

SFU APPLIED SCIENCES OUTREACH & SCIENCE ALIVE FREE YOUTH PROGRAMS

STEM SPEAKER SERIES



STEM SPEAKER SERIES

The STEM Speaker Series provides high school students with the opportunity to learn about STEM topics and careers through the expertise and perspectives of university students, faculty members, and working professionals in STEM fields. See presentation topics for September to December 2024 below. You can also check out past and future events [here](#).

Nanotechnology in Electronics

Sep 21, 2024 | 1:00 pm - 2:00 pm | Online | Grade 8-12

Guest Speaker: *Dr. Michael Adachi* is an Associate Professor of the School of Engineering Science, Simon Fraser University, where he leads a team making new sensors for the detection of fluid and vapor biomarkers as well as optoelectronics devices using 2D materials. He received his doctorate in Electrical and Computer Engineering from the University of Waterloo in 2012 and was a postdoctoral researcher in the Dept. of Electrical and Computer Engineering at the University of Toronto from 2012-2015. He joined GlobalFoundries in 2015 where he was involved in the development of 7 nm and 14 nm CMOS technologies and joined SFU in 2016. He serves as the Chair of the IEEE Electron Device Society, Vancouver Chapter where he organizes technical seminars by visiting speakers and teaches courses about microelectronics and sensors.

Presentation Description: Electronic devices like smartphones and tablets are built using tiny electronic components that control the flow of electric current, and convert energy from one form to another. To make them work faster and consume less power, these components have been scaled down to smaller and smaller sizes over time, reaching a size of ~10 nanometers today or about 10000 times smaller than a strand of human hair. At these small sizes, materials begin to show interesting new behavior not observed at larger scales, like emission of bright light, converting invisible light to electricity, and vanishing electrical resistance. This talk will introduce nanomaterials, describe what they are, and discuss how their unique behavior can lead to new devices in a variety of applications such as healthcare, environmental monitoring, and clean energy generation.

[REGISTER HERE](#)

Forensic DNA Analysis: Behind the Laboratory Door

Oct 5, 2024 | 1:00 pm - 2:00 pm | Online | Grade 8-12

Guest Speaker: *Jason Moore* is a faculty member at BCIT who works in the accredited BCIT Forensic DNA Laboratory. In this role Jason has been extensively involved in forensic DNA testing, quality assurance, research, and curriculum development. Jason also teaches forensics DNA courses at BCIT and is the Program Coordinator for the joint UBC-BCIT Combined Honours in Biochemistry and Forensic Science. Jason completed his BSc in Biochemistry from UBC, an Advanced Certificate in Forensic Science at BCIT, and Master's degree from SFU while conducting his thesis in the field of ancient DNA.

Presentation Description: In this presentation, Jason will discuss his journey from university to the field of forensic science and his various roles at BCIT. He will also discuss some of the key concepts in forensic science and forensic DNA. Finally, he will cover some interesting case studies he worked on in the BCIT Forensic DNA laboratory.

[REGISTER HERE](#)

Curiosity, Rotting Sheep Heads and a Career in Forensic Firearms Examination

Nov 23, 2024 | 1:00 pm - 2:00 pm | Online | Grade 8-12

Guest Speaker: *Daisy Wong* is the Laboratory Manager for the BC Provincial Forensic Firearms Laboratory, which opened operations in January 2021. Before undertaking her current role, she spent 17 years as a Forensic Firearms Specialist for the RCMP National Forensic Laboratory and has conducted unpublished and published research in her chosen discipline. Daisy also chairs a national Firearms Analyst working group and provides oversight for a newly created BC Firearms Analyst program.

Presentation Description: As the Lab Manager of a newly established BC Provincial Forensic Firearms laboratory (BCPFFL), I will be detailing my journey from SFU undergraduate to my current role. As part of this, I will cover my time working as an Excavation Technician at the ‘Pickton Pig Farm’ serial murder investigation and a Forensic Firearms and Toolmark Examiner with the RCMP. I will also speak about the mandate and vision of the BCPFFL, roles and duties of employees working at this lab, research undertaken and what students will need to know if interested in pursuing a career in the forensic firearms field.

[REGISTER HERE](#)

Discovering the unseen Universe with gravitational waves

Dec 7, 2024 | 1:00 pm - 2:00 pm | Online | Grade 8-12

Guest Speaker: *Dr. Jess McIver* is an Associate Professor in the Department of Physics and Astronomy at the University of British Columbia and a Canada Research Chair in Gravitational Wave Astrophysics. She leads the UBC gravitational-wave astrophysics group, the UBC LIGO group, and the UBC-TRIUMF LISA group. Jess currently serves as the Deputy Spokesperson of the LIGO Scientific Collaboration.

