

# Youth Outreach Guidance Document for Early Researcher Awards (2017)

## General Information

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In the Early Researcher Awards (ERA) application, applicants have the opportunity to describe the Youth Outreach activities they plan to participate in.

Applicants are required to undertake annual youth outreach activities and may use up to 1% (equivalent to \$1000) of the funding provided by the Ministry. Funding provided by the institution and/or partner organization may not be used for youth outreach. Activities associated with youth outreach are to be undertaken during each year of the project.

Researchers can:

- Engage youth audiences, as well as educators and the general public, both on-campus and in the community;
- Expand current outreach activities, or start new initiatives that are free to youth and the public;
- Partner with other researchers to undertake a broader outreach initiative;
- Participate in outreach activities operated by other organizations, such as science awareness organizations provided no fee is charged; and
- Involve undergraduate and graduate students in outreach program design and delivery.

Outreach activities can also include such initiatives as speaking opportunities, lecture series, workshops and demonstrations, student competitions and lab mentorship.

### Eligible expenses for youth outreach:

All project activities are to be **free to youth and the general public**. Therefore, no registration or admission fees can be charged and project activities cannot be incorporated into an existing program for which an admission or registration fee is applied. Eligible expenses include the following:

- The costs of coordinating, developing, and delivering youth outreach activities such as speaking opportunities, lecture series, workshops and demonstrations, student competitions and lab mentorships; and
- Consumable supplies and the development of working models.

### Ineligible expenses for youth outreach:

- Expenses paid to a third party to coordinate, develop or deliver youth outreach activities;
- The development of magazines, books, curriculum documents, courses or multi-media, including new websites;
- The purchase of commercially available equipment, such as computers or software, or to stage conferences; or
- Honoraria or salaries for high school student co-operative education or summer high school student positions.

## Contacts

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As a first step, we would encourage you to speak with those in your faculty and/or departments responsible for Youth Outreach. They may have specific volunteer needs and/or programs that would be of interest. For example, some of the Youth Outreach contacts on campus are as follows (our apologies if we have missed your faculty/department – if so, will you let us know the name of the Youth Outreach coordinator so that we may update the list?):

AFAR (Advanced Facilities for Avian Research)	Scott A. MacDougall-Shackleton	smacdou2@uwo.ca
Applied Mathematics	Bogdan Tudose	btudose@uwo.ca
Biochemistry	David Edgell	dedgell@uwo.ca
Biology	Graeme Taylor	gtaylor8@uwo.ca
Chemistry	Sandra Zakaria Holtslag	chemoutreach@uwo.ca
Computer Science	Laura Reid	lreid@csd.uwo.ca
Earth Sciences	Cameron Tsujita	ctsujita@uwo.ca
Faculty of Education	Tina Beynen	tbeynen@uwo.ca
Faculty of Engineering	Joanne Moniz	joanne.moniz@uwo.ca
Faculty of Health Sciences	Neil Fulford	nfulford@uwo.ca
Centre for Planetary Science and Exploration	Parshati Patel	ppatel54@uwo.ca / cpsxoutreach@uwo.ca
Faculty of Social Science	Pankhuri Malik	pmalik8@uwo.ca
Mathematics	Nicole Lemire	nlemire@uwo.ca
Medical Biophysics	Peter Canham	pcanham@uwo.ca
Microbiology & Immunology	Fred Williams	fmwillia@uwo.ca
Physics & Astronomy	Jennifer Tilston/ Margaret Campbell-Brown	<a href="mailto:physoutreach@uwo.ca">physoutreach@uwo.ca</a> astrooutreach@uwo.ca
Physiology & Pharmacology/Toxicology	Tom Stavraký	tom.stavraký@schulich.uwo.ca
Sharcnet	Michael A Bauer	bauer@uwo.ca
Statistical & Actuarial Sciences	Steve Kopp	kopp@stats.uwo.ca

## Examples of Youth Outreach Activities

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We encourage you to be creative with this section. However, if you are struggling, a list follows with some suggestions for Youth Outreach activities that we hope will help generate ideas. We have not captured all of the activities on campus. If there is an activity that does not appear below but interests you, please feel free to explore it. You are not required to choose something from this list. Also, if we have missed something and you would like it added to the list we would be happy to do so as this is a living document.

