EDI in STEM:
What it is, why you want it & how to get it

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Canadian Society for Molecular Biosciences
Promoting and advancing molecular understanding of biology
Société canadienne pour les biosciences moléculaires
Promotion et avancement de la compréhension moléculaire de la biologie

Lepton Photon 2019
Toronto August 4th

“Ryerson is at the heart of Toronto, and Toronto is in the 'Dish With One Spoon Territory'. The Dish With One Spoon is a treaty between the Anishinaabe, Mississaugas and Haudenosaunee that bound them to share the territory and protect the land. Subsequent Indigenous Nations and peoples, Europeans and all newcomers have been invited into this treaty in the spirit of peace, friendship and respect.”

Ryerson University Land Acknowledgement
https://www.ryerson.ca/aec/land-acknowledgement/
“Ryerson is at the heart of Toronto, and Toronto is in the 'Dish With One Spoon Territory'. The Dish With One Spoon is a treaty between the Anishinaabe, Mississaugas and Haudenosaunee that bound them to share the territory and protect the land. Subsequent Indigenous Nations and peoples, Europeans and all newcomers have been invited into this treaty in the spirit of peace, friendship and respect.”

Land acknowledgement is a call to action – what is your response?

Ryerson University Land Acknowledgement
https://www.ryerson.ca/aec/land-acknowledgement/
EDI in STEM: What is it?

Equity — active fairness, identifying & removing barriers, bias, etc., NB: ≠ equality
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EDI in STEM: What is it?

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Diversity – awareness of differences (race, ethnicity, gender, sexual orientation, socio-economic status, age, physical abilities etc.) ★ Look around the room right now

Inclusion – ensuring the active participation in an organization, group, structure, etc.

Quote: “a sense of belonging is the heartbeat of inclusion” ★ Pay attention to who is participating in dialogue or decision making. Allyship.
We live in a world awash with stereotypes (including about what a scientist looks like and how a scientist should behave). Academic science, like society, integrates racism, sexism, homophobic, ableism, ageism etc. structurally. There are barriers built on stereotypes.

That academia is a meritocracy is a measurable (by academics) falsehood.

The Myth of Meritocracy Protects Those with Power & Privilege.
Scientists base their professional identities on being objective, forgetting they are human

Math & physics are disciplines with higher levels (cf. chemistry & biology) of belief in fixed mind-set versus growth mindset – for gender, race, ethnicity, etc.

Scientists/engineers are the most resistant to accepting and believing the data & evidence in support of gender+ bias, along with maintaining a firm belief in meritocracy despite ample evidence (i.e. scholarship) that meritocracy is a myth.

Excellent primer on the data & evidence for bias in STEM

https://www.youtube.com/watch?v=rRezSNPbMEO&time=2841&fbclid=IwAR2eeKyVbBb8m2VpvVijXi461JkYNtEcLkjhGxzqMW38PEsc6ru380YyQNs
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Failure to incorporate diversity into science & medicine leads to very bad science & medicine e.g. AI, tech, drugs, genomics

"Increased attention to diversity will increase the accuracy, utility and acceptability of using genomic information for clinical care".

EDI in STEM: Why you want it

Because you get better science
Because you get better innovation
Because you get better ROI

Because you need it to meet funding expectations (CIHR, NERC, CRCs, CERCs, NIH)
Looking for a grant? SGBA+ incorporated into research mandatory @ CIHR, NSERC, SSHRC
Demonstrate EDI for HQP component (30%) @ NSERC

Excellence of the researcher
- Knowledge, expertise, and experience of the researcher in the NSE
- Quality and impact of contributions to the proposed research and/or other areas of research in the NSE
- Importance of contributions to, and use by, other researchers and end-users

