



2024 INSPIRE PROGRAM GUIDE

Interdisciplinary Summer Program
in Research and Entrepreneurship



INSPIRE Interdisciplinary Science
Program in Research
and Entrepreneurship



Office of the
Vice-Principal, Research
and Innovation



MEET OUR SPONSORS



We're thrilled to welcome **Excedr** as our platinum sponsor for INSPIRE 2024! Founded in the labs at UC Berkeley, Excedr is a non-dilutive capital provider and credit investor, with 15+ years of experience supporting best-in-class founders and exclusively leasing lab equipment to the scientific community.



We're pleased to have **Beckman Coulter Life Sciences** as a gold sponsor for our INSPIRE Scholars Program. With a legacy dating back to 1935, they provide reliable technologies that help experts discover answers to some of life's most important questions.



MilliporeSigma joins us as gold sponsor for this year's program. Researchers around the world rely on their tools, services and expertise to do their best science — from familiar experiments to novel approaches. MilliporeSigma's presence extends well beyond the labs as their innovations touch individuals around the world.

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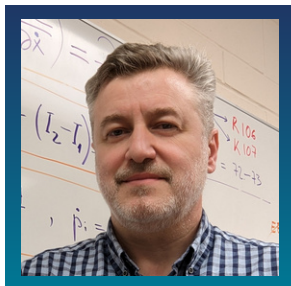
MEET OUR FACULTY INSTRUCTORS

R E S E A R C H E R S



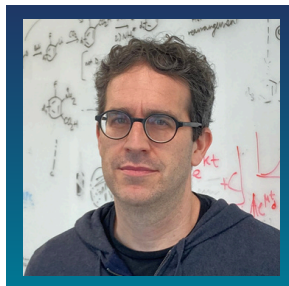
Mark Currie

Assistant Professor,
Department of Cell
& Systems Biology



Claudiu Gradinaru

Professor,
Department of Physics



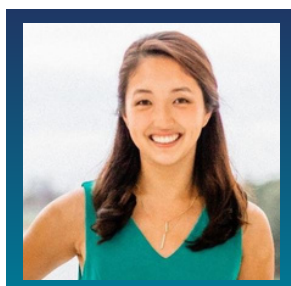
Josh Milstein

Associate Professor,
Department of Physics



Alex Nguyen Ba

Assistant Professor,
Department of Cell
& Systems Biology



Alana Ogata

Assistant Professor,
Department of Chemistry



Scott Prosser

Distinguished Professor,
Department of Chemistry



Sarah Rauscher

Assistant Professor,
Department of Physics

PROGRAM SCHEDULE

Day 1

Times	Monday, June 17, 2024
11:00am – 12:00pm Program Opening	Start Time: 11:00am Welcome Reception
12:00pm – 2:00pm	Lunch & Campus Tour
2:00pm – 5:00pm Research Modules	Nguyen Ba Lab I Room DV4090C Module Instructors: Evelina Tronina, Kortni Kindree

Day 2

Times	Tuesday, June 18, 2024
9:00am – 12:00pm Research Modules	<p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Nguyen Ba Lab Room DV4090C Module Instructors: Evelina Tronina, Kortni Kindree</p> <p>Ogata Lab Room DV5017 Module Instructors: Jared King, Melissa D’Amaral</p>
12:00pm – 2:00pm Lunch and Learn	<p>Helen Tran, Assistant Professor, Department of Chemistry U of T</p> <p>Talk: "Macromolecular Bioelectronics"</p>
2:00pm – 5:00pm Research Modules	<p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Nguyen Ba Lab Room DV4090C Module Instructors: Evelina Tronina, Kortni Kindree</p> <p>Ogata Lab Room DV5017 Module Instructors: Jared King, Melissa D’Amaral</p>

Day 3

Times	Wednesday, June 19, 2024
9:00am – 12:00pm Research Modules	<p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Currie Lab Room DV3019 Module Instructors: Gregor McEdwards, Neha Purakan, Nasha Sethna</p>
12:00pm – 2:00pm	Lunch & Guided Nature Walk
2:00pm – 5:00pm Research Modules	<p>Nguyen Ba Lab Room DV4090C Module Instructors: Evelina Tronina, Kortni Kindree</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Currie Lab Room DV3019 Module Instructors: Gregor McEdwards, Neha Purakan, Nasha Sethna</p>

