

# **Equity, Diversity, Inclusion**

Amy Hurford  
CAIMS meeting  
June 15, 2022

# CAIMS EDIM committee

## A: Terms of Reference

The *Equity, Diversity, Inclusiveness and Membership Committee* (EDIM) of CAIMS mandate is to

1. Review, monitor, and make recommendations to the Board of Directors of The Canadian Applied and Industrial Mathematics Society (BOD-CAIMS) regarding the position and interests of women, First Nations, persons with disabilities, LGBTQ+ communities, as well as other underrepresented groups in Canada and our Society.
2. Recommend action plans to BOD-CAIMS that advance and promote equity, diversity, inclusivity, accessibility for all groups identified in A.1.
3. Ensure equitable treatment of the groups identified in A.1 in the mathematical community.
4. Review and recommend BOD-CAIMS strategies to encourage the participation of all groups identified in A.1 in applied and industrial mathematics at all levels.

# CAIMS EDIM committee

## B: Duties and Responsibilities

The committee will examine and develop action plans in the spirit of this committee's mandate and recommend them for approval to BOD-CAIMS. In carrying out the above, EDIMC will:

1. In Year 1, perform an EDI audit of CAIMS.
2. Ensure that conferences and seminars are accessible and welcoming to all groups identified in A.1.
3. Review, monitor, and prepare award nominations to ensure equal opportunity for all of our Society's awards. EDIMC is encouraged to schedule at least one nomination per competition cycle actively.
4. Organize network activities and monitor all activities that support all underrepresented groups in their careers in mathematics research and teaching.
5. Within their mandate, take proactive actions to all issues related to inequality, discrimination, racism, and any other type of offensive behaviour.
6. Advise the Board of Directors in all EDIMC related issues.
7. Promote CAIMS membership on all levels; provide annual reminders to all CAIMS stakeholders to renew their membership and become proactive in recruiting new members.

# Goals of today's discussion

1. Start the conversation
2. Work on articulating the need for EDI in science
3. Share our ideas for what should be done
  - To be an ally, elevate the voices of under-represented groups
  - Under-represented groups are exposed to vulnerability when participating in group activities such as this

# Diversity data for NSERC awards

Women	Visible Minorities	People with Disabilities	Indigenous
50.9%	22%	7.5%	4.9%

	Women	Visible Minorities	People with Disabilities	Indigenous
<b>Canada Graduate Scholarships–Master's</b>	62%	20.1%	4.4%	2.3%
<b>NSERC Postgraduate Scholarships</b>	41.6%	27.8%	3.4%	1.8%
<b>NSERC Postdoctoral Fellowships</b>	42.4%	41.6%	-	-
<b>NSERC Discovery Grants</b>	23.9%	23.0%	1.4%	0.6%
<b>Canada Research Chairs</b>	38.6%	21.4%	5.5%	3.2%

**About the necessity of collecting data to improve EDI in mathematics. CMS**

# Diversity data for CMS

Awards	Women (since beginning)	Women (since 2012)
Fellowship of the CMS [19] (since 2018)	11.8%	11.8%
David Borwein Distinguished Career Award [20] (since 2006)	0%	0%
Graham Wright Award for Distinguished Service [21] (since 1995)	10.3%	20%
Adrien Pouliot Award [22] (since 1995)	14.3%	20%
Excellence in Teaching Award [23] (since 2004)	16.7%	20%
Coxeter James Prize [24] (since 1978)	4.5%	0%
Jeffery-Williams Prize [25] (since 1968)	1.9%	0%
CMS Blair Spearman Doctoral Prize [26] (since 1997)	7.7%	0%
G. de B. Robinson Award [27] (since 1995)	15.4%	27.3%
CRM-Fields/CRM-Fields-PIMS Prize [28] (since 1995)	7.4%	10%

CMS Boards	Women
Board of governors [13]	37%
Editorial boards [14]	24%
Canadian Journal of Mathematics	25%
Canadian Mathematical Bulletin	47%
Crux Mathematicorum	
<b>CMS Winter meeting 2021 [15]</b>	
Participants	32%
Speakers	35%
Organizers of a scientific session	49%

About the necessity of collecting data to improve EDI in mathematics. CMS

# Mathematics

The mathematical community is especially keen on meritocracy and on avoiding the stigma associated with measures such as quotas.