Merit of the proposal
- Originality and innovation
- Significance and expected contributions to NSE research; potential for policy-and/or technology-relevant impact
- Clarity and scope of objectives
- Clarity and appropriateness of methodological approach
- Consideration of sex, gender, and diversity in the research design, if applicable
- Extent to which the scope of the proposal addresses all relevant issues
- Appropriate use of, and justification for, the budget
- Demonstration that the Discovery Grant proposal is distinct conceptually from research supported (or submitted for support) through CIHR and/or SSHRC
- Clear explanation why Discovery Grant funding is essential to carry out the research proposed in the DG application (for applicants who hold or have applied for a CIHR Foundation Grant)

Contributions to the training of highly qualified personnel
- First comprehensive overview of HQP
  - Training environment
  - HQP awards and research contributions
  - Outcomes and skills gained by HQP
- Training plan
  - Training philosophy
  - HQP research training plan

Rationale for rating:
- Exceptional
- Outstanding
- Very Good
- Strong
- Moderate
- Insufficient

NOT – how many girls do you have in the lab!
Explain how EDI is a core value for your training program
EDI in STEM: Why you want it

Because you get better science
Because you get better innovation
Because you get better ROI

Because you need it to meet funding expectations (CIHR, NERC, CRCs, CERCs, NIH)

Because it makes you a better scientist

★ being aware of bias in all aspects of the scientific endeavour (technical, human, etc) allows us to work towards removing bias while opening more avenues for inquiry, broader questions, more accurate answers & the identification of real excellence

EDI in STEM: How to get it

Remember this:

★ Awareness-Education-Actions-Outcomes

Everyone: Learn, learn about what works and what doesn’t, take action based on what works (evidence-based approaches, systems-approaches, individual reponsibility – for all) and measure outcomes to see if actions lead to positive change

Nature of action will depend on who and where you are – member of dominant group, trainee, pre-tenure faculty, tenured faculty, academic leader,
Faculty members (look for small, visible changes that will add up):

Departmental level: Collect data. Set targets. Look at external appearance – are you a welcoming department to everyone. Imagery, photos, context, infrastructure?

What about your seminar series – is it diverse? Include talks on EDI, prof development?

Know your rights (tenure clock, leave), learn to self-advocate (POC, URMs). Know your institutional policies & requirements re: EDI

Hiring committees: (Dr. Bryan Gaenslers lecture). Be rigorous! Review applications with a deep awareness of implicit bias – TAKE THE HARVARD IMPLICIT BIAS TEST. We are all biased (cf. Dr. Maydianne Andrade). Letters of reference & gendered+ language. “Fit”

Learn to write letters of reference using neutral language.

Teaching: Use diverse examples in teaching, text books, lectures etc. Consider EDI aware curricular offerings. Be aware in class, who is contributing, asking questions, what is the culture of your classroom? Learn to teach inclusively (most LTO offer training)

Research: Lab webpage with EDI statement? Does your department? How do you select research students (e.g. “volunteers”), graduate student surveys re: climate, safety, etc.

Scientific Community: Conference code of conduct, run inclusive conferences, committee representation, awards.

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Trainees (find trusted mentors & build your network – socmedia, societies):

Know your rights (TA union, labour law, employment law, human rights, Title IX, etc.)

Know your institutional policies. Pick your supervisor, committee carefully

Engage in (or request) formal bystander training for dealing with micro-, macro-aggressions

Graduate program climate surveys – request or implement, collect data

Look for opportunities to advance an EDI agenda collectively (seminar, celebrations, LGBTQ+inSTEM, ALD, etc.

Find champions and sponsors (more impactful than mentors)

Learn to expect & manage pushback and hostility

Document, document, document

Members of dominant group (WM, WW..) – ask your colleagues about their experience. Listen.

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Graduate programs can do much towards integration of EDI

Graduate program advisors/directors should be appointed/rewarded on the basis of EDI awareness & advancement of EDI principles (which are usually defined as being institutional priorities too)
Discomfort is inevitable. Discomfort is good. Discomfort leads to more innovation. Better outputs ($$)
Have to present ideas more clearly, have to clarify concepts more thoroughly (e.g. lab teams w/ members fr. diff. countries)
Embedding equity, delivering on diversity, achieving real inclusion (i.e. using all the talent) means the best outcomes and the best science.

