

EDI Barriers in STEM: Resources List

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General EDI Barriers in Academia

[REPORT] [Underrepresented and Underpaid: Diversity & Equity Among Canada's Post-Secondary Education Teachers](#) Canadian Association of University Teachers (2018)

- **Disciplines:** All disciplines; Provides gender analysis at the disciplinary level (Agriculture, Natural Resources and Conservation, Mathematics, Computer, and Information Sciences, etc.)
- **Focus:** Gender, race, Indigenous people
- **Region:** Canada
- “In 2016/17, women remain seriously underrepresented among university full-time academic staff in numerous disciplines, including architecture, engineering, and related technologies, computer and information sciences, physical and life sciences, and technologies, and business, management and public administration programs.”

[BOOK] [The Equity Myth: Racialization and Indigeneity at Canadian Universities](#) (2017)

- **Disciplines:** All disciplines, not just STEM
- **Focus:** Black and Indigenous People of Colour (BIPOC); Faculty experiences
- **Region:** Canada
- Provides comprehensive, evidence-based analysis of the experiences of minoritized faculty in Canadian universities.

[JOURNAL ARTICLE] [“Race, racialization and Indigeneity in Canadian universities.”](#) *Race, Ethnicity and Education*. (2017)

- **Disciplines:** All disciplines
- **Focus:** Race (racialized and Indigenous faculty experiences)
- **Region:** Ontario, Canada
- “[W]hether one examines representation in terms of numbers of racialized and Indigenous faculty members and their positioning within the system, their earned income as compared to white faculty, their daily life experiences within the university as workplace, or interactions with colleagues and students... Racialized and Indigenous faculty and the disciplines or areas of their expertise are, on the whole, low in numbers and even lower in terms of power, prestige, and influence within the University.”

[JOURNAL ARTICLE] [“Gender and academic promotion to full professor in Ontario.”](#) *Canadian Journal of Sociology* (2020)

- **Disciplines:** All disciplines, although some STEM-specific analysis is provided
- **Focus:** Gender/women
- **Region:** Ontario, Canada
- “More than twice as many promotions [from associate to full professor] were to men (641) than women (292). This imbalance could not be explained by fewer female associate professors: as mentioned above associate professors in Ontario are at least 38% female. The largest contributors to this gender gap in promotions were Engineering, Science, and

Mathematics/Computer Science, the so-called STEM disciplines, accounting for a total of about 70% of the gender gap in promotions.”

[JOURNAL ARTICLE] “[Glass ceiling or murky waters: The gendered and racialized pathway to full professorship in Canada.](#)” *Canadian Review of Sociology*. (2022)

- **Disciplines:** All disciplines
- **Focus:** Gender/women
- **Region:** Canada
- “[W]e found evidence of a strong negative effect of the probability of being a full professor for women... We also found evidence of a glass ceiling, where a difference in the effect of years of service was found for men and women.”

[JOURNAL ARTICLE] “[Mitigating racial microaggressions on campus: Documenting targets’ responses.](#)” *New Ideas in Psychology*. (2021)

- **Disciplines:** All disciplines
- **Focus:** Race and ethnic groups (Includes analysis of East Asian, South Asian, Arab, Black, and Indigenous experiences); Student experiences
- **Region:** Canada

[JOURNAL ARTICLE] “[Exploring the experiences of black, indigenous, and racialized graduate students: The classroom as a space of alterity, hostility and pedagogical labour.](#)” *Canadian Review of Sociology*. (2022)

- **Disciplines:** Social sciences and humanities
- **Focus:** BIPOC/racialized groups; graduate student experiences
- **Region:** Canada
- “[P]articipants in our study... highlight how racism and colonialism shape their experiences of the graduate-level classroom... This article underscores the centrality of racism and racialization to the graduate student experience and demonstrates the need for systemic change to unsettle the normative whiteness of academia.”

[NEWS ARTICLE] “[The giant plan to track diversity in research journals.](#)” *Nature News Feature*. (28 February 2022)

- **Disciplines:** STEM
- **Focus:** Gender and race
- **Region:** Global
- “Efforts to chart and reduce bias in scholarly publishing will ask authors, reviewers and editors to disclose their race or ethnicity.”

[DATA SETS] “[Women, Minorities, and Persons with Disabilities in Science and Engineering data tables](#)” *National Science Foundation*. (2019)

- **Disciplines:** STEM; includes analysis by academic field (agricultural sciences, biochemistry, etc.)
- **Focus:** Gender/women, race, citizenship status, disability status
- **Region:** US
- “These tables present detailed data on the demographic characteristics, enrolment, degrees, and employment of women, minorities, and persons with disabilities in science and engineering”

[NEWS ARTICLE] "[STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity.](#)"
Pew Research Centre. (2021)

- **Disciplines:** STEM (academic and professional fields)
- **Focus:** Race (Black and Hispanic Americans); Gender/women
- **Region:** US
- "Black and Hispanic workers remain underrepresented in the... STEM workforce... The representation of women varies widely across STEM occupations. Women make up a large majority of all workers in health-related jobs, but remain underrepresented in other job clusters, such as the physical sciences, computing and engineering."

[WEBSITE] [The Sadie Collective](#)

- **Disciplines:** Economics, finance, data science
- **Focus:** Race, gender (Africa American women – researchers and practitioners)
- **Region:** US-focused
- "Addressing the pipeline and pathway problem of Black Women in economics, finance, data science, and policy."