But assessing merit is itself not an exact science, says Jess Wade, a materials scientist at Imperial College London who is known for running science-outreach projects aimed at improving diversity.

"I truly believe that it's a really lazy excuse to say 'we're just awarding excellence'."

**Mathematics prizes have a gender problem — can it be fixed? Nature May 27 2022**

# Canada Research Chairs program



**Dr. Izabella Laba** @ilaba · May 31

...

Replies to [@ilaba](#)

1) Nowadays, nobody will say explicitly on a prize committee that e.g. we should not give research prizes to women. \*That, in itself, is progress.\* It's progress that happened b/c of pressure from various directions, including quota.

1

1

15

↑



**Dr. Izabella Laba** @ilaba · May 31

...

2) What will actually happen is committee members are more likely to have reservations about female or racialized candidates. They find it easier to criticize them, for reasons that might be legitimate if they were applied equally across the board, which they are not.

1

4

23

↑



**Dr. Izabella Laba** @ilaba · May 31

...

3) For example, "we gave an award in a similar research area last year", or "does not have enough publications listed on MathSciNet". New rules and restrictions get invented as soon as a woman becomes a viable candidate.

1

2

19

↑



**Dr. Izabella Laba** @ilaba · May 31

...

4) This should, of course, be countered. I have done that. But it also helps to have \*many\* female candidates. Then it becomes more difficult to find a special reason to eliminate each of them, without the pattern becoming obvious.

1

2

16

↑



**Dr. Izabella Laba** @ilaba · May 31

...

5) Many significant awards come with "customary" expectations. For example, the candidate should be at a certain stage of a career, not too early, not too late, just right. Should have accomplished this and this, but not too long ago. And so on.

1

2

10

↑

# The argument for diversity in science

1. Diversity is critical to excellence
  - scientific breakthroughs are misattributed to individuals
  - groups outperform individuals
  - progress is incremental
  - progress usually comes from seeing the problem differently
2. Lack of diversity represents a loss of talent
3. Enhancing diversity is the key to long-term economic growth and global competitiveness

Diversity in STEM: What It Is and Why It Matters. Scientific American

A genuine assessment of potential would favor an under-represented candidate

# The argument for diversity in science

His and Her Mathematical Models

Anita Layton, UWaterloo, March 8, 2020

Imagine someone having a heart attack. Do you see the “classic heart attack”, in which a man collapses, grabbing his chest in agony? What you have just imagined is the typical dramatic Hollywood portrayal of a heart attack, and that is almost always depicted for a man. In fact, even though heart disease is the leading killer of women worldwide, the misconception that heart disease is a men’s disease has persisted. This misconception is dangerous and risks women ignoring their own symptoms

<https://www.nature.com/articles/d41586-018-05326-3>

# **Being educated is everyone's responsibility & why it matters**

- Assessment rubrics for hiring and awards
- Fair appraisal of contributions
- Support for EDI initiatives in the workplace
- Understand how to do your job in an equitable and inclusive way