## Examples of Campus-wide activities

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### March Break Open House / Fall Preview Day

These are campus wide open houses for high school students and their parents to come and visit and learn more about Western and its programs. Each faculty is responsible for their own groups of students. Tours of the labs, hands-on workshops, question/answer time for students are all possibilities and volunteers are welcome.

For more information: <http://welcome.uwo.ca/march/index.html>

### **Take Your Kids to Work Day**

This is a national event that Western and its affiliates have chosen to take part in. Grade 9 students from across Canada come with their parents to work. Western and each of its affiliates have organized events across campus so that students that come with their parents can be exposed to a wide variety of careers. Researchers may offer lab tours, give talks about their research programs, offer hands-on workshops, or just spend time discussing what they do and why they do it with the students. There are lots of possibilities and it is open to everyone. For more information contact: Scott May (email: [smay5@uwo.ca](mailto:smay5@uwo.ca))

### **Thames Valley Science and Engineering Fair**

The Thames Valley Science and Engineering Fair (TVSEF) is an organization dedicated to students, science, engineering, and technology. There are opportunities for you to help as committee members, judges, and to provide hands on activities for the students while at the Fair.

### **Co-op Placements**

Co-op placements are available for Secondary School students in office, technical and scientific areas in some departments on campus. Check with your department chair or outreach coordinator.

### **Professional Associations/Organizations**

Many professional associations/organizations have youth outreach activities with which you may participate under the ERA program. For example, the Professional Engineers of Ontario (PEO) have Engineering Week.

## **Examples of Discipline/Faculty-Specific Outreach Activities**

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### **Faculty of Science**

Here is an overview of some key events to help you facilitate your outreach plans. (Please note that this list does not include the numerous activities offered by individual science departments and groups).

#### **Fall Preview (usually in November)**

This is an undergraduate recruitment event. Each department is given a table or two to set up their information and demonstrations. For the one-day open houses in the fall, coffee is provided in the morning, food at lunch, and snacks are available all day for volunteers. It is appropriate to have something to give out to prospective students with contact information - such as a web address - to find additional detailed information. It is not necessary to have printed departmental brochures; often simple cards or bookmarks pointing people to a web address will suffice. Undergraduate students from your Department are good ambassadors to have at your station. It is important to make sure someone is available to answer questions for the duration of the event. Prior to the event, each department will be asked for specific needs for their area. Please keep a list of the names and email addresses of your volunteers so that the Faculty of Science can thank them.

Web site: <http://welcome.uwo.ca/november/>

### **March Break Open House**

The [details](#) are basically the same as the description listed above for Fall Preview.

### **VROC, Virtual Researcher On Call**

This program allows faculty and graduate students to participate in individual classroom discussions across Canada. People in your Department who wish to participate need to log onto [www.vroc.ca](http://www.vroc.ca) to take part.

This program works by a teacher making a request for information on a topic to [VROC](#) and then VROC matching the request to a researcher. Sometimes, the topics are quite general and sometimes very specific. It would be helpful if Carol Waun, [cwaun@vroc.ca](mailto:cwaun@vroc.ca) of VROC had one contact from each department or group to help direct requests to the appropriate people.

## **Chemistry**

Contact: Sandra Zakaria Holtslag, Chemistry Outreach Coordinator.  
Email: [chemoutreach@uwo.ca](mailto:chemoutreach@uwo.ca), Phone: 519 661-2111 (86927).

The Department of Chemistry is pleased to showcase the wonder and excitement of Chemistry to audiences of all ages, beyond the university community. The aim of our outreach program is to acquaint the general public, prospective students, and young inquisitive minds with the fun side of science. At the same time, we provide educational commentary and in many cases, hands-on experience in our state-of-the-art laboratory.

