester Polytechnic Institute

Want to create and play your own video game in Virtual Reality? Google Cardboard headsets you'll assemble and take home to keep, are your window into a 3D world you'll create and code, with a little help from your friends... Choosing from a library of 3D objects, populate your world with prizes players collect for points. Music, sound effects, art and design are all up to you! Animation and interactivity add life to your designs and a ton of fun for your players. You'll be able to share it with friends to play it on a variety of devices, and you can continue to add to it and play with it for years to come because YOU OWN IT!   Best if you bring your own smartphone, but not necessary.

Week 6: Wacky Machines and Contraptions!

Mon- Thurs, **Aug 12-16, 2019**   Half Day: 9am – 12pm   Ages 13--18 (8th-12th grades) $125

John Fava, Mechanical Engineering major at Rensselaer Polytechnic Institute

Use LEGO Technics and EV3 Robotics sets as a platform to create wacky gizmos to move balls throughout self designed and built contraptions solving challenges of speed, power, gearing and torque. Work with sensors as tools to detect position and color. Use service motors to push, pull, launch, roll the balls to their destination. Develop your own solutions to the engineering design problems at hand!

APPLY EARLY - camps fill quickly! **Online Registration and payment: https://sunypoly.edu/summer/stemcamps**
Application deadlines are 3 weeks before each camp begins.

All materials are included in the tuition fees. Need-based scholarships are available. To qualify, please indicate on the online registration form linked above that your family qualifies for free or reduced lunch at school
For additional camp information contact: stemoutreach@sunypoly.edu

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Other exciting Pre-Collegiate/*FIRST* programming from SUNY Poly!

***FIRST* Robotics at SUNY Poly**

Cheer on our youth at the events!
www.sunypoly.edu/first/events

We can't do it without YOU!
Volunteer & Sponsorship opportunities!
www.sunypoly.edu/first/getinvolved

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