# Equity and Justice

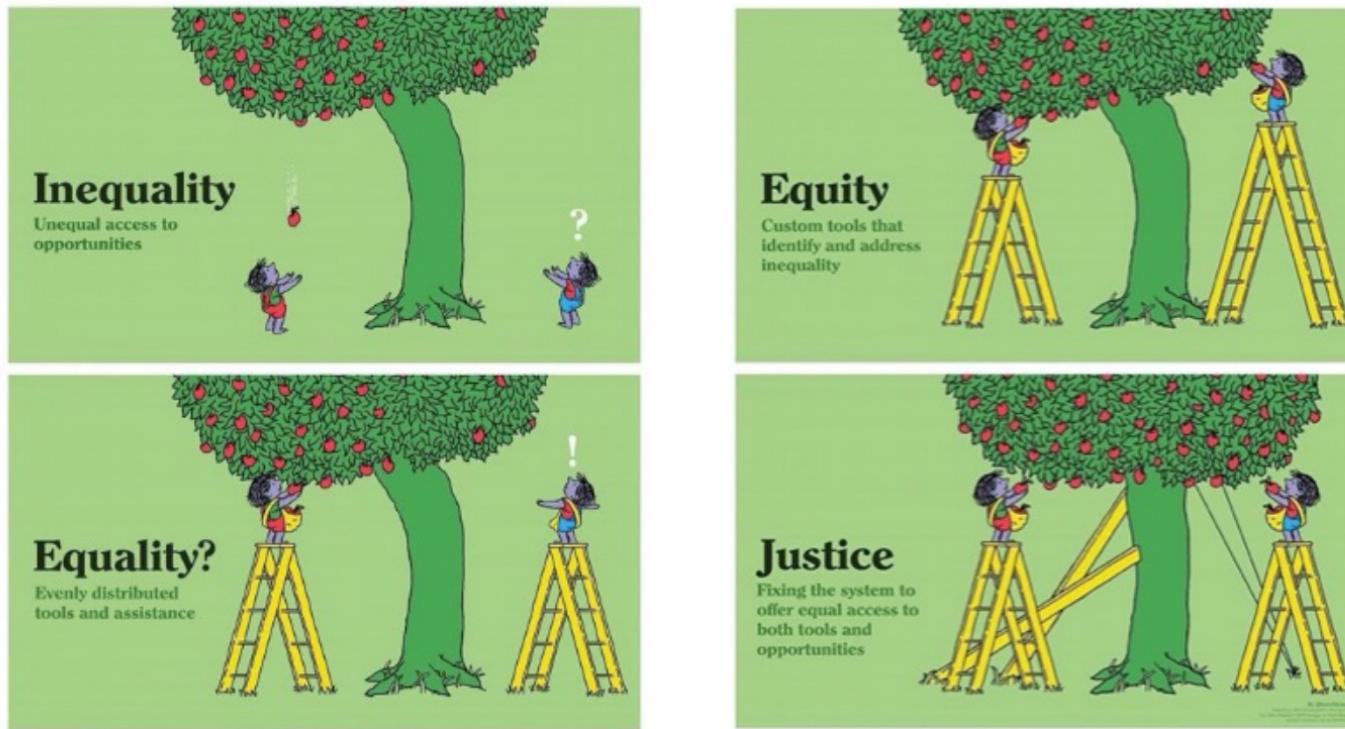


Image credit: Tony Ruth for Design in Tech Report, found here:

[https://www.reddit.com/r/coolguides/comments/jodjrl/visual\\_depiction\\_of\\_inequality\\_equality\\_equity/](https://www.reddit.com/r/coolguides/comments/jodjrl/visual_depiction_of_inequality_equality_equity/)

# **EDI work is not about box checking**

Overall, we've heard in consultations and from some governing bodies that groups are tired of shallow consultations and research projects that do not use results to act in ways that benefit communities (consultations and projects that "go nowhere" and "just check a box")

<https://www.mun.ca/research/Indigenous/faq.php>

# **Summary**

1. Need to collect data
2. Everyone needs to be educated
3. Need for co-ordination
4. Take action

# Discussion questions

1. How do you answer these questions on your NSERC Discovery Grant application?
2. What actions are needed to achieve the EDI goals for the CRC program?
3. How do we do research with Indigenous groups 'in a good way'?
4. Have you tried to decolonize your syllabus/ knowledge of historical contributions?
5. How do we support anti-racism in science?
6. Gender bias in science is well-documented, but the bias continues. What actions are needed?
7. What actions are needed to support LGBT+ scientists
8. What actions are needed to support disabled scientists

# Canadian scientists need to support Equity, Diversity, and Inclusion

## Training philosophy

The *Training philosophy* should describe your approach to training HQP, detailing the mentoring approach and the type of research training and development opportunities provided.

Describe qualitatively any challenges or barriers encountered in ensuring an inclusive research and training environment.

Describe the planned approach to promoting participation from a diverse group of HQP, taking into account equity and inclusion in recruitment practices, mentorship approaches and initiatives aimed at ensuring an inclusive research and training environment and trainee growth.