Thank you!

www.ryerson.ca/EDISTEM

March for Science, Toronto, April 14th, 2018
Men/women are not a single homogenous group. We all have multiple identifiers, intersections, characteristics = Intersectionalities

Canadian discomfort with discomfort

...... department chair/head answers a question from a candidate for a job in the department about what EDI activities take place in the department ....
"That's an American thing. We never talk about diversity here. We just get on with it and things work.".
- male prof (eng) who says he always hires girls in the lab because “they work harder and he can pay them less”

- department chair/head tells hiring committee “Don't just pick the candidate wearing the prettiest dress”

- Young gay man in tech hides his life because of tech-bro’ homophobic comments, plus..

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**Five sexual harassment investigations involving faculty ‘ongoing’ at the University of Manitoba**

By Timm Bruch

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All the workshops, mentoring programs & science camps, etc. for women/UR groups in STEM will not change participation rates of women and UR groups in STEM unless the culture and workplace also increase accessibility by removing systemic barriers and bringing in accountability and consequences.
Evidence-informed, data-driven policy changes that address organizational, institutional, structural & systemic barriers to full EDI in STEM

*(Tie to $ to incentivize)*

- Data (quan/qual)
- Leading practices (UK, Aus, US)

Leadership, education, intentionality, accountability, courage

First AS Gold in UK
Dept. Chem - Univ. York
https://www.york.ac.uk/chemistry/department/athenaswan/

Gold award = prestigious
RSC – AS award #1 in attracting female candidates (dept. seen as family friendly etc. etc.)
Integration & application of EDI principles in your community

Name it (lexicon of EDI, ask)
Call it out (learn how, workshops, ask for them)
Demand better (#accountability, institutional policies)
Celebrate (+ve context, Soapbox Sci, ALD, IWED, LGBTSTEM etc.)
Communicate (networks, socmedia, societies, listen)
Community (allies, networks, societies)
Copycats (role models, mentors)
Champions (more imp. than role models, sponsors, mentors)
Expect and prepare for pushback & defensiveness
Take individual responsibility – this is on all of us

Awareness – Education – Action - Outcomes

A multitude of nations, languages, cultures, perspectives....

https://native-land.ca/
Women are not a single homogenous group.

There are inequities among women based on colour, age, socioeconomic status... ... Intersectionalities

Acknowledge, learn, respect, recognize, celebrate, accommodate. Recognize privilege

Less emphasis on “getting girls interested in STEM”. It is not their problem – it is our problem.

We (adults, parents, employers, teachers, society) have responsibility to start creating a world that welcomes everyone, a world that looks like a place where everyone belongs, a world that values all contributions, a world that lets everyone be themselves.

That means that we must get uncomfortable and we must do some hard work. It means employers changing policies. It means leaders being held accountable.
Call out gender stereotyping (kids can have all the colours)
Do not buy gendered toys, clothing for kids (gifts).
Look at media, marketing, movies, books, video games, etc.
How are women represented? (Hint: you can be a princess and an engineer – not a choice!).
Talk about it with girls and boys.
Raise boys to be feminists.
Teach men to be allies.
Good men must speak up.
Have behavioural expectations and hold people accountable.
Educate yourself on gender stereotyping and the harmful effects.
Learn why gender equity is good for men (they might actually live longer and be healthier).
Support girls in their goals to be themselves.
Science is a creative endeavour. Bring your creativity. Build confidence.
Expect bravery, not perfection.
Less mentoring, more sponsoring
Building networks, but not expecting women to change
Look at workplace policies (hiring, promotion, leave) – view your workplace, your educational system, your approaches through an EDI lens
Expect and plan for hostility, pushback, discomfort