Presentation Description: Gravitational waves, tiny ripples in the fabric of spacetime, allow us to observe distant objects we can't usually see with telescopes, including black hole collisions and the interior of nearby exploding stars. These waves pass through the Earth day or night, through heavy cloud cover, and across billions of light years of galaxies and dust, allowing us to make measurements anytime our detectors are operational. In this talk, we'll explore where gravitational waves come from, how we can measure them, and what they can teach us about the Universe that we can't learn with light alone.

[REGISTER HERE](#)

HOUR ++ OF CODE



HOUR++ OF CODE

The Hour Plus Plus of Code event features various one-off workshops for school-age students to learn how to code and implement popular digital tools. Between September to November 2024, we will be offering multiple online workshops on various topics ranging from user interface and experience design, programming logic foundations (in Python and Java), mobile app development, and game development. Please review the overview and requirements document for each workshop before registering. Not sure if coding is for you? Join us for these workshops and let us change your mind!

Java Basics

Sep 14, 2024 | 10:00 am - 12:00 pm | Grade 9-12

The Java basics workshop is open to Grade 9-12 students who are interested in learning the basics of the Java programming language and best practices in programming. This workshop will cover Java syntax, data types, variables, and conditionals and will use [Google Colaboratory](#). Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

Special Topics: AI in Cybersecurity

Sep 21, 2024 | 10:00 am - 12:00 pm | Grade 9-12

The Artificial Intelligence (AI) in Cybersecurity workshop is open to Grade 9-12 students who are interested in AI models and how they can be trained to combat digital attacks, such as phishing. This workshop will require a [Replit](#) account and some programming experience in Python. Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

Python Basics

Oct 5, 2024 | 10:00 am - 12:00 pm | Grade 8-12

The Python basics workshop is open to Grade 8-12 students who are interested in learning the basics of the Python programming language and best practices in programming. This workshop will cover Python syntax, variables, conditionals, and loops. It is beginner friendly and will use [Google Colaboratory](#). Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

Turtle Graphics in Python

Oct 19, 2024 | 10:00 am - 12:00 pm | Grade 8-12

The Turtle Graphics in Python workshop is open to Grade 8-12 students. This workshop will introduce students to coding concepts through creating pictures and shapes on a virtual canvas using the Python turtle library. It is a fun and interactive way to learn programming for beginners. This workshop will use [Google Colaboratory](#). Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

Intro to HTML/CSS

Oct 26, 2024 | 10:00 am - 12:00 pm | Grade 8-12

The Intro to HTML & CSS workshop is open to Grade 8-12 students who are interested in learning the basics of HTML and CSS and how to use them for making web pages. This workshop is beginner-friendly and will use [CodePen](#). Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

Intro to JavaScript

Nov 2, 2024 | 10:00 am - 12:00 pm | Grade 8-12

The Intro to JavaScript workshop is open to Grade 8-12 students who are interested in learning the basics of the JavaScript programming language and how it is used to add interactivity to a website. This workshop requires some experience in HTML/CSS and will use [CodePen](#). Don't forget to review the [workshop overview and requirements](#) before registering!

[REGISTER HERE](#)

INTRO TO COMPUTING

Python Version

INTRO TO COMPUTING IN PYTHON

Oct 5-Nov 30, 2024 | 10:00 am - 11:30 am | Grade 8-12

Introduction to Computing in Python is a series of seven online workshops that run from 10-11:30 am every Saturday between Oct 5-Nov 30, 2024 (except for the Oct 12 and Nov 9 long weekends). In this workshop series, Grade 8-12 students will learn what computer science and computer programming is about. They will also use fundamental programming concepts such as variables, data types, comparison and logical operators, control structures, and functions to create useful programs. This workshop series will be taught using the Python programming language. There will be a show-and-tell session during the final workshop, in which students will present their work to their peers and celebrate their accomplishments. All workshops will be offered virtually via Zoom.

[REGISTER HERE](#)



[SUBSCRIBE TO OUR OUTREACH COMMUNITY PROGRAMS NEWSLETTER](#)

Interested in hearing more about Science ALIVE programs throughout the year? Sign-up for our monthly newsletter which lists our current free and paid youth programs in a community near you as well as teacher professional development opportunities and resources.

[APPLY TO WORK AT SCIENCE ALIVE](#)

[APPLY TO VOLUNTEER AT SCIENCE ALIVE](#)

Interested in working or volunteering with Science ALIVE? Check out our application pages for more information.

Faculty of Applied Sciences | Outreach and Diversity
Simon Fraser University | 10285 University Dr, Surrey, BC V3T 0N1
Email: fas_outreach@sfu.ca | <https://www.sfu.ca/fas/outreach>

"SD 36 receives a fee to facilitate the distribution of advertising materials from some community organizations and businesses. SD 36 does not accept responsibility or liability for the contents of any advertising and does not endorse an advertiser's services, goods or programs."