Applicants are expected to increase the inclusion and advancement of under-represented groups in the natural sciences and engineering as one way to enhance excellence in research and training. An inclusive research training environment exists where all people are respected and have access to the same opportunities, and where each individual—including those from under-represented groups—can reach their full potential, unimpeded by inequitable practices. A commitment from all researchers to implement specific actions that acknowledge and address barriers to participation (e.g. physical, procedural, visible, invisible, unintentional) is required to increase access to the largest pool of qualified potential participants and the overall excellence of research, across all natural sciences and engineering disciplines.

The screenshot shows the official website of the Natural Sciences and Engineering Research Council of Canada (NSERC). At the top, there are logos for NSERC and the Canadian government, along with links for "Natural Sciences and Engineering Research Council of Canada" and "Conseil de recherches en sciences naturelles et en génie du Canada". Below the header, a large red maple leaf logo is centered above the text "Natural Sciences and Engineering Research Council of Canada" and the website address "www.nserc-crsng.gc.ca". A navigation bar below the logo includes links for "Français", "Home", "Contact Us", "Help", "Search", and "canada.ca". A secondary navigation bar at the bottom of the page includes links for "Home > Research Portal > Instructions > Discovery Grants Program", "Research Portal", "Back", "Print", "Bookmark", "Larger", and "Smaller". On the left side, there are two red buttons: "Instructions" and "Resource videos". The main content area is titled "Discovery Grants program" and "Instructions for completing an application".

# NSERC Discovery Grant requirements

## Training environment

Describe the research training and development opportunities provided for HQP (e.g., science outreach and engagement, interdisciplinary research, promoting EDI in the NSE, collaborations, interaction with the private and public sectors).

Describe qualitatively any challenges or barriers encountered in ensuring an inclusive research and training environment.

Describe specific actions implemented to support equity and inclusion in recruitment practices, mentorship approaches, and initiatives aimed at ensuring an inclusive research and training environment and trainee growth (if applicable).

**Important:** Trainee demographic data **is not requested** or required to assess impacts resulting from consideration of equity, diversity and inclusion in the research and training environment.

For more information on equitable, diverse and inclusive research and training environments, refer to NSERC's  [Guide for applicants: Considering equity, diversity and inclusion in your application](#) (questions 1 to 4) and New Frontiers in Research Fund's (NFRF's)  [Best practices in equity, diversity and inclusion in research](#).

For more information on equitable and inclusive recruitment practices, refer to the Canada Research Chairs' (CRC's)  [Equity, diversity and inclusion: A best practices guide for recruitment, hiring and retention](#) and NFRF's  [Best practices in equity, diversity and inclusion in research](#).

# NSERC Discovery Grant recommended resources

## Best Practices in Equity, Diversity and Inclusion in Research

A guide for applicants to New Frontiers in Research Fund competitions

	Examples of questions to consider to help understand challenges/opportunities	Examples of best practices to help address the barriers identified
<b>Planning the team composition/communicating the opportunity</b>	<ul style="list-style-type: none"><li>• What are the systemic barriers faced by individuals from underrepresented groups (e.g., women, persons with disabilities, Indigenous Peoples, racialized minorities, individuals from LGBTQ2+ communities) that have led to their underrepresentation in Canada's research ecosystem?</li><li>• How might systemic barriers be different or worse for individuals who identify with more than one underrepresented group (e.g., race, gender and/or sexuality)?</li><li>• How could using an intersectional <sup>2</sup> approach/lens help better identify and address their systemic barriers?</li><li>• What impact does/could facing these persistent systemic barriers over the long term have on the lived experiences of individuals as</li></ul>	<ul style="list-style-type: none"><li>• If you have limited knowledge of EDI, commit to developing your knowledge (i.e., take various types of training, read some of the published research that is available, read the work of individuals from underrepresented groups, read your institution's EDI action plan, consider whether your institution has signed on to the <a href="#">Dimensions EDI program</a>, speak to the leaders at your institution about their commitment to EDI and what they are doing to address systemic barriers).</li><li>• Carefully consider what role you can play to help identify and mitigate potential barriers within your research, research teams and institution.</li><li>• Ask your institution what its current employment equity targets</li></ul>

<https://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/edi-eng.aspx>

# NSERC Discovery Grant recommended resources

The screenshot shows the Canada Research Chairs website. At the top, there's a navigation bar with links for About Us, Program Details, Peer Review, Chairholders, and News Room. Below the navigation is a breadcrumb trail: Home > Program Details > Equity, Diversity and Inclusion Requirements and Practices > Creating an Equitable, Diverse and Inclusive Research Environment: A Best Practices Guide for Recruitment, Hiring and Retention. The main content area features a large red Canadian maple leaf graphic. On the left, a sidebar under 'Program Details' lists 'Method of Allocating Chairs'. The right side displays the title of the document: 'Creating an Equitable, Diverse and Inclusive Research Environment: A Best Practices Guide for Recruitment, Hiring and Retention'.

