



Summer Research in Engineering

Summer 2021

Thank you for joining us!

To ensure the smooth delivery of this session, please ensure you are following the etiquette for Zoom Meetings listed below:

1. Mute your microphone
2. Keep your camera turned off for the duration of the Town Hall.
3. Hold all questions until the end! We will open the Chat feature to collect your questions at the start of the Question and Answer period.

Undergraduate Summer Research

- Provides undergraduate students an opportunity to gain research experience by participating in research activities in a research lab under the supervision of a faculty member
- Duration: 16 consecutive weeks (full-time) from May to August
- Financial support is provided
- Part-time hours and vacation leave are not allowed

Types of Awards

1. NSERC USRA (Undergraduate Summer Research Scholarship)
2. Dean's Award
3. Undergraduate Summer Research Award

NSERC USRA and Dean's Award are **competitive**

Types of Awards (cont.)

- All three are similar summer research experiences for UG students
- Minimum financial support is same for all three Awards (\$5,625)
- Students often receive more than the minimum amount
- Some differences in eligibility
- Do not consider it as a summer job but rather a funded opportunity to gain research experience (Research Award)
- Try out research...UG thesis? Grad school?

1. NSERC USRA

- A Student Award provided by the Natural Sciences and Engineering Research Council of Canada (NSERC)
- Allows Undergraduate students an opportunity to participate in Research activities
- Provide financial support for research experience through the host university
- NSERC encourages qualified Aboriginal students to apply to this program

Eligibility

- Canadian Citizen or Permanent Resident
- Registered full-time student in the term immediately before the award
- Do not hold higher degrees in natural science or engineering
- Have obtained, over previous years of study, a cumulative average of at least “B-” (70%)

Eligibility (cont.)

- May hold up to three USRAs throughout university career
- Have not begun a graduate program prior to tenure of award
- Not enrolled in an undergrad professional degree (M.D., D.D.S., B.Sc.N.)
- International students indicate, in the NSERC application, they are PR and then email graduate office (we-researchandgrad@uwo.ca). *Eligible only to hold a Dean's award OR SRA.*

2. Dean's Award

- Same requirements and value as NSERC USRA, but
 - Open to both Domestic (Canadian or PR) and International Students.

If you are an international student and wish to apply, please contact the Graduate Office by emailing we-researchandgrad@uwo.ca

3. Undergraduate Summer Research Award

- Same requirements as NSERC USRA but
 - Open to both Domestic (Canadian or PR) and International Students.
 - No min average

If you are an international student and wish to apply, please contact the Graduate Office by emailing we-researchandgrad@uwo.ca

How to Apply

- Interested applicants **must** apply through the NSERC USRA Application system to be considered for USRA (**One application** for all of these awards).
- International students applying for Dean's Award or Summer Research Award must also apply through NSERC Application (contact Graduate Office for more details)
- Must have a faculty member willing to serve as supervisor

How to Apply

- Meet with a Prof., find project that interests you, agree to work together
- Form 202 Part I completed on NSERC site by Student
- Form 202 Part II completed on NSERC site by Supervisor
- Academic record needs to be attached (requested by completing “Access to Academic Records Form of Consent” and emailing to weresgrd@uwo.ca)
- E-submission of the application via NSERC website by **January 29, 2021**



Natural Sciences and Engineering Research Council of Canada

www.nserc-crsng.gc.ca



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On-line Services

Our on-line services are designed to give you easier access to NSERC services.

On-line System Users

Select On-line System Login to
create or access an application.

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Need more information?

- The NSERC Website:

http://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/USRA-BRPC_eng.asp

- Western Engineering Graduate Website:

<https://www.eng.uwo.ca/graduate/future-students/nserc-usra.html>



First Step

- Figure out an area in which you wish to conduct research
- Find a professor who has related research (you could visit professors' webpages to learn about their research activities and interests)
- If need help in finding a professor, contact the Graduate Office
- Some potential summer projects offered by professors in different departments are listed below (also posted on Western Graduate website)

Student Experience Testimonials

Elizabeth Blokker

(supervised by Dr. Kamran Siddiqui)

“Optimization of Porous Geometry for Collecting Concentrated Solar Power”

Mohammad Noor Tamin

(supervised by Dr. Martha Dagnew)

“Phosphorus Removal From Nonpoint Sources Using Electrocoagulation”

Current Projects

Chemical and Biochemical Engineering

NSERC USRA Project

Dr. Kibret Mequanint (CBE)

Research areas:

