Natural Sciences and Engineering Research Council
Undergraduate Student Research Award

The Department of Biology deadline is: January 8, 2016

Deliver to: North Campus Bldg. 301D

Details downloaded from the NSERC site (slightly moderated)
NSERC website: www.nserc.ca
TRANSCRIPTS ARE NOT NECESSARY IF YOU ARE A WESTERN STUDENT.

DEPARTMENTAL PROCEDURE

List of Interested Faculty follows departmental procedure

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 $4,500 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.

A travel allowance may also be granted if you take up the award at a university other than the one at which you are currently registered (see Travel allowances for more information). 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.

**Where can you hold your award?**

Once NSERC has approved your USRA for tenure at one particular institution, you may not transfer it to another institution.

You must work under the supervision of a faculty member who holds an active NSERC research grant (e.g., Discovery, CREATE, Strategic, Research Partnerships), either at the time you submit the application or when you hold the award. In addition, faculty members whose research grants terminated on March 31, 2016, but who have been given an extension to use up the remaining funds from April 1, 2016, to March 31, 2017, are eligible to supervise a USRA student in the summer or fall of 2016 or the winter of 2017.

**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](http://www.nserc.gc.ca/forms/formtable_e.htm). Just follow the instructions and print a hard copy and deliver to NCB 301D by January 8, 2016. Students complete only Part 1. Transcripts will be provided by the university. The proposed supervisor must complete Part II of Form 202 and deliver a hard copy to NCB 301D by January 8, 2016. 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

1) Find a faculty member in the Department of Biology to be your supervisor. This person must hold an NSERC grant.

2) After finding a supervisor, notify Stefani Tichbourne (stich@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.nserc-crsng.gc.ca/OnlineServices-servicesEnLigne/Index_eng.asp) and follow the links from ‘PDF Forms and Instructions’. Complete the application form online.

b) Go this video for help with filling in your application (very useful for first time applicants). http://www.nserc-crsng.gc.ca/Students-Etudiants/Videos-Videos/usra-brpct_eng.asp

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

d) NSERC requires students to upload their transcript before allowing them to print off their application. Upload your unofficial transcript from U.W.O. for this step.

e) Print a hard copy once all has been verified for handing in to Stefani Tichourne.

3) Complete an ‘Access to Academic Records Form of Consent’ which will allow Stefani Tichbourne to pull your academic transcript for her use.

4) Complete a ‘Biology Student Statement Form.’

5) Prepare a 1-2 page resume.

6) Submit a hard copy of your application form, the ‘Access to Academic Records Form of Consent, the ‘Biology Student Statement Form, and your resume to Stefani Tichbourne in NCB 301D by January 8, 2016.
Interested Faculty

Students can approach other Biology faculty members not listed here but remember the Biology faculty member must hold a NSERC grant.

A complete list of Biology faculty members is located at: http://www.uwo.ca/biology/people/faculty.htm

Dr. M. Bernards, BGS 2025, Ext. 86477, bernards@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/bernards/index.htm
Project area: Plant response to environment

Dr. H. Henry, BGS 3021, Ext. 81548, hhenry4@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/henry/index.htm
Project Area: Plant and ecosystem ecology

Dr. J. Karagiannis, B&GS 3080, jkaragia@uwo.ca
Website: http://www.uwo.ca/biology/directory/faculty/karagiannis.html
Project Title: Using buffering relationships identified in fission yeast to elucidate the molecular pathology of tuberous sclerosis.

Dr. G. Kelly, WSC 359, Ext. 83121, gkelly@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/kelly/index.htm
Research Area: Cell-Cell Signaling in Early Embryogenesis"
Check out website "publish.uwo.ca/~gkelly.

Dr. N. Keyghobadi, BGS 2076, Ext. 80471, nkeyghob@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/keyghobadi/index.htm
Project: Conservation genetics of a habitat specialist butterfly

Dr. J. Kramer, MSC 266, Ext. 83470, jkramer6@uwo.ca
Website: http://www.uwo.ca/biology/directory/faculty/kramer.html
Research Area: Epigenetic regulation of learning and memory in Drosophila

Dr. K. Hill, WSC 333, Ext. 81337, khill22@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/hill/index.htm
The Hill laboratory is studying the mutations that are inherited in mouse families and those mutations that originate during development. We study somatic and germline mosaicism i.e., the new mutations arising in somatic tissues and in germ cells. We use genomics platforms to detect mutations over hundreds of thousands of sites across the genome. We study a wide variety of somatic tissues and we look for hotspots of mutations and recurrent mutations commonly found in certain tissues. Our research is relevant to understanding genome dynamics with development and also with diseases such as cancer. Summer NSERC USRA students will learn about DNA extraction and hybridization to a mouse single nucleotide polymorphism genotyping array for the detection of SNP differences and copy number variants [i.e., deletions and duplications in the genome].
Ticks (Order Acari: Family Ixodidae) are a medically and economically important group of animals that can impact the health of humans, their pets, and their livestock. In particular, a common tick in Southern Ontario, Ixodes scapularis, is an active vector of Lyme disease (Borrelia burgdorferi sensu stricto), the most commonly reported tick-borne disease. However little is known about which tick species are present in the Middlesex-London region, their population abundances and/or distributional range, or the prevalence of Lyme disease among different tick species. This position will work with London-Middlesex Health Unit to survey tick habitat (natural and planted forested areas) for ticks, determine which species are present in the Middlesex-London area, and quantify their population abundances. This will allow us to gather baseline information on potential tick vectors of Lyme disease.