## Part I: Recruitment and Retention

- A. [Job postings](#)
- B. [Search for candidates](#)
- C. [Hiring committee](#)
- D. [Interview](#)
- E. [Virtual interviews](#)
- F. [Hiring decisions](#)
- G. [Canada Research Chair nomination](#)
- H. [Retention and promotion](#)

## Part II: Other Important Considerations

- I. [Organizational allocation and planning](#)
- J. [Self-identification](#)
- K. [Environment](#)
- L. [Complaints](#)
- M. [Definitions](#)

# NSERC Discovery Grant recommended resources



## Guide for Applicants: Considering equity, diversity and inclusion in your application

2017 Edition

1. What are the benefits of increasing the participation of under-represented groups among co-applicants, collaborators and trainees?
2. Why is equitable mentorship for all trainees needed (what are the issues/problems and benefits)? What does it mean to provide equitable mentorship?
3. What is an equitable and inclusive research and work environment (what are the issues/problems and benefits)? What measures can be taken to ensure this is achieved?
4. How can diversity and equity be highlighted in networking and leadership training events?

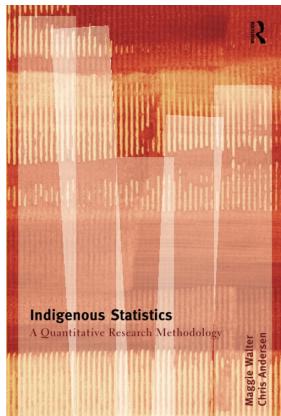
# Effective EDI statements need **context** and **action**.

Context – Clearly described

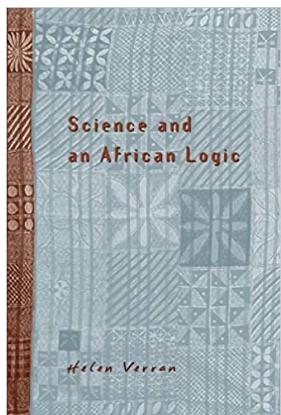
Specific Actions – Clearly defined

The low levels of inclusion of women and gender minorities in the field of physics is an historic EDI challenge. My experience is that it is students will only consider graduate studies in a field if they are engaged and encouraged in the subject early in their undergraduate program. To address this, I will hold annual laboratory tours for our local chapter of Women and Science and Engineering and encourage interested students to hold NSERC USRAs in our group.

# Decolonize your syllabus/HQP training



Require historical essays highlighting less known contributions by under-represented groups



**Ross Ihaka** Alongside [Robert Gentleman](#), he is one of the creators of the [R programming language](#).<sup>[4][5][6]</sup> His thesis was on statistical modelling for [seismic interferometry](#) and was titled [Rūaumoko](#), after the god of earthquakes, volcanoes and seasons in [Māori mythology](#)

Ihaka is of [Ngāti Kahungunu](#), [Rangitāne](#) and [Ngati Pākehā](#) (New Zealand European) descent.

[https://en.wikipedia.org/wiki/Ross\\_Ihaka](https://en.wikipedia.org/wiki/Ross_Ihaka)

# Ten simple rules for building an antiracist lab

V. Bala Chaudhary , Asmeret Asefaw Berhe

Published: October 1, 2020 • <https://doi.org/10.1371/journal.pcbi.1008210>

## Ten simple rules for building an antiracist lab

From Chaudhary and Berhe 2020

1. Lead informed discussions about antiracism in your lab regularly
2. Address racism in your lab and field safety guidelines
3. Publish papers and write grants with BIPOC colleagues
4. Evaluate your lab's mentoring practices
5. Amplify voices of BIPOC scientists in your field
6. Support BIPOC in their efforts to organize
7. Intentionally recruit BIPOC students and staff
8. Adopt a dynamic research agenda
9. Advocate for racially diverse leadership in science
10. Hold the powerful accountable and don't expect gratitude