Day 4

Times	Thursday, June 20, 2024
9:00am – 12:00pm Research Modules	<p>Prosser Lab Room DV205B Module Instructors: Cam Li, Olga Alimowska</p> <p>Ogata Lab Room DV5017 Module Instructors: Jared King, Melissa D’Amaral</p> <p>Currie Lab Room DV3019 Module Instructors: Gregor McEdwards, Neha Purakan, Nasha Sethna</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>
12:00pm – 2:00pm Lunch & Learn	<p>Rodrigo Fernandez, Associate Professor, Canada Research Chair in Quantitative Cell Biology and Morphogenesis, Institute of Biomedical Engineering U of T</p> <p>Talk: "Collective migration: cellular and molecular dynamics at the leading edge"</p>
2:00pm – 5:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Ogata Lab Room DV5017 Module Instructors: Jared King, Melissa D’Amaral</p> <p>Currie Lab Room DV3019 Module Instructors: Gregor McEdwards, Neha Purakan, Nasha Sethna</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>

Day 5

Times	Friday, June 21, 2024
9:00am – 12:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>
12:00pm – 2:00pm Lunch and Learn	<p>Lueder Kahrs, Assistant Professor, Institute of Biomedical Engineering U of T</p> <p>Talk: "Computer Vision and Robotics for Medical Diagnosis and Therapy"</p>
2:00pm – 5:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>

Day 6

Times	Monday, June 24, 2024
9:00am – 12:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>
12:00pm – 2:00pm Lunch and Learn	<p>Sidhartha Goyal, Associate Professor, Department of Physics U of T</p> <p>Talk: “Competition across scales in biology”</p>
2:00pm – 5:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p>

Day 7

Times	Tuesday, June 25, 2024
9:00am – 12:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p> <p>Milstein Lab Room DV5032 Module Instructor: Faisal Halabeya</p>
12:00pm – 2:00pm Lunch and Learn*	<p>Feiran Zhou, Business Development and Commercialization Manager Ontario Centre of Innovation</p> <p>Talk: “Crafting Compelling Pitches for Startup Success: A Case Study”</p>
2:00pm – 5:00pm Research Modules	<p>Prosser Lab Room DV2051B Module Instructors: Cam Li, Olga Alimowska</p> <p>Gradinaru Lab Room DV5019 Module Instructor: Xiaohan Zhou</p> <p>Rauscher Lab Room DV3020D Module Instructor: Yousuf Ramahi</p> <p>Nguyen Ba Lab Room DV4090C Module Instructors: Evelina Tronina, Kortni Kindree</p>

*Note: Today’s Lunch and Learn will teach students about pitching, getting them ready for their pitch competition the following day.

Day 8

Times	Wednesday, June 26, 2024
9:30am – 11:30am Entrepreneurship Workshops	SpinUp startup shadowing
11:30am – 12:30pm Lunch and Learn	Lucas Penny , Co-Managing Director Nucleate Canada Talk: “How graduate students can turn their lab-based innovations into viable startups”
12:30pm – 2:30pm	Student teams work on pitches
2:30pm – 4:00pm	Pitch competition and awards
5:00pm	Dinner banquet at Erindale Park Scan the QR code for directions >> 

Day 9

Times	Thursday, June 27, 2024
9:00am – 12:00pm INSPIRE Symposium	Students will sign up to discuss the seven modules, with each team presenting for 20 minutes
12:00pm – 1:00pm Closing Remarks	Delivered by Josh Milstein , Associate VP Research, OVPRI

MEET OUR GUEST SPEAKERS

R E S E A R C H E R S



Rodrigo Fernandes-Gonzales

Associate Professor, Canada Research Chair in Quantitative Cell Biology and Morphogenesis, Institute of Biomedical Engineering | U of T

Talk: Thursday, June 20 | 12:00pm



Sidhartha Goyal

Associate Professor, Department of Physics | U of T

Talk: Monday, June 24 | 12:00pm



Lueder Kahrs

Assistant Professor, Institute of Biomedical Engineering | U of T

Talk: Friday, June 21 | 12:00pm



Helen Tran

Assistant Professor, Department of Chemistry | U of T

Talk: Tuesday, June 18, 2024 | 12:00pm

MEET OUR GUEST SPEAKERS

ENTREPRENEURS



Lucas Penny

Co-Managing Director, Nucleate Canada

Wednesday, June 26 | 11:30am - 12:30pm



Feiran Zhou

Business Development and Commercialization
Manager, Ontario Centre of Innovation

Tuesday, June 25 | 12:00pm - 2:00pm

MEET OUR STARTUPS

SPINUP ENTREPRENEURS

In groups of ~4, students will shadow select SpinUp startups (listed below) to get to know the innovations we are incubating at UTM. Each group will focus on one startup to get to know them in detail. In the afternoon, each group will prepare to pitch their assigned startup to a panel of judges.



