

CALL FOR NOMINATIONS

RESEARCH ABROAD PROGRAM IN ENGINEERING AND SCIENCES AT MCGILL UNIVERSITY

**(EXPERIENCIA DE VINCULACIÓN INTERNACIONAL – EVI)
JANUARY - APRIL 2024**

Tecnológico de Monterrey aims to offer its high-performing students a multicultural environment that provides a global perspective, and academic and personal development in prestigious international institutions. The Vice Rector's Office for Internationalization, in collaboration with the research groups and centers at McGill University, invites pre-graduate students to carry out research abroad from January to April 2024.

This call is aimed at Tec21, and previous study plans students.

GENERAL REQUIREMENTS

- To be enrolled in the fifth semester by the time of applying to this call.
- To have completed a minimum of 72 credits by the time of applying.
- A minimum general average of 90.
- High English language level: TOEFL iBT 80, TOEFL ITP 550, or IELTS: 6.5 (current or expired).
- Previous participation and experience in research projects.

GENERAL GUIDELINES

- It is the candidate's responsibility to carefully read the information on possible research projects and additional information on the center or laboratory, and scientists associated with the research project of their interest.
- It is full-time research, from Monday to Friday.
- This call does not include funds to pay for accommodation, food, or personal expenditure; moreover, McGill Professors do not provide financial support. Thus, the candidates must have sufficient funds to support themselves in Canada and appropriate Medical Insurance. Please, consider the living cost for a semester in Montreal: [Cost of Living in Montreal](#).
- Students work under the supervision of a McGill academic staff member and do not register for courses at McGill. Therefore, students do not obtain official McGill transcripts.

- A professor from Tecnológico de Monterrey will supervise the student's performance and monitor the compliance of the research objectives to assign a grade to the student.
- Students do not pay any fees to McGill; therefore, are not eligible for access to the McGill athletics facilities or other student services.

PROFESSORS, LABS, AND RESEARCH PROJECT DESCRIPTION

PROFESSOR	LAB	VACANCIES	PROGRAM	RESEARCH PROJECT DESCRIPTION
Mary Kang	Subsurface Hydrology and Geochemistry Research Group	1	IC, IDS	Research areas are groundwater hydrology and environmental impacts of subsurface-based energy development. Application areas include groundwater impacts and greenhouse gas emissions related to oil and gas development and geologic storage of carbon dioxide. The current projects involve (1) the development of analytical, numerical, and combined analytical-numerical multi-scale models of multi-phase flow through porous media, (2) field measurements of gas fluxes, and (3) geospatial and statistical data analysis. Fluids of interest include carbon dioxide, methane and other hydrocarbons, and water.
Jeremy Cooperstock	Shared reality Lab	2	IRS, ITC, IE, IMT	Current Research: multimodal immersive systems, augmented reality, telepresence, mobile computing, haptics. Shared Reality lab is broadly concerned with human-computer interaction technologies, emphasizing multimodal sensory augmentation for communication in both co- present and distributed contexts. This research tackles the full pipeline of sensory input, analysis, encoding, data distribution, and rendering, as well as interaction capabilities and quality of user experience.
Luis Miranda	IMAts Lab	1	IC	IMAts Lab is an interdisciplinary, multi-cultural research hub with solid bonds with other universities, industry, and government agencies. The research team covers areas around sustainable urban mobility, road safety, and emerging technologies using innovative and state-of-the art methodologies. The current research focuses on the impact of transportations systems and infrastructure on wellbeing.
Georgios Mitsis	Bio signals and Systems Analysis Lab	1	IMD	The research group is interested in the application of signals and systems theory to the life sciences. In this context, the team is conducting research related both to algorithm development with a focus on nonlinear and time-varying systems modeling, and their applications to biological/physiological signals and systems, with a focus on cerebral hemodynamics and autoregulation. Specifically, the team is conducting research in the following areas: Modeling of nonlinear and time-varying dynamic systems; Cerebral hemodynamics and autoregulation; Time-varying functional brain connectivity; Computational oncology and optimal therapy design for cancer treatment.
Jan Nicolau	Nicolau Lab	1	INA	Nicolau Lab's focus on: Design and fabricate dynamic hybrid nanodevices comprising linear protein molecular motors working on semiconductor manufactured electro-mechanical