# Gender bias in science

- We can't afford to lose 50% of the best people [1:14:34]
- Our implicit biases associate men and science [50:35]
- Most common forms of sexual harassment are not sexual advances [17:58]
- Change is slowed by gaslighting & isolation [38:47]
- Advocacy efforts from necessity rather than choice [1:29:54]
- Women who speak up leave academia [1:02:29]



# LGBT+

- 1.Break with convention
- 2.Science must adapt
- 3.Be inclusive by including
- 4.Practice pronouns
- 5.Create a support network
- 6.We need more role models

**How LGBT+ scientists would like to be included and welcomed in STEM workplaces**

<https://www.nature.com/articles/d41586-020-02949-3>

## LGBT+

Feel invisible: cloaking an important part of their identity at work can have dangerous consequences for mental health and career advancement

30% of LGBT+ scientists and half of transgender scientists said that they had considered leaving their workplace because of an unfriendly or hostile climate or because of discrimination

## 1. Break with convention

For example, when I asked questions to engage my classes, some students complained to the dean's office that I did not know the material. They thought I was asking them questions because I needed their help solving the equations. I wish the school had expressed more confidence in my qualifications — why they hired me in the first place — when they addressed the students' concerns – **Hontas Farmer**

## 2. Science must adapt

A professor once brought up my queerness in class as a deficit in my cognitive processing. It was so jarring, so shocking. One of my peers spoke up and said, “That is incredibly rude, disrespectful and inaccurate — and has no place here.” The tone of the class shifted dramatically and it got super quiet. The professor tried to backtrack, but was also firm in his conviction that he was right. – **Kaela Singleton**



### 3. Be inclusive by including

I started in the field of ionic liquids soon after I'd first come out as gay in 1984. Our field's leader then, the now-late Ken Seddon, was quite prepared to make judgements about my research, but did not allow pre-judgement or prejudice about my sexuality. He very clearly demonstrated that he respected me because of the quality of my work and that everything else was secondary. Having the field's big-wig demonstrate that concept was very helpful. –

**Tom Whelton**



## 4. Practice pronouns

Two-spirit is a culturally acknowledged third form of gender identity for Native Americans. It encapsulates various forms of sexuality and gender identity — trans, queer, non-binary — as well as the spiritual roles and presentation people can take within their tribes. Two-spirit individuals sometimes have mediating roles between men's and women's roles. Or they might have unique functions in cultural practices: those associated with maintaining harmony, menstruation and spirituality, such as being a shaman, or healer, or in the arts, including basket-weaving and dance.— **Micah Savin**

## 5. Create a support network

I stopped having to waste emotional energy. I work harder now, and I'm a better teacher. I'm open with my students about my own struggles with physics and that I make mistakes. - **JJ Eldridge**

## 6. We need more role models

If another PI, student or labmate says something inappropriate or offensive, it is important for those in leadership positions to approach them about the situation, even if it's uncomfortable. Ideally the person will take it as constructive feedback and not as a personal attack. This kind of scenario requires mindful deliverance, so effective communication is key.

Irrespective of your role, it is essential to read the situation at hand — if a direct approach doesn't seem like the best choice because it might throw a spotlight on the victim, then consider other avenues. Reach out to friends, colleagues or fellow LGBT+ students, or student services, for advice on how to move forward. -

**SEAN VIDAL EDGERTON**



# **Disabilities**

- 1.Don't make assumptions
- 2.Create equity for all
- 3.Disability isn't a dirty word
- 4.Just ask what we need

<https://www.nature.com/articles/d41586-021-02907-7>

# 1. Don't make assumptions



My current adviser is incredibly supportive of people taking time off to deal with their health. I get called out for not scheduling a holiday. Leaves of absence should be normalized. My advice to others is: you don't know what's going on with other people. Don't assume someone is being lazy or doesn't care.

