

University of Calgary Session Descriptions 2018

IMPORTANT SAFETY NOTE: For the safety of participants in ALL sessions, *Explore STEM* and the University of Calgary will be strictly enforcing the following:

- participants must wear long pants;
- wear closed-footed shoes (no flip flops or sandals);
- tie back long hair;
- wear a lab coat and safety glasses (if provided) and;
- NO eating or drinking in the labs.

Failure to comply will result in students not being permitted to participate.

Engineering Design Challenge

Work in teams to solve an engineering problem by participating in a hands-on building activity. Learn about the engineering design process and about prominent women in engineering history.

Electronic Gizmos

Here it is! An exciting hands-on opportunity to learn the skills you need to construct (and take home with you) your very own “electronic gizmo.” You will assemble a simple circuit board with electronic components and even use a soldering iron.

Exploring Human Movement

Use Kinetic Microsoft sensor technology to explore human movement and discover how technology is used in fields like kinesiology. Participants will be able to explore space and their movements will be displayed on a smart screen in real time and in various formats including infrared, 3D skeleton depth, grey scale and more.

Oil Spill Clean-up Challenge

This session aims to teach students about the technologies that are currently being used to clean up and address oil spills. The Deepwater Horizon disaster is used as a real world example, and students are asked to use three different common methods to remove oil from a cup of water and discuss the effectiveness of the different options.

Paper Prototyping Interactive Software

This workshop introduces participants to paper prototyping, a common approach to designing user interfaces. Paper prototypes are a technique for creating user interfaces out of basic paper materials. Participants in this workshop will learn how to make paper prototypes for basic mobile phone interfaces in a fun hands-on activity.

Reservoir Simulation Lab

The Collaboration Centre is an immersive 3D visualization space. You can go inside a projected 3D image, you can try the oculus rift headset and be immersed in activities viewing in 3D through the headset. Each participant will have the opportunity to try the 3D environment and to consider the wide range of applications for these cool tools.

Robotics

Robots can help us with many tasks, from vacuuming our floors to helping teach children social skills. In this workshop, participants will learn how to program Lego Mindstorms robots to accomplish a variety of challenges including detecting objects and responding to sound and light.

The Nature of Light

Light is an important part of how we communicate. We use it to transmit our phone calls, text messages, photos, and to listen to the radio. But what is light? It does not have mass, so it is definitely not "matter". Beyond that, scientists aren't sure. Some think it is a wave, some think it is an "energy particle". Explore what light is (and isn't), and have some fun with lasers, lenses, mirrors and more!

Virtual Reality

It is not every day that you are given the opportunity to explore Mt. Everest or the Great Wall of China. Google Expedition allows our instructors to take students on the adventure of a lifetime using virtual reality. Join us as we travel around the world to experience learning in a way never seen before!