				devices. Design and fabricate ‘smart’ micro/nano-profiled and electrically active surfaces that combinatorically probe the response of biomolecules for micro/nano-array applications. Study effective, non-denature technologies for immobilization of biomolecules in static (e.g., biosensors) and dynamic (e.g., microfluidics) biodevices. Study intelligent-like behavior and algorithms used by microorganisms in their survival and search strategies, probed in microfabricated structures.
Noémie-Dorval	Dorval Lab	1	IBT, INA	The Dorval Lab works at the intersection of materials science, chemical engineering, synthetic biology, and nanotechnology. Biological materials have exquisite properties that enable them to naturally participate in various chemical and physical phenomena, assemble into complex shapes, and bind molecules or particles. The lab’s research focuses on exploiting, enhancing, and complementing these properties to fabricate next-generation multifunctional materials and devices. Specifically, the research group combines genetic engineering to program biomaterials with novel functions; bioconjugate, organic and inorganic chemical syntheses to form composites
David Juncker	McGill Genome Centre	4	INA, IM, IBT, IFI, IBM, IMT (depending on the project’s field)	3D Printed Microfluidic Capillary circuits Single Extracellular vesicle Profiling Circulating Tumour Cells analysis for cancer 3D Bioprinting
Reyes-Lamothe	Reyes- Lamothe Lab	1	IBT	The Reyes Lab aims to understand the function of molecular machines as they work inside the cell. The research group uses quantitative approaches in live cells, particularly through fluorescence microscopy, to infer the spatial organization macromolecules, the stoichiometry of molecular machines and the kinetics of cellular processes. The Lab’s current focus is on the understanding of the molecular machines of DNA replication and uses “simple” unicellular organisms, E. coli and S. cerevisiae, as model organisms for bacteria and eukaryotes.
Boris Vaisband	Think Team Lab	1	IRS, ITC, IE, IMT, IE	THInK Team focuses on enabling heterogeneous systems integration. The research group deeps dive into different integration platforms and generate design methodologies to increase system performance, reduce energy footprint, and enable novel applications. Projects include research focus on: heterogeneous systems integration; implantable microsystems, analog/ digital/mixed-mode integrated circuits, wireless neural interfacing, and efficient-power converter design.
Livia Garzia	Garzia Lab	1	IBT	The Garzia lab investigates the molecular basis of metastasis and therapy resistance in pediatric solid cancers such as sarcomas and brain cancers. The lab uses genomics on patient samples followed by in vivo functional genomics models and its goal is to prevent or cure metastasis in these cancer types. The research work aims to unravel the genetic bases of cancer recurrence and metastasis in pediatric cancers such as bone sarcomas and brain tumors. The lab's work is focused on understanding how gene function is altered during the process of metastasis initiation, maintenance, and progression.

