Natural Sciences and Engineering Research Council
Undergraduate Student Research Award

The Department of Biology deadline is:
9:00am on Monday, January 18, 2021

Please email information to Beata Malczewski
(bmalcze@uwo.ca)

Details downloaded from the NSERC site (slightly modified)
NSERC website:  www.nserc.ca

What are these awards for?
Undergraduate Student Research Awards (USRA) are meant to stimulate your interest in research in the natural sciences and engineering. They are also meant to encourage you to undertake graduate studies and pursue a research career in these fields. If you would like to gain research work experience that complements your studies in an academic setting, these awards can provide you with financial support through your host university. NSERC encourages qualified Aboriginal students to apply to this award.

Are you eligible for an award?
To be eligible to apply for an award, you must:

• be a Canadian citizen or permanent resident of Canada;
• be registered, at the time you apply, in a bachelor's degree program at an eligible university; and
• have obtained, over the previous years of study, a cumulative average of at least second class (a grade of "B" or "B-", if applicable) as defined by your university.

In addition...

• If you already hold a bachelor's degree and are studying toward a second bachelor's degree, you may still apply to this program.
• You may hold only one USRA per fiscal year (April 1 to March 31).
• You may hold a maximum of three USRAs throughout your university career.

To hold an award, you must:

• have completed all the course requirements of at least the first year of university study (or two academic terms) of your bachelor's degree;
• have been registered in the term immediately before holding the award in a bachelor's degree program at an eligible university;
• not have started a program of graduate studies in the natural sciences or engineering; and
be engaged on a full-time basis in research and development activities in the natural sciences or engineering during the tenure of the award.

Who is not eligible?
You are not eligible for an Undergraduate Student Research Award if:

• you are currently enrolled in an undergraduate professional degree program in the health sciences (e.g., MD, DDS, BScN); or
• you hold higher degrees in the natural sciences or engineering.

Value of awards
These awards have a value of $6,000 for a full 16-week period. Universities are required to supplement the amount of the award by at least 25 percent of its value using other sources, such as university funds, NSERC grants, or any other research funds. Universities may also provide fringe benefits. NSERC will not reimburse the university for any period during which you worked part time. No payment will be approved for any vacation leave you take during tenure of the award.

Duration of awards
The duration of the award is 16 consecutive weeks on a full-time basis. You may hold an award at any time during the year as permitted by your academic program. Tenure may start on a date acceptable to both you and your host institution.

How do you apply?
To apply for these awards, you must complete an Application for an Undergraduate Student Research Award Part I (Form 202) on line at http://www.nserc.gc.ca/forms/formtable_e.htm. Just follow the instructions and email a copy to Beata Malczewski at bmalcze@uwo.ca by 9:00am on Monday, Jan 18, 2021.

Students complete only Part 1. Transcripts will be provided by the university. The proposed supervisor must complete Part II of Form 202 and email a copy to Beata Malczewski at bmalcze@uwo.ca by 9:00am on Monday, January 18, 2021.

The whole application is to be typed.

Award decisions
Each university will inform applicants of its award decisions after it has completed its selection process.

Payment of awards
NSERC will pay its contribution directly to the university. You will receive your payment from the university. The university will issue payments to you for the total value of the award in accordance with its pay procedures. It will also issue a T4 or T4A slip (Statement of Income) to you at the end of the calendar year.
DEPARTMENTAL PROCEDURE

STEPS IN APPLYING FOR AN NSERC UNDERGRADUATE STUDENT RESEARCH AWARD (USRA) IN BIOLOGY

Deadline: **9:00am on Monday, January 18, 2021**

Details about the award can be found: [https://www.nserc-crsng.gc.ca/students-etudiants/ug-pc/usra-brpc_eng.asp](https://www.nserc-crsng.gc.ca/students-etudiants/ug-pc/usra-brpc_eng.asp)

1) Find a faculty member in the Department of Biology to be your supervisor. This person no longer needs to hold a NSERC grant.

2) After finding a supervisor, notify Beata Malczewski ([bmalcze@uwo.ca](mailto:bmalcze@uwo.ca)) that you are applying, *(especially if you are not from Western)* then complete the application form:
   a) Go to the NSERC website ([http://www.nserccrsng.gc.ca/OnlineServices-servicesEnLigne/Index_eng.asp](http://www.nserccrsng.gc.ca/OnlineServices-servicesEnLigne/Index_eng.asp)) and follow the links from ‘PDF Forms and Instructions’. Complete the application form online.


   c) Make sure you use your UWO e-mail address.

   d) Complete an ‘Access to Academic Records Form of Consent’ and email it to Beata Malczewski ([bmalcze@uwo.ca](mailto:bmalcze@uwo.ca)) which will allow her to pull your academic transcript and e-mail it to you.

   e) NSERC requires students to upload their academic transcript before allowing them to print off their application, so complete step (d) as soon as possible. Once you have your academic record upload the file to NSERC.

   IMPORTANT information: Please do **not** hit “submit” in the [NSERC Online System](https://www.nserc-crsng.gc.ca) until after uploading, the correct “Academic Record” - that’s accurate to **Dec. 31, 2020**.
(Your name, the university's name and the program in which you're enrolled appear. Grades up to **December 31st** of the year preceding the award are included. Western's "Academic Record" format meets NSERC's transcript requirements. (N.B. students can't access the Academic Record on their own; transcripts such as those printed from a student's account do not meet NSERC's requirements as there is insufficient identifying information).