STEM-Specific EDI Barriers

The following sections provide key readings that focus on EDI barriers in STEM fields. Each section focuses specifically on one identity category (gender and sexuality; Indigenous status; and race and ethnicity).

Gender Identity and Sexual Orientation-Based Barriers

[SOCIAL MEDIA] See the [#LGBTQinSTEM](#) hashtag on Twitter

[RESEARCH PAPER] "[A Gender Analysis of the Occupational Pathways of STEM Graduates in Canada](#)"
Statistics Canada (2019)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** Canada
- "This study uses data from the 2006 and 2016 longitudinal census files to examine the occupational pathways of women and men with postsecondary credentials in STEM fields. Generally, male STEM graduates were more likely than female STEM graduates to be employed in a STEM occupation... women were more likely than men to have moved to a non-STEM occupation by 2016."

[REPORT] [Analysis of the distribution of gender in STEM fields in Canada](#). NSERC Chairs for Women in Science and Engineering (2017)

- **Disciplines:** STEM, health sciences
- **Focus:** Gender/women
- **Region:** Canada
- Provides analysis and visualization of education and occupation data from Statistics Canada to demonstrate the gender gap for women in STEM, from undergraduate education through to the labour force.

[JOURNAL ARTICLE] "[Are gender gaps due to evaluations of the applicant or the science? A natural experiment at a national funding agency.](#)" *The Lancet* (2019)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** Canada
- CIHR created a natural experiment in its granting programs in 2014. This article presents data supporting the conclusion "that gender gaps in funding stem from female principal investigators being evaluated less favourably than male principal investigators, not from differences in evaluations of the quality of their proposals."

[NEWS ARTICLE] "[Perish not publish? New study quantifies the lack of female authors in scientific journals](#)" *The Conversations* (2018)

- **Disciplines:** Neuroscience
- **Focus:** Gender
- **Region:** US and Europe
- Authors examined the lack of representation of women in high-impact journal publications to understand how this underrepresentation has negatively impact women's scientific careers.

[NEWS ARTICLE] "[The career cost of COVID-19 to female researchers, and how science should respond](#)" *Nature*. (2020)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** Case studies from UK, US, Australia
- "For female scientists, the pandemic also poses a significant threat to hard-won gender-equity gains achieved over the past few decades. Nature asked journal editors, funders and academic leaders how to mitigate those threats."

[NEWS ARTICLE] "[Sexual Harassment Continues to Plague Women in Science](#)" *Insight into Diversity* (2021)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** US
- "In addition to intimidation tactics from climate change deniers, women in earth sciences have reported facing harassment and threats from colleagues during field experiences in remote areas..."

[REPORT] "[Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine.](#)" *National Academies of Sciences, Engineering, and Medicine* (2018)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** US
- "This report reviews the research on the extent to which women in the [STEM] fields... are victimized by sexual harassment and examines the existing information on the extent to which sexual harassment in academia negatively impacts the recruitment, retention, and advancement of women pursuing [STEM] careers."

[FILM] [Picture a Scientist](#) *Tribeca Film Festival* (2020)

- **Disciplines:** STEM
- **Focus:** Gender/women
- **Region:** US, with some international focus
- “[C]hronicling the groundswell of researchers who are writing a new chapter for women scientists. A biologist, a chemist and a geologist, lead viewers on a journey deep into their own experiences in the sciences, overcoming brutal harassment, institutional discrimination, and years of subtle slights to revolutionize the culture of science.”

[NEWS ARTICLE] [“This deserves our attention.’ New data highlight LGBTQ scientists’ workplace challenges”](#) *Science* (2021)

- **Disciplines:** STEM
- **Focus:** Sexuality and gender identity; LGBTQIA+
- **Region:** US
- Provides a brief overview of a study (cited below) that reveals several of the systemic and interpersonal barriers faced by LGBTQ professionals in STEM fields.

[JOURNAL ARTICLE] [“Systemic inequalities for LGBTQ professionals in STEM.”](#) *Science Advances* (2021)

- **Disciplines:** STEM; physical and life sciences, mathematics, and engineering.
- **Focus:** Sexuality and gender identity; LGBTQIA+
- **Region:** US
- “[We] identified patterns of LGBTQ disadvantage along five dimensions of inequality. LGBTQ persons were not only more likely than their otherwise similar non-LGBTQ peers to experience social marginalization and harassment in their workplaces, but they were also more likely to report limited career opportunities and to have had their professional expertise devalued by their colleagues.”

[JOURNAL ARTICLE] [“LGBT + academics’ and PhD students’ experiences of visibility in STEM: more than raising the rainbow flag.”](#) *Higher Education* (2023)

- **Disciplines:** STEM
- **Focus:** Sexuality and gender identity; LGBTQIA+
- **Region:** UK
- Through interviews with LGBT+ academics and PhD students, this article identifies four themes that permeate participants’ experiences in STEM fields: Lack of LGBT+ visibility in STEM, the weight of navigating the personal and professional impact of visibility, intersecting systems of oppression, and institutional tokenization.

[NEWS ARTICLE] [“How LGBT+ scientists would like to be included and welcomed in STEM workplaces.”](#) *Nature* (2020).

- **Disciplines:** STEM
- **Focus:** Sexuality and gender identity; LGBTQIA+
- **Region:** US, UK, New Zealand
- “Steps that peers and institutions can take to make laboratories, conferences and lecture halls safe and inclusive spaