Specific Teaching Practices to help promote Indigenization - Equity, Diversity, Inclusion, Accessibility and Anti-racism

11.	11. Gather specific feedback on students' perceptions of I-EDIAA in the Biology undergraduate teaching program				

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way of knowing which is centred on rational, evidence-based, empirical, determination of mechanisms to explain ourselves and our social and physical environment. But it is not the only way of knowing, and therefore it has distinct limitations which can be augmented by other approaches.

-related input is also a very powerful force contributing to the development of our society and how we treat each other (e the current push for I-EDIAA is a case in point). More generally, emotional-based knowing is particularly powerful in distinguishing

It seems to me that every human being - no matter what their cultural background - has the capacity for, and regularly uses, both rational and emotional ways of knowing. However, since the advent of modern science which first emerged in the Age of Enlightenment, the rational-based way of knowing has risen to strong dominance in Western society (See Little Bear webinar cited below; Armstrong, 2022). As a result, the balance between different ways of knowing in Western culture has been distorted, and in particular the perceived value of emotionally-based ways of knowing has been weakened and suppressed. By contrast. Indigenous cultures seem to have a much more balanced approach to knowing that involves both rational (incorporating both the intellectual thinking activity of the mind and direct physical sensation components that some Indigenous writers consider as separate ways of knowing), emotional, and even spiritual components all interplaying with each other (Kimmerer, 2013). If the above perspective is correct, it suggests that Western culture would benefit from reprioritizing the relative value it places on the various different ways of knowing so as to achieve more balance between rational and emotional insights. It also suggests that the term Indigenous ways of knowing may not be very helpful and indeed is likely to confuse many who would think the term describes some unique ways of knowing.

Finally, and again specifically from an I-EDIAA perspective, there is educational value to science students in being aware that the scientific mindset/worldview has been utilized over centuries as an agent of oppression, colonialism, and legitimizer of authoritarian power structures (e.g. Mayorga et al. 2019), and is also a major cause of our current environmental crisis (Wright, 2004; Kimmeltealsopsin)fe5(view)]idf1

Practices for highlighting Equity

Equity is defined as the removal of systematic barriers and biases enabling all individuals to have equal opportunity to access and benefit from an organisation (https://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/edi-eng.aspx#2).

- 1. Deliberately highlight researcher contributions from women, BIPOC, queer, trans, and other under-represented groups teach evolution without talking about Darwin, Wallace, Wright, Fisher, etc. However, you could also include a description of how Rosalind determination of the structure of DNA was largely ignored by her male counterparts Watson and Crick (Markel, H. 2022). Furthermore, you could include a picture of Barbara McClintock when discussing transposons, or a picture of Bonnie Bassler and a link to her TedX talk when discussing quorum sensing.
- 2. Take the opportunity in your science course to discuss the lack of diversity in STEM, particularly in environmental fields where minorities are disproportionately impacted. Make students aware that those who are most impacted are therefore NOT driving the research agenda and science may not be asking the 'right questions'. Furthermore, the lack of diversity stifles creativity and deprives society of true innovation and problem-solving capacity. Some relevant reads: https://grist.org/article/environmental-science-diversity-asthma-aradhna-tripati-esteban-burchard/ (10 minutes) https://blogs.scientificamerican.com/voices/silence-is-never-neutral-neither-is-science/ (5 minutes includes action items)
- 3. Highlight the fact that although equity-redeeming measures have been in place within the scientific community for some time, there is still a strong gender bias in the power structure with women well-represented in graduate positions but scarce in higher status positions (James et al. 2019).

3.	If using photographs with humans to illustrate some point in tutorial assignments or lectures

Below are some suggestions to enhance accessibility for students who have hearing disabilities (provided by Queen s American Sgn Language (https://queensuniasl.wixsite.com/qasl)). Obviously, there are many more disabilities that need to be considered and included in further revisions of this document (see https://www.queensu.ca/accessibility/across-campus/queens-accessibility-initiatives)

- Make accommodations for the possibility that some of your students may be deaf/hard of hearing (D/HOH) assume that all students have full hearing ability.
 - a) uncomfortable stating they cannot hear in front of the class.
 - Make students aware that you prioritize their individual learning needs, and provide a space where they can discuss this with you privately (office hours, anonymous google forms, email etc.)
 - c) Some students benefit from lip reading, so ensure you speak facing the class and are in good lighting for them to see your face as you teach.
 - d) Familiarize yourself with the availability of microphones and any other sound projection devices in your learning spaces if needed. However, also be conscious that some students may have hearing devices with which the microphone may interfere.
 - e) Consider adopting methods to maintain the standard of accessibility that Zoom and other online platforms set for D/HOH students as we move back into the in-person learning space after the COVID restrictions. It is crucial for instructors to recognize the enhanced accessibility that platforms such as Zoom offer to the community of D/HOH students. Such students experience many obstacles in learning spaces that are focused on the audial perception of information. Platforms such as Zoom offer several accessibility options, such as automatic live captioning, and access to a transcript of all discussions afterwards, that together allow a D/HOH student to engage in audio-based learning at their own pace. Furthermore, online platforms implicitly slow the pace of material, as they typically have only one person speaking at a time. By contrast, the overlapping noise of several students talking at once, or in groups, during in-person classroom settings often makes hearing difficult for D/HOH students. The methods listed above will help D/HOH students, but in addition there may be technical ways of assisting via simultaneous online presentations that provide live-captioning, or by the provision of a dedicated microphone connected to a student laptop that runs live captioning software. If a student informs you of a D/HOH problem, be very open to their suggestions.

Practices for highlighting Anti-racism

Anti-racism

organizati

Human Rights and Equity Office Showing up for Anti-Racism workshop resources).

- *Maracle L., 2020. Margaret Laurence lecture. Available at:

 https://www.youtube.com/watch?v=XfaHb_Fsggo o O U

 explains her thoughts on decolonizing literature and outlines issues with books schools choose to iconize. Maracle looks retrospectively at her own writing life, contemporaries, and community, and asks why Indigenous women continuously come last in Canada).
- Markel, H. 2022. The Secret of Life. Norton and Company. (An account of toxic masculinity among DNA researchers and a celebration of scientist Rosalind Franklin)
- Mayorga, Edwin, Lekey Leidecker, and Daniel Orr de Gutierrez. 2019. "Burn it down: The incommensurability of the university and decolonization." *Journal of Critical Thought and Praxis* 8(1) #11. https://works.swarthmore.edu/cgi/viewcontent.cgi?article=1152&context=faceducation
- * Mazzocchi, F. 2020. A deeper meaning of sustainability: Insights from Indigenous Knowledge. Anthropocene Review 7(1): 77-93
- Meirmans, et al. 2022. Sticky steps and the gender gap: how thoughtful practices could help keep caregivers in science. *Proceedings of the Royal Society B (Biological Sciences)* **289(1987)**: 1-8.
 - https://www.smithsonianmag.com/science-nature/why-science-takes-so-long-catch-up-traditional-knowledge-180968216/
- Popp, K How Indigenous knowledge advances modern science and technology. The Conversation https://theconversation.com/how-indigenous-knowledge-advances-modern-science-and-technology-89351
- * Robinson D., Hill, Je

Land acknowledgement

https://www.queensu.ca/indigenous/sites/oiiwww/files/uploaded_files/Acknowledgement%20 of%20Territory%20Poster.pdf)

Oritiques and constructive suggestions for effective land acknowledgement practices:

Indigenous Initiatives (https://www.queensu.ca/indigenous/ways-knowing/land-acknowledgement)

Beyond Territorial Acknowledgements: https://apihtawikosisan.com/2016/09/beyond-territorial-acknowledgments/

Understanding the Land Acknowledgement https://www.youtube.com/watch?v=qNZ301-p8k&t=6s (MG: An 8 minute video from Indigenous individuals at York University who share their thoughts about land acknowledgments and its purpose)

Territorial Acknowledgements: Going Beyond the Script.

https://www.youtube.com/watch?v=yXYhBml2c2l (University of Alberta) This territorial acknowledgement video offers seven tips for creating your own acknowledgement.

Meaningful Land Acknowledgements. Lindsay Brant (

Centre for Teaching and Learning)

https://www.youtube.com/watch?v=btmU25mtAT8&list=PLQVD63Mifqa5lqoAhcVSohPOOVKD97AZR&index=3

The Words That Come Before All Else (Thanksgiving Address) See Kimmerer 2013, and also

https://www.ducc.ca/wp-content/uploads/2009/04/Thanksgiving-from-Tracking-Project.pdf;

https://donnallong.com/sustainable-living/words-before-all-else/;

https://www.smithsonianmag.com/blogs/national-museum-american-

indian/2018/11/22/haudenosaunee-thanksgiving-address/

Queen's University Indigenous websites

Office of Indigenous Initiatives: https://www.queensu.ca/indigenous/decolonizing-and-indigenizing

https://www.queensu.ca/provost/committees-and-

reports/truth-and-reconciliation-commission-task-force

https://www.queensu.ca/provost/sites/webpublish.queensu.ca.provwww/files/files/Comittees/TRC%20Reports/(WEB%20VERSION)%20Final%20Report%20of%20the%20Truth%20and%20Reconciliation%20Commission%20Task%20Force.pdf

Together We Are

<u>Ten simple rules for building an antiracist lab</u>- PLOS Computational Biology Tools for promoting diversity and inclusivity in biology classrooms https://projectbiodiversify.org/examples/

I-EDIAA implementation in science and academia

100 ways to Indigenize and decolonize academic programs and courses University of Regina
- Chanda Prescod-Weinstein

Best Practices in EDII in Research SSHRC-ORSH-OHR

Conversations on Decolonization Introductory Module

The intersections of science and racism- UTM Biology Graduates Society

Confronting Anti-Black Racism: Scientific Racism- Harvard Library

Equity, Diversity and Inclusion in Pedagogy and Practice

https://lternet.edu/network-organization/diversity-resources/ (MG: Website with links to many resources on many topics related to EDII in biology)

https://smallpondscience.com/ (MG: Blog about academia leans heavily into issues of EDII in Science)

https://www.ioes.ucla.edu/diversity/ (MG: Institution that focuses specifically on diversity in environmental science

Teaching for Inclusion

Resource Guides to Deepen Understanding of Inclusivity in STEM Courses- LSA University of Michigan

Tips in Inclusive Teaching Practices _ Dartmouth University

Evidence-Based Teaching Guide for Inclusive Teaching (https://lse.ascb.org/evidence-based-teaching-guides/inclusive-teaching/?_ga=2.256414984.249518507.1619809794-

460905395.1619809794) (MG: This interactive site provides information and resources on both the concepts behind inclusivity teaching and ways to implement inclusivity while teaching. This resource is designed specifically for educators; Also see publication related to the site: Dewsbury, B. and Brame, C.J., 2019. Inclusive teaching. CBE Life Sciences Education, 18(2), p.fe2).

Microaggressions

Dealing with Microaggressions and Microaggressions Brown University

https://www.youtube.com/watch?v=ZahtlxW2QQ (18:03)

(MG: Describes types of microaggressions (microassaults, microinsults, microinvalidations) and their impact)

https://www.youtube.com/watch?v=hDd3bzA7450 (1:57) (MG: Brief video on the cumulative impactol5f.)

- in a scenario workshops in-class with Erin Clow and others. These modules and workshops could be specifically modified for our core biology undergraduate courses.
- Course Instructional Designers (via CTL and our Department) can provide enormously helpful insights and can directly lead to actionable steps and concrete improvements. See many excellent CTL resources at: https://www.queensu.ca/ctl/resources/equity-diversity-inclusivity
- Indigenous Canada is a highly recommended 12-lesson Massive Open Online Course (MOOC) from the Faculty of Native Studies at University of Alberta that explores the different histories and contemporary perspectives of Indigenous peoples living in Canada.