

Nipissing University
JOB DESCRIPTION

JOB TITLE: Organic & Medicinal Chemistry Research Intern

DEPARTMENT: Department of Biology, Chemistry and Geography

EMPLOYMENT DEFINITION: Full-Time Contract (1 Year)

SUPERVISOR: Dr. Mukund Jha

SUMMARY OF FUNCTIONS:

Based in Nipissing University's Organic and Medicinal Chemistry Research Laboratory (NUORL), the research intern will report to Dr. Mukund Jha. The activities of the intern will support the operation of Dr. Jha's research program dedicated towards the development of novel chemical reactions for the synthesis of medicinally important organic molecules.

The intern will be involved in a wide range of research activities, spanning the research process from project conceptualization to dissemination. This may include (but are not limited to) tasks related to study planning, literature review, data collection (including processing and analysis), research dissemination, assisting undergraduate research students, coordinating lab operations, and maintaining lab safety standards. Additional opportunities may include attending and presenting at conferences and co-authoring manuscripts for submission to peer-reviewed journals. Training for all responsibilities will be provided by the supervisor.

This opportunity is proudly supported by the Northern Ontario Heritage Fund Corporation and is funded through the Workforce Development Program.

Eligibility requirements of the program can be found here: <https://nohfc.ca/en/pages/programs/people-talent-program/workforce-development-stream>

DUTIES AND RESPONSIBILITIES:

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|---|------|
| 1) Study planning and preparation | 10 % |
| <ul style="list-style-type: none">• Review literature to assist in study design• Ensure the lab research equipment and glassware are maintained properly• Plan and develop schemes of reactions under investigation using ChemDraw software (e.g. calculations of amounts and stoichiometric ratios) | |
| 2) Data collection | 65 % |
| <ul style="list-style-type: none">• Become proficient in the use of relevant laboratory equipment• Contribute to the investigation of various aspects of novel chemical reaction development• Set up chemical reaction and monitor their progress• Purify and isolate reaction products using chromatographic techniques such as thin layer chromatography and column chromatography• Characterize reaction products using spectroscopic methods such as NMR, IR and LC-MS. | |

- 3) Data processing and analysis and dissemination 10 %
- Prepare supplementary/supporting data for peer reviewed publications
 - Assist in manuscript writing
- 4) Coordination of lab activities and training 15 %
- Assist undergraduate research students with data collection
 - Train undergraduate research students on lab techniques
 - Coordinate day-to-day lab operations
 - Maintain safe working environment in the lab
- 5) Any other lab duties as assigned by supervisor.

QUALIFICATIONS:

Education:

An undergraduate degree in Chemistry or Biology, chemical biology, pharmacology, or a closely related field is required. The successful candidate must have successfully completed introductory organic chemistry courses.

Training, Experience, Knowledge & Skills Required:

- Preference will be given to applicants with experience in synthetic/natural products chemistry
- Knowledge of basic organic chemistry is essential
- Knowledge of the scientific method and standard laboratory protocols would be assets
- High degree of diligence and accuracy in all tasks
- Good oral/written communication skills
- Good analytical and good problem-solving skills
- Ability to work independently or as part of a team

To be eligible for an NOHFC internship, candidates must:

- Be a new entrant into the workforce, transitioning to a new career, or unemployed/underemployed and entering a new field;
- Have not previously participated in an NOHFC-funded internship;
- Be at least 18 years of age; and
- Reside, and be legally entitled to work, in Canada.

RELATIONSHIPS/CONTACTS:

Supervised by: Dr. Mukund Jha

Internal Contacts: Staff, students, faculty

MATERIALS UTILIZED:

- Spectrometers: Infra-Red (IR), Nuclear Magnetic Resonance (NMR), Liquid Chromatography-Mass Spectrometry (LC-MS), Gas Chromatography (GC-MS)
- Rotary evaporators, analytical balances, ovens, and lab-glassware
- Solvents and general laboratory chemicals
- Hazardous chemicals
- Miscellaneous material

PHYSICAL/MENTAL DEMANDS & WORKING CONDITIONS

- Standing, sitting, walking
- Some heavy lifting may be required periodically as situations arise
- Intense visual and mental concentration and manual dexterity.
- Typically, work will be conducted in the NUORL with additional time in the Central Analytical Facility

I have read my position description and it has been reviewed with my supervisor. I understand what my duties and functions are, and I will carry out all my responsibilities as herein described.

Employee Name (please print)

Employee Signature

Date

Supervisor

Date

Human Resources

Date