**Outreach activities** that we are pleased to offer include:

- Presentations and lectures on chemistry-related topics by recognized experts in the field
- Demonstrations, including the now-famous “Chemistry With A Bang” show and demonstrations using cryogenic materials
- Tours of our laboratory facilities in the Department of Chemistry, including such activities as glassblowing
- Age- and experience- appropriate hands-on laboratory experiments
- Providing expertise through, for example, judging at science fairs and media relations
- We are able to host events at our facilities, and we are also able to ‘take the show on the road’ in some instances.

Organizations (schools, service clubs etc) wishing to participate in, or host an outreach activity should complete the request form found at:

[http://uwo.ca/chem/about\\_us/outreach\\_activities.htm](http://uwo.ca/chem/about_us/outreach_activities.htm) and attach it by email to [chemoutreach@uwo.ca](mailto:chemoutreach@uwo.ca)

## **Centre for Planetary Science & Exploration (CPSX)**

Contact: Parshati Patel, Outreach Coordinator.  
Email: [cpsxoutreach@uwo.ca](mailto:cpsxoutreach@uwo.ca) Phone: 519-661-2111 x88508

### **Academic Programs**

The CPSX offers single- and multi-period inquiry-based, hands-on activities, as well as half- and full-day workshops. Activities can be done in school, at community events, or on campus. Most of

our activities are designed for the curriculum in the Grade 6, 9, and 12 Earth and Space Science units. However, many activities fit curriculum in other areas such as Grade 7 Natural Resources, Grade 9 Geography, Grade 11 Physical Geography, Grade 12 Biology, etc. Here is a listing of the presentations and activities we offer:

### **Single-Period Activities**

- The Moon
- Mining Space
- Planetary Landscapes: The Moon and Mars
- Planetary Mapping: The Moon, Mars and Mercury
- Challenges and Hazards of Space Exploration
- A Tour of Our Neighborhood
- Exploring Mars
- Space Debate: Yay or Nay?
- Spinoff Technologies

### **Multi-Period Inquiry Activities**

- Analogue Missions/Lego Robotics
- Impact Cratering
- Mars Mapping: Evidence of Water Flow

### **Workshops**

- Mission Meteorite
- Tours at Western

### **Public Events**

The CPSX takes part and/or organizes several public outreach events each year, such as:

- International Observe the Moon Night
- Science Odyssey
- Science Rendezvous
- Asteroid Day
- Planetary Science Annual Public Lecture
- Science Literacy Week
- Western's Fall Preview and March Break Open House

CPSX also hosts a weekly radio show – Western Worlds – on the internet radio station **astronomy.fm**. The weekly program features an interview with an expert – a researcher, engineer, scientist, or educator – in the planetary science and exploration community. This is followed by a round-table discussion involving several Western Worlds co-hosts, who have a wide-variety of educational and professional backgrounds.

Since 2009, the CPSX outreach program has reached over 28,000 students, teachers, and members of the public. For more information about these programs, please visit

<http://cpsx.uwo.ca/outreach>

## **Physics and Astronomy**

### **Exploring the Stars**

Exploring the Stars is a public outreach program organized by the Western Department of Physics and Astronomy in conjunction with the Royal Astronomical Society of Canada, London Centre. Our

goal is to offer educational astronomy activities for elementary and secondary school students, university students, and the general public. We offer private programs for specific groups in addition to an observatory open house once per month during the academic year, weather permitting. We have specialized topic lectures, guided observing at the Cronyn Observatory, and hands-on activities and demonstrations. For more information, see our website at <http://www.physics.uwo.ca/community/cronyn/ets/index.html>.

### **Public Nights at the Hume Cronyn Memorial Observatory**

Astronomy Public Nights at the Cronyn Observatory occur weekly May through August, Saturday evenings from 8:30 - 11 pm. There is no charge, and no reservations are necessary; visitors are free to come and go as they please. There is a lecture on an astronomical topic given by a member of the Department, one or more times during the evening. There is guided observing with the Cronyn telescope; targets include the Moon, Venus, Mars, Jupiter, Saturn, binary stars, star clusters, planetary nebulae and galaxies. The observatory is still open if the weather is cloudy, and visitors can listen to the presentation and look at the telescopes. Members of the Royal Astronomical Society of Canada are also on hand with their portable telescopes on the Observatory balcony and front lawn.