- Luminescent Biomaterials for Simultaneous Drug Delivery and Target Tracking

Email: kmequani@uwo.ca

NSERC USRA Project

Dr. Dominic Pjontek (CBE)

Research areas:

- Carbon dioxide conversion to liquid fuels in a gas-liquid-solid reactor

Email: dpjontek@uwo.ca

Current Projects

Civil and Environmental Engineering

NSERC USRA Project

Dr. Jason Gerhard (CEE)

Research areas:

- Development and testing of new remediation technologies for soil polluted by industrial chemicals and emerging contaminant

Email: jgerhard@uwo.ca

NSERC USRA Project

Dr. Greg Kopp (CEE)

Research areas:

- Estimating the wind speed of tornadic events through the remote sensing of damage to vegetation

Email: gakopp@uwo.ca

NSERC USRA Project

Dr. Mohammad Reza Najafi (CEE)

Research areas:

- Analyzing compound events (such as the co-occurrence of pluvial riverine and coastal flooding, hot-dry events, floods and droughts) under climate change
- Evaluation and bias correction of high spatiotemporal resolution radar and satellite precipitation products for large scale hydrological modeling.
- Development of multi-hazard risk analysis frameworks for critical infrastructure

Email: mnajafi7@uwo.ca

NSERC USRA Project

Dr. Tim Newson (CEE)

Research areas:

- Turbidity of well water due to resuspension of sediment during pumping

Email: tnewson@eng.uwo.ca

NSERC USRA Project

Dr. Ayan Sadhu (CEE)

Research areas:

- Bridge health monitoring using moving sensors
- Railway track monitoring using train-induced vibration
- Virtual reality-based engineering inspection at the construction site

Email: asadhu@uwo.ca

NSERC USRA Project

Dr. David Sills (CEE)

Research areas:

- Tornado Data Analysis

Email: David.sills@uwo.ca

Current Projects

Electrical and Computer Engineering

NSERC USRA Project

Dr. Firouz Badrkhani Ajaei (ECE)

Research areas:

- Machine learning and signal processing techniques in power system protection

Email: fajaei@uwo.ca

Current Projects

Mechanical and Materials Engineering

NSERC USRA Project

Dr. Hamid Abdolvand (MME)

Research areas:

- Formation of hydrides in CANDU pressure tubes

Email: Hamid.Abdolvand@uwo.ca

NSERC USRA Project

Dr. S.F. Asokanthan (MME)

Research areas:

- Design and analysis of macro-scale hemispherical resonator gyroscope (HRG)

Email: sasokant@uwo.ca

NSERC USRA Project

Dr. J. Johnson (MME)

Research areas:

- The effect of shoulder implant design on stresses in bone

Email: jajojnso@uwo.ca

NSERC USRA Project

Dr. R. Klassen (MME)

Research areas:

- Development of database structure-properties of die cast Mg alloys

Email: rjklasse@uwo.ca

NSERC USRA Project

Dr. H. Mao (MME)

Research areas:

- Concussion and helmet research
- Automotive safety involving active and passive safety techniques
- Advanced computational modeling for biomechanical and structural analysis
- Neural engineering with brain electrode and electromagnetic stimulation
- Working with industry partners for sports safety, such as improving head & neck protection during hockey and football games and reducing commotio cordis risks during baseball and lacrosse games
- Brain biomechanical and biomedical signal collection and data mining
- Drone to human impact safety and supporting federal regulation development

Email: haojie.mao@uwo.ca

NSERC USRA Project

Dr. K. Ogden (MME)

Research areas:

- The effect of rotation and topography on mixing in internal hydraulic jumps

Email: kogden3@uwo.ca

NSERC USRA Project

Dr. K. Siddiqui (MME)

Research areas:

- Investigation of temperature-controlled chamber for transportation of bio-species (e.g. organs, vaccines)
- Improvement of color-based technique to measure flow velocities
- Design improvement of anti-splash pad

Email: ksiddiq@uwo.ca

NSERC USRA Project

Dr. O.R. Tutunea-Fatan (MME)

Research areas:

- Fabrication of microstructures for enhanced surface functionality: hydrophilic/hydrophobic, aero/hydro-dynamic, iceophylic/iceophobic, antifouling, diffractive gratings, etc.
- The use of machine learning and artificial intelligence towards the automatic control of micromanufacturing processes such as diamond cutting and laser polishing

Email: otutune2@uwo.ca

NSERC USRA Project

Dr. R. Willing (MME)

Research areas:

- Studying natural knee and implant mechanics using experimental and computational models

Email: rwilling@uwo.ca

Questions?



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