- Sara Riveria

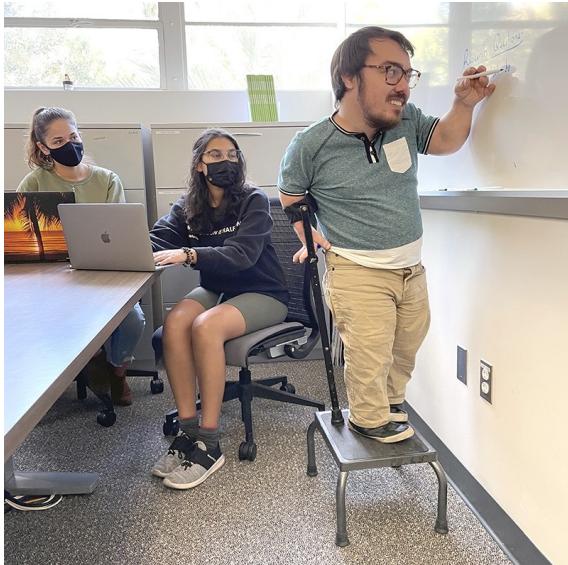
## **2. Create equity for all**

Some people think that a disability is somehow a privilege, but in reality disabled students need equity — not equality.

With equality, we are not getting anywhere. But with equity, all students can access the same facilities and education.

We cannot give up, even though it's hard sometimes. I won't be quiet. Disabled people are part of society, and disability is just another human characteristic. - **VANESSA CRISTINA DA SILVA FERREIRA**

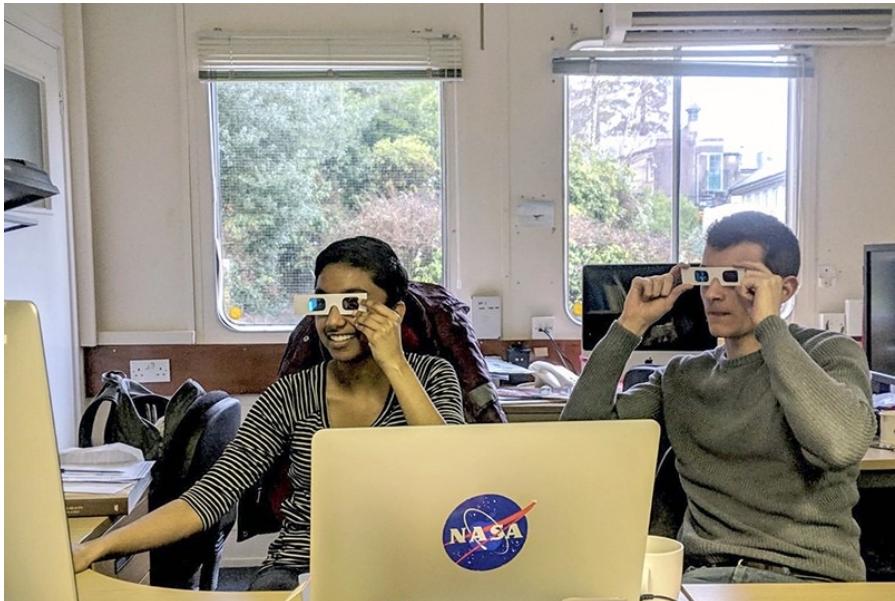
### 3. Disability isn't a dirty word



In the end, the costs of my accommodations were shared by my advisers and my department, because they wanted me to be successful. What I needed was inexpensive, but other adaptive equipment could be pricey. If principal investigators think it has to come out of their budget, are they going to want to recruit and retain graduate students with disabilities?

Checking in about accessibility needs should be a lab-group norm, not a special circumstance. Society is finally at the point where 'disability' isn't a dirty word, but we need to frequently discuss accessibility. – **Logan Gin**

## 4. Just ask what we need



If you want to advocate for a disabled peer, just ask what they need. It will be awkward, but that's life. Don't stop asking your disabled friends to go out. Don't do things out of kindness without asking for consent. Don't ever disclose someone's disability to someone else – **Divya Persaud**

# Resources

- <https://github.com/ahurford/EDI-resources>
- Please email [ahurford@mun.ca](mailto:ahurford@mun.ca) with suggestions of how the EDIM committee can best serve CAIMS