Julia Burnier	Julia Burnier	1	IBT	Burnier Lab's research focuses on understanding the dynamic molecular changes that occur during tumor progression and metastasis through liquid biopsy. Burnier Lab tracks tumor evolution through a liquid biopsy, a minimally invasive approach to monitor disease progression, recurrence and treatment response using a blood sample. The goal is to develop novel accurate and sensitive biomarkers and identify new targeted therapeutic strategies.
Eric McCalla	McCalla Lab	1	IQ	McCalla Lab's research is focused on the design of new functional materials through a combination of high-throughput synthesis along with more traditional solid-state chemistry approaches. Of immediate interest are novel materials for a wide variety of battery technologies including electrodes materials for Li- and Na-ion batteries as well as solid electrolytes for all-solid- batteries.
Gonzalo Cosa	Cosa Lab	1	IQ, INA	The research centers on designing, synthesizing and using fluorescent molecular probes and on developing fluorescence microscopy methods that combined provide unprecedented detail of chemical and biologically relevant processes with unsurpassed spatial-temporal resolution and sensitivity. The hallmark of Cosa Lab program lies in visualizing and monitoring the motions of molecules one at a time, by tracing fluorescence emission at the single-molecule level, unraveling properties otherwise hidden in bulk ensembles. Researchers at Cosa Lab create unique "movies" – sequences of molecular recognition and assembly processes as they lead to increasingly complex nano- and meso-scale structures.
Jan Kopyscinski	Catalytic & Plasma Process Engineering (CPPE)	1	IQ	Prof. Kopyscinski 's group is working on catalyst design for CO2 storage and conversion to methane and methanol, as well as methanol conversion to ethylene. We are looking for motivated candidates that have some prior experience in lab work and chemical reaction engineering; these students will be trained and assist our research in catalyst development, catalyst and material characterization and literature review and writing scientific reports.
Audrey Moores	Moores Research Group	2	IBT	Research Interests: Nanoparticles, Catalysis and Green Chemistry Moores Research Group conducts research in the domains of 1) catalysis using both the heterogeneous and homogeneous approaches and 2) sustainable nanoparticle and material synthesis. The Group's researchers have interest in magnetic particles and nano crystallites of cellulose, chitin, and chitosan in catalysis. Currently, researchers are developing solid phase syntheses of nanoparticles and nanomaterials. We are also studying plasmonic nano catalysts and biomass transformations.
Audrey Sedal	Sedal Lab	2	IM, IRS	Primary Research Theme: Dynamics and Control Secondary Research Themes: Materials and Structure; Design and Manufacturing Soft robots, whose bodies are made from stretchable and compliant materials, have the potential to be safe and effective collaborators with humans. Despite societal needs for safe, collaborative robotic devices and a proliferation of promising

				<p>concepts, soft robots are not yet present in the applications where they might be most useful. My research bridges robotics, solid mechanics, optimization, and machine learning to discover the fundamentals of soft robotics. Our group uses concurrent experimental and theoretical approaches to understand and develop compliant and continuous robotic systems.</p> <p>Field: solid mechanics and robotics.</p>
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HOW TO APPLY

Follow 3 steps:

1. Update your profile at:

MITEC -> **MI EXPERIENCIA INTERNACIONAL -> ESTUDIANTE INTERESADO -> ACTUALIZA TU PERFIL**

Tutorial: <https://www.youtube.com/watch?v=orFahJzO6uM>

It takes 16 working hours to validate it.

2. Once your profile has been validated, you can send your application:

MITEC -> **MI EXPERIENCIA INTERNACIONAL -> ESTUDIANTE SOLICITANTE -> REALIZA TU SOLICITUD**

Code: CAN-5EVI-005A

Period: Febrero – Junio 2024 (Preselección)

Tutorial: <https://www.youtube.com/watch?v=A2Hfzir6N5Q>

Key points:

- The preselection programs are not part of the regular application calendar of the study abroad and international exchange programs. Therefore, if this is the research abroad program you are most interested in, **CAN-5EVI-005A** is the only code you must register for on your application. You do not need to include any other code or any other period.
- Shortly after the application is sent, you will receive an e-mail to notify you that you must accept a “pre-selection.” It is important to keep in mind that this is only an automated status of the platform to continue with the next step. It is NOT the official selection of students. The International Programs Office will inform the official selection by e-mail on October 23, 2023.

3. Submit your documents:

MITEC -> MI EXPERIENCIA INTERNACIONAL -> ESTUDIANTE SOLICITANTE -> ENTREGA DE DOCUMENTOS DE ADMISIÓN

Once you have accepted the pre-selection status on the platform, you must submit the listed documents.

Application deadline: September 13, 2023

DOCUMENTS TO SUBMIT

Submit all documents in **PDF** format:

1. **English language proficiency certificate:** TOEFL iBT 80, TOEFL ITP 550, or IELTS 6.5 (current or expired).
2. **Scanned copy of the passport.** It must be valid for at least 6 months after your return to Mexico.
3. **Official transcript** in English. It is not necessary to request this document, as it will be provided by Tec.
4. **Project selection.** The candidates are allowed to apply to 2 different projects in the same call. On this [format](#) you are required to list the projects you are interested in by order of preference.
5. **Curriculum vitae** in English.
6. **Motivation letter** in English and addressed to the professor; 1 page maximum. Key points:
 - a. The filename must include the candidate's first and last name, and the McGill research professor's last name. For example: Dafne Peña_Cooperstock.
 - b. If you are applying to more than one project, the motivation letter must be written according to the lab description and addressed to the Professor.
 - c. Always start out your letter with a polite "Dear Prof." or "Hello Prof." followed by the professor's last name.
 - d. Include academic background, previous research experience, interests, qualifications, and skills.
 - e. Demonstrate interest and familiarity with the professor's research area.
 - f. Mention what you could add to the research group or project and what this research project will benefit you on a personal, academic, and professional level.