If you are undertaking a USRA at Western but your **home university is different**, you must attach an official transcript from your home university to your online application, including the legend).

3) Complete a ‘Biology Student Statement Form.’
4) Prepare a 1-2 page resume.
5) **Please email the signed copy of your application form, the ‘Biology Student Statement Form’, and your resume to** Beata Malczewski (bmalcze@uwo.ca)

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**Faculty Members interested in 2021 NSERC USRA Research**

Students can approach other Biology faculty members not listed below. A complete list of Biology faculty members is located at:
https://www.uwo.ca/biology/directory/faculty/index.html

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**Dr. K. Hill, WSC 333, Ext. 81337, khill22@uwo.ca**
Website: https://www.uwo.ca/biology/directory/faculty/hill.html

Project proposal: In the K Hill laboratory, 2021 projects for undergraduate NSERCUSRA awardees will involve the study of factors that determine mutation signatures and determinants of genome sequence organization. We use in silico, bioinformatics tools and supervised and unsupervised machine learning to classify mutation signatures and genomic signatures. We study mechanisms of mutation and we discover factors that determine mutation signatures and genomic signatures. We will be studying approaches to classify cancer phenotypes using cancer genomic signatures and our computational tools. Also, we will be studying approaches to classify eye phenotypes associated with neurodevelopment and neurodegenerative disorders. Wet bench work if permitted for the summer of 2021 will involve confirming genetic variants discovered to be associated with new meiotic mechanisms of de novo mutation.
Dr. S. Kohalmi, WSC 319, Ext. 86485, skohalmi@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/kohalmi.html
Project proposal: Sequence to Function: the ADT Gene Family
Then come and check out the world of Arabidopsis. Our lab is interested to understand
how members of a gene family are regulated, respond to environmental stresses, differ
or overlap in their function, are targeted to subcellular compartments and contribute to a
functional plant. Intrigued? Ask for more information and stop by for a chat.

Dr. S. Macfie, B&GS 2051, Ext. 86487, smacfie@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/macfie.html
Project proposal: The Macfie lab studies the ecological and physiological factors that
plants use to detoxify or tolerate environmental contaminants. Most of the work is focused
on cadmium and crop plants, although other projects have been done. The primary
research questions are i) what biotic and abiotic factors control the availability of
contaminants to plant roots? and ii) what are the patterns of contaminant accumulation in
plants and how do these relate to tolerance mechanisms? Prospective NSERC USRA
applicants must have a keen interest in plant biology and, ideally, will have taken Biology
2601 and 3603. For more information about current and recent projects, please visit
https://www.uwo.ca/biology/directory/faculty/macfie.html

Dr. Natasha Mhatre, BGS 3023, Ext 84505, nmhatre@uwo.ca

Title 1: 3D pose estimation in behaving spiders
We will use DeepLabCut, a machine learning based software to track spider posture in
videos. 3 videos will be acquired simultaneously and data from the three streams will be
integrated to develop 3D pose estimates. The student will be involved in all aspects of
the project, and will be supported by the PI and a post-doctoral fellow.

Title 2: The biomechanics of arthropod sound and vibration communication
This project is deliberately broad in scope, since we will determine the exact project
based on the interests and the scientific background of the student. All our projects
require some experience with quantitative methods and knowledge of or willingness to
learn programming. But we welcome students from all scientific fields. Some alternatives
include, but are not restricted to, the modelling of wing mechanics, the development and
calibration of a multichannel sound measurement device to measure 3D sound fields,
and the development of sound+vibration acquisition software.

Dr. Jeremy McNeil, BGSB 3066, Ext. 83487, jmcneil2@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/mcneil.html Project
proposal: Insect Ecology.

Dr. B. Neff, Collip 204, Ext. 82532, bneff@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/neff.html
Project proposal: Behavioural and molecular ecology of fishes. Research will likely
involve both field work and lab components.

Dr. A. Percival-Smith, WSC 305, Ext. 84015, aperciva@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/percivalsmith.html
Project proposal: Phenotypic non-specificity of Transcription Factor Function.
Dr. Brent Sinclair, BGSB 2078, Ext. 83138, bsincla7@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/sinclair.html
Project proposal: Molecular physiology of insect cold tolerance.

Dr. Graham Thompson, BGSB 2068, Ext. 86570, graham.thompson@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/thompson.html
Project proposal: Molecular biology of eusocial insects.

Dr. Alexander Timoshenko, BGSB 3032, Ext. 88900, atimoshe@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/timoshenko.html
Project proposal: Cell biology of galectins.

Dr. Liana Zanette, Collip 207, Ext. 8817, lzanette@uwo.ca
Website: https://www.uwo.ca/biology/directory/faculty/zanette.html
Project proposal: Predator-prey interactions and the ecology of fear.

Opportunities at Agriculture and Agri-Food Canada:
Dr. Sangeeta Dhaubhadel, Agriculture and Agri-Food Canada, 519-953-6616
sangeeta.dhaubhadel@canada.ca
Project proposal: Genomics of legume specialized metabolism