## **Computer Science**

Contact: Laura K. Reid, Lecturer and Computer Science Outreach Chair.  
Email: [lreid@csd.uwo.ca](mailto:lreid@csd.uwo.ca) Phone: 519 661-2111 (86905).

### **School visits**

Computer Science faculty will visit local high schools upon request. Please contact Laura Reid at: [lreid@csd.uwo.ca](mailto:lreid@csd.uwo.ca)

## **Statistical and Actuarial Sciences**

Contact: Steve Kopp, Lecturer and Statistical and Actuarial Science Outreach Chair.  
Email: [kopp@stats.uwo.ca](mailto:kopp@stats.uwo.ca); Phone: 519 661-2111 (86288).

### **School visits**

Actuarial Science, Statistics and Financial Modelling faculty will visit local high schools upon request. Please contact Steve Kopp at email: [kopp@stats.uwo.ca](mailto:kopp@stats.uwo.ca)

### **Actuarial Science Quest**

A one week summer program for grade 10, 11 or 12 students with good math skills and a high interest in learning how to apply those skills in a the business world of insurance and benefits consulting. Program takes place in August and includes a full day of job shadowing an actuary at a local major insurance company.

The Department of Statistical and Actuarial Science participates in several of the institutionally-based events such as:

- Fall Preview Day (November)
- March Break Open House (March)
- TD Discovery Days in Health Sciences (May)
- Kangaroo Math Contest for Grades 1 to 12 (March)

## Earth Sciences

Contact: Cam Tsujita, Assistant Professor and Earth Sciences Outreach Chair.  
Email: [ctsujita@uwo.ca](mailto:ctsujita@uwo.ca), Phone: 519 661-2111 (86740).

### Department tours

The Department of Earth Sciences welcomes primary and secondary school groups for tours of the department; hallway displays feature minerals, rocks, fossils, seismometers, and other items relating to the geosciences. The St. Mary's Cement Rock Garden, also featured in the tours, provide opportunities to discuss the stratigraphy of southwestern Ontario in an outdoor environment. Hands-on workshops can also be arranged on request. Please contact Cam Tsujita at [ctsujita@uwo.ca](mailto:ctsujita@uwo.ca).

### Visits to Local Schools

On request, faculty members, graduate students and undergraduate students deliver presentations on various topics relating to Earth Sciences (minerals, rocks, fossils, resources, careers in the geosciences) to local schools. Interested parties can contact Cam Tsujita at [ctsujita@uwo.ca](mailto:ctsujita@uwo.ca)

The Department of Earth Sciences participates (and/or has participated) in the following institution-based events:

- VROC lectures
- Indigenous Services Mini-University (workshops and tours)
- Discovery Western Camps (hands-on activities and tours)
- Fall Preview Day
- March Break Open House
- Canadian Medical Hall of Fame/TD Discovery Days in Health Sciences

### Participation in Community-Based Events

The Department of Earth Sciences is also dedicated to serving the London area community, participating in events such as:

- The Scientist in Residence Program (London Children's Museum)
- Earth Science Week
- Public talks hosted by special interest groups (e.g. Nature London, London Gem and Mineral Society)
- The Annual SCUGOG Public Lecture
- Earth Day activities at public schools
- SPARK conference for gifted Secondary School students
- and many others

## Engineering

The Outreach Programs Coordinator for Engineering is Joanne Moniz .  
Email: [joanne.moniz@uwo.ca](mailto:joanne.moniz@uwo.ca), Phone 519 661-2111 (86988).