Document submission deadline: September 13, 2023

Applications will not be accepted after the deadline, without exception. Incomplete documents will not be considered to participate in the program.

SELECTION PROCESS

It is divided into two parts:

1. **Pre-selection by the Tec de Monterrey.** It involves a review of the files, an analysis, and evaluation of the candidates based on the documentation and requirements. Tec de Monterrey will send the pre-selected candidates' files to the McGill professors for the next phase.
2. **Selection by the researchers from McGill University.** They will analyze each candidate's file, in some cases, candidates are invited to a virtual interview. After they have selected the students to participate in the program, McGill's leading researchers will send a report to the Director of Academic Delegation of Tec de Monterrey in Montreal.

Once the selection process concludes, the selected students will receive an e-mail from the International Programs Office on October 23, 2023, with instructions to complete the registration process of McGill and Tec de Monterrey.

Please consider that if your selection is not satisfactory, you cannot postulate to another program as the last day to do so is October 12, 2023; besides, you cannot submit two applications on the International Programs platform simultaneously. Therefore, you will have to plan another academic activity for the semester.

TO THE SELECTED STUDENTS

The proposed dates to start and finish the research project are from Monday, January 8, 2024, to Friday, April 19, 2024.

Students that work as researchers do not require a work permit. To qualify for a work permit exemption for researchers, students cannot stay more than 120 days in Canada.

The selected students must be aware that they are part of the image of the institution, thus in addition to complying with the norms and standards of McGill University, they remain under the code, rules, values, and the General Regulation of Students at Tec de Monterrey when being abroad.

The selected students are encouraged to be proactive and committed to their learning process, dedication, and contribution during their research abroad. Occasionally, students might be asked to read some bibliography and dedicate some hours to the project before arrival, so they must be prepared.

Students may sign a confidentiality agreement at McGill, depending on the project nature and the agreed terms by the professors.

REGISTRATION AND ACCREDITATION OF COURSES

Students will be enrolled at Tecnológico de Monterrey in the academic period February-June 2024.

Students of academic plan pre-2019:

The number of units to be accredited will be determined by the Academic Coordinator before the student participates in the research abroad program. The number of units to be enrolled and accredited per semester is:

Minimum: 8 units

Maximum: 32 units

Students of academic plan Tec21:

Students will enroll in 18 credits per semester. Students in conjunction with the Academic Coordinator should evaluate the transfer of the credits to the study plan before the student participates in the research abroad program.

To students of both academic plans:

The academic units (subjects) that will receive credits for the research abroad program must be defined and authorized by the Academic Coordinator. It is the student's responsibility to validate with the Academic Coordinator the availability of the academic units of the study plan to be accredited by the project they will participate in. Once it is determined, students must complete their registration in the International Programs platform:

MITEC -> MI EXPERIENCIA INTERNACIONAL -> ESTUDIANTE SOLICITANTE -> REGISTRA TUS MATERIAS

A professor from Tec de Monterrey will evaluate the student's research abroad and grade the academic performance according to the [policy](#).

TUITION AND PARTICIPATION FEES

The tuition fee to be paid will be directly at the corresponding Tecnológico de Monterrey campus. Payment will be made according to the number of units/credits registered in the period of February-June 2024.

Selected students will pay a participation fee: 1,600 MXN. Payment may be made in MiTec.

ADDITIONAL INFORMATION

Any point not covered in this call will be resolved by the selection committee in conjunction with the proper authority of Tecnológico de Monterrey as the case may be. Please consider that this call is subject to change without notice; this might involve costs, projects, vacancies, dates, or any other. Any problem or doubt regarding the application process should be communicated promptly to the [International Programs Office at your campus](#).