Dr. S. Macfie, B&GS 2051, Ext. 86487, smacfie@uwo.ca
Website: http://www.uwo.ca/biology/faculty/macfie/
Project: Research in the Macfie lab focuses on plant stress and spans the fields of physiology and ecology. We have worked on a variety of species and a number of contaminants, with an emphasis on metals. Most of our experiments are done in hydroponic culture in a controlled-environment chamber, but some involve potted plants in the greenhouse or micro-culture on agar-based media. The physiological responses of plants to metal stress include (i) production of metal-binding molecules, such as phytochelatins and low molecular weight organic acids, (ii) sequestration of metals in non-metabolic sites, and (iii) up-regulation of enzymes to mediate the metal-stress response. We also have on-going projects to determine whether a class of organic contaminants called quaternary ammonium compounds can be taken up by plants and if they are potentially harmful to crops. The long term goals of all these experiments include (1) reducing the amounts of contaminants that are taken up by edible plants and (2) increasing the amounts of contaminants taken up by plants that could be used for phytoremediation.

Dr. J. McNeil, B&GS 3066, Ext. 83487, jmcneil2@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/mcneil/index.htm
Subject area: Chemical ecology and behavioural

Dr. A. Moehring, B&GS 2080, Ext 85596, amoehrin@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/moehring/index.htm
Research project: Genetic and neural basis of preference behaviour

Dr. B. Neff, Collip 204, Ext. 82532, bneff@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/neff/index.htm
Project: Behavioural ecology of fishes.
Understanding how hormones affect behaviour is a major component of Dr. Neff's research program. This project will combine field work on sunfish at the Queen's University Biological Station with molecular and other laboratory analyses at Western University.

Dr. A. Percival-Smith, WSC 305, Ext. 84015, aperciva@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/percivalsmith/index.htm
Projects: (1) Analysis of Sex combs reduced mutant alleles; (2) Analysis of the role of proboscipedia in maxillary palp development; (3) Genetic analysis of the role of the homeodomain in FTZ function

Dr. S. Singh, WSC 307, Ext. 83135, ssingh@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/singh/index.htm
Research Area: Epigenetic studies on a mouse model of fetal alcohol effects during neurodevelopment.

Dr. G. Thompson, BGS 2068, Ext. 86570, graham.thompson@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/thompson/index.htm
Project: Behavioural genetics and sociobiology

Dr. L. Zanette, CB 207, Ext. 88316, lzanette@uwo.ca
Website: http://www.uwo.ca/biology/Faculty/zanette/index.htm
Project: Predator-Prey Interactions
We work on the role that predators have on birds, deermice, and raccoons. We specifically examine how the mere presence of a predator (i.e. the ‘fear’ of being preyed upon) can affect everything from genes to behaviour to physiology to populations and ecosystems. Studies are conducted either on campus or in the field in British Columbia near the city of Victoria. Please visit my webpage for more information, lianazanette.com.

Cross-Appointed Faculty in Biology

Dr. S. MacDougall-Shackleton, Ext. 84629, smacdou2@uwo.ca
Website: http://www.uwo.ca/biology/faculty/macfe/
Research Project: Breeding and migration biology of song sparrows.
This opportunity will allow a student to conduct field work on song sparrows at the Queen's University Biological Station north of Kingston. The student will need to work well in a team for long hours outdoors, and will have an opportunity to develop their own research project as part of the larger group research on breeding biology and migration of song sparrows.
Interested students should contact Scott MacDougall-Shackleton smacdou2@uwo.ca

Opportunities at Agriculture and Agri-Food Canada:

Dr. S. Dhaubhadel, Agriculture and Agri-Food Canada, 519-953-6616, Sangeeta.Dhaubhadel@agr.gc.ca
Website: http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181935621272&lang=eng
Project Area: Gene regulation in plant specialized metabolism
Isoflavonoids are natural compounds produced exclusively in legumes, a family of plants. They are important actors in signaling for nitrogen fixation and plant response to stress. Isoflavonoids are noted for their human health benefits in preventing hormone-dependent cancers and
cardiovascular disease. Knowledge of the workings of the pathway producing isoflavonoids will allow us to tailor production to aid human health, nutrition and crop yield.

Prospective 4999 students can look forward to working with direct mentorship of a PhD candidate, on a project focused on a MYB transcription factor protein complex involved in regulating the isoflavonoid biosynthesis pathway. During the course of the project the student will be exposed to a broad range of molecular biology, bioinformatics and genetics techniques and equipment. Our research lab is situated at the Agriculture and Agri-Food Canada Research Station, which houses state of the art facilities and is located just 10 minutes from the University of Western Ontario campus.

Dr. Abdelali Hannoufa, Agriculture and Agri-FoodCanada, 519-457-1470 ext. 638
Abdelali.Hannoufa@agr.gc.ca
Project title: Functional characterization of SPL genes in relation to their role in determining important traits in Canadian crops”. It is a molecular genetics-related project.