### **Western Engineering Shadow Day**

Western Engineering Shadow Day is a recruitment initiative organized jointly by the Undergraduate Services Office and the Undergraduate Engineering Society (UES) aimed at education and outreach for prospective students who have either applied to Western Engineering or are considering engineering as a post-secondary education option. This program is held on two days in mid-February each year when senior high school students are paired with student volunteers from Undergraduate Engineering. The high school students act as “shadows” for a day and attend engineering classes with the volunteers. In the afternoon, lunch is provided for participants in conference rooms where they can discuss Engineering and the University in general in an informal atmosphere. Contact either the UES or Marg Cooper at [marg.cooper@uwo.ca](mailto:marg.cooper@uwo.ca).

### **FIRST Robotics Competition and FIRST Lego League Competition**

Western Engineering hosts both a FIRST Robotics Competition (high school aged) and FIRST Lego League Competition (elementary school aged) each year. These competitions bring over 3000 youth to campus with opportunities for Western Engineering faculty, staff and students to participate as mentors, judges and volunteers. Contact is Joanne Moniz, [joanne.moniz@uwo.ca](mailto:joanne.moniz@uwo.ca)

### **Community Programming**

Western Engineering Outreach participates in a variety of community events throughout the year to promote engineering and science. These events includes workshops at local libraries, the Boys & Girls Club of London, the London Children’s Museum etc. Overall these events reach around 800-1200 individuals annually.

### **Aboriginal Engineering Outreach Initiatives**

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#### **Mini-University**

Target Audience: Students in grades 7-10

When does this happen: July

Where does this happen: London, Ontario (on-campus) with trips to industry partners within London, Ontario

Website Link: [http://indigenous.uwo.ca/indigenous\\_outreach/mini\\_university\\_program.html](http://indigenous.uwo.ca/indigenous_outreach/mini_university_program.html)

Program Description: Every summer, Indigenous Services offers its annual Mini University Program – a 1-week on-campus experiential learning program targeting Indigenous youth ages 12-16. Throughout the program, youth participants engage in interactive learning on-campus with professors, researchers, university students, and community members. Western Engineering has been a long-standing partner of this program offering engineering programming that is both culturally relevant and authentic.



## **Women in Engineering Outreach Initiatives**

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### **Go ENG Girl**

Target Audience: Girls in grades 7-10 and their parents

When does this happen: October

Where does this [http://www.eng.uwo.ca/outreach/just\\_for\\_girls/goenggirl/index.html](http://www.eng.uwo.ca/outreach/just_for_girls/goenggirl/index.html)

Program Description: This is a national event that introduces girls and their parents to the wonderful world of engineering. The day includes an inspiring keynote speaker, hands-on activities, student panel as well as a student club/team fair so that all the participants can gain a rich perspective on what engineering is all about.

### **Go CODE Girl**

Target Audience: Girls in grades 7-12 and their parents

When does this happen: February

Where does this [http://www.eng.uwo.ca/outreach/just\\_for\\_girls/go\\_code\\_girl/index.html](http://www.eng.uwo.ca/outreach/just_for_girls/go_code_girl/index.html)

Program Description: This is a national event that introduces girls and their parents to the software engineering. The day includes an inspiring keynote speaker and hands-on activities.

### **Girl Guide Badge Day**

Target Audience: Girl Guides in grades 4-8

When does this happen: May

Where does this happen: London, Ontario (on-campus)

Website Link: [http://www.eng.uwo.ca/outreach/just\\_for\\_girls/GirlGuidesBadgeDay.html](http://www.eng.uwo.ca/outreach/just_for_girls/GirlGuidesBadgeDay.html)

Program Description: Girl Guides from London, Ontario and surrounding areas come to Western Engineering for a day of engineering and science activities that meet their badge requirements for both engineering and physics. The day typically includes 3-4 hands-on activities as well as a networking lunch where the girl guides can meet with female undergraduate engineering students.

### **Just for Girls Mentorship Program**

Target Audience: Girls in grades 9-12

When does this happen: Yearlong

Where does this happen: London, Ontario (on-campus)

Website Link: [www.eng.uwo.ca/outreach/just\\_for\\_girls/mentorship/index.html](http://www.eng.uwo.ca/outreach/just_for_girls/mentorship/index.html)

Program Description: High school girls are paired with undergraduate female engineering students for a yearlong mentorship program. Participants meet once a month on campus for hands-on activities, networking opportunities and guest speakers. Additionally, all participants are connected through an online community that engages the participants weekly through online posts that include information about engineering, questions they are hoping to ask mentors as well as interesting engineering content.