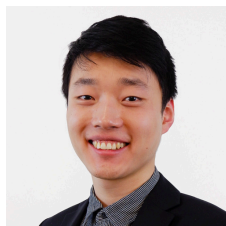
Arma

Host: **Surath Gomis**,
Director of R&D and Co-Founder



Bough Biosciences

Host: **Ben Kolisnyk**,
Founder and CEO



Diaminopharm

Host: **Rick Fu**,
Board Member



MycoFutures

Host: **Stephanie Lipp**,
CEO & Co-Founder

MEET OUR JUDGES

PITCH COMPETITION

Student groups will spend 2 hours preparing to pitch their assigned SpinUp startup, following a template provided in the morning that is based on content taught during the June 25th lunch-and-learn. Students will then pitch their assigned startup to a panel of judges (listed below). There will be prizes!



Mark Aquilino

Co-Founder, Epiloid



Kayla Sousa

Program Lead, ICUBE UTM



Cameron Stewart

CEO, Mesosil



INSTRUCTIONS FOR THE SYMPOSIUM

An important part of scientific research is being able to communicate your results and findings to diverse audiences. This is in part the purpose of scientific conferences or symposia. Symposia and conferences offer a platform for scientists to present their work to a diverse audience, receive constructive feedback, and engage in stimulating discussions. They also promote interdisciplinary collaboration, as researchers from different fields come together to explore new avenues of research and address complex scientific questions that require collective expertise.

The primary objective of this communication is to present scientific concepts and findings in a way that is accessible, relatable, and engaging to different audiences, irrespective of their scientific background. In addition, it is through effective communication that the general public can become informed about scientific advancements, fostering a scientifically literate society that can make well-informed decisions and actively participate in shaping the future.

To mimic this aspect of scientific research, you will give a 20-minute presentation in groups of a research module you would have completed during the first week of the program to the other participants of the INSPIRE program. Your presentation should:

- Introduce/motivate the topic of the module (based on the module write-up you received, and the recommended readings). You are welcome to further research the topic if you would like to.
- Provide a concise overview of the main objectives of the research module, your main results (summarized with pictures, data visualization from data you may have analyzed, etc.) and highlight the significance of your results in relation to the research module topic/objectives.
- Discuss challenges your team encountered during the module and provide some reflection on aspects of the module and/or strategies that you would do differently if you could do the module again and explain the rationale behind the proposed improvements.
- Share your thoughts on potential areas of further exploration within the research module topic and explain why these areas might be of interest.

Every member of the group must be present for about the same amount of time (about 10 minutes in a 2-member team and about 7 minutes in a 3-member team).

RECOMMENDED FORMAT POWERPOINT SLIDES



Font: Times New Roman or Cambria,
24 size font (or larger).



Style: The recommended style for PowerPoint presentations includes using the Title to inform the viewers about the main issue or conclusion of this slide.

Title Samples:

- “Scattering is a main issue in imaging cells below the surface”
- “Future directions in molecular imaging”

Do NOT try to include more than 2-3 figures per slide, and only 3-4 main ideas you would like to discuss in bullet points.

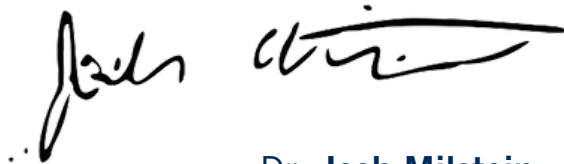
Do NOT overcrowd the slides and use additional slides as needed. Generally, use the “1 minute per slide rule” and don’t try to include too much information.

Thank You

Dear INSPIRE Program Participants,

As you move forward, we want to extend our heartfelt wishes for a future filled with success, joy, and fulfillment. You have shown remarkable potential in your undergraduate studies, and we have no doubt that your dedication and passion will lead you to great heights in your chosen fields.

As you reflect upon your experiences and accomplishments during the program, we encourage you to consider the next steps in your academic journey. Pursuing graduate studies is an extraordinary opportunity to delve even deeper into your fields of interest, allowing you to make a lasting impact and contribute to the frontiers of knowledge. At the University of Toronto, we pride ourselves on our world-class graduate programs, where brilliant minds like yours find the perfect platform to flourish.



Dr. Josh Milstein
Associate VP Research, OVPRI



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