## **Schulich School of Medicine and Dentistry**

### **Outreach Science Ontario**

This project is aimed at providing senior high school students hands-on training in the techniques of modern biotechnology. We have developed laboratory modules in DNA cloning and PCR that enrich the grade 12 Biology curriculum. To facilitate use in the classroom, we supply all necessary equipment and reagents. Another important component is our ongoing training of teachers in

technical aspects of the labs as well as theoretical and ethical considerations. The modules could be augmented with complementary classroom visits by faculty members to emphasize these topics to the students. The contact person is Dr. Chris Brandl, Dept. of Biochemistry ([cbrandl@uwo.ca](mailto:cbrandl@uwo.ca) or 519 850-2395)

### **Virtual Researchers On Call (VROC)**

Researchers & Trainees: Help Young Minds Plug In. VROC actively encourages applications from top researchers & trainees in Health Research, Science, Technology, Engineering, and Mathematics for virtual outreach in both official languages to high school students in Ontario.

VROC is designed to enhance classroom content for students by linking Canada's research scientists and their trainees using videoconferencing technology, to provide students with live, interactive discussions with researchers about their area of research. The duration of a session is approximately one hour, including discussion of your research and answering questions from the students about your research.

It's time to broaden the outreach to the students of Ontario. Help us empower the bright minds of our youth! Join the VROC team today and help make a difference! For more information visit <http://www.vroc.ca/vroc/en/> or call 519.433.7866

## **Faculty of Health Sciences**

The Academic Affairs Officer for the Faculty of Health Sciences is Neil Fulford  
E-mail: [nfulford@uwo.ca](mailto:nfulford@uwo.ca) Phone: 519-661-4245

Health Sciences participates in the Ontario Universities Fair, [www.ouf.ca](http://www.ouf.ca), as well as three of the institutionally-based events listed above:

- Fall Preview Day (November)
- March Break Open House (March)
- Canadian Medical Hall of Fame/TD Discovery Days in Health Sciences (May), for which Health Sciences is one of the sponsoring/coordinating Faculties.

**Indigenous Services Mini-University** (pending request for our involvement by UWO Indigenous Services)

The Mini University is an opportunity for Indigenous High School Students to explore Western's Health Sciences and Science programs, participate in interactive activities and get an overview of University life. The intention is to encourage youth to enroll in university studies at Western.

### **Discovery Day in Health Sciences**

Approximately 350 London and area high school students (grades 10 to 12) with a strong interest in the sciences and a desire to explore Western University are invited to attend. The goal of this national outreach program is to educate, encourage and inspire students as they consider various career options available to them in the sciences.

The day consists of a keynote lecture, interactive workshops and a panel discussion with professionals and academics in various related fields.

Workshops are conducted in the morning and in the afternoon. Presenters can choose to participate in one or both sessions (same workshop presented to two different groups of students). While workshops with a hands-on component are preferred by students, all interactive styles are welcome. The number of students in each workshop is determined by the workshop presenter. Presenters are also responsible for their own room and a/v bookings, with workshops taking place across the Western campus as well as at affiliated hospitals and research institutes.

The Western Discovery Day is typically held the first Friday in May, with information packages being emailed to department heads for circulation to their faculty members in January. Those interested in taking part are asked to submit a Workshop Abstract to The Canadian Medical Hall of Fame. All submissions are compiled into a Workshop Catalogue which is circulated to over 170 high schools within Southwestern Ontario. The catalogue is also posted on [Western Discovery Day](#) page of the [Canadian Medical Hall of Fame](#) website, where it remains until the next year's event.

For more information, please email Janice at the Canadian Medical Hall of Fame:  
[jmcnorgan@cdnmedhall.org](mailto:jmcnorgan@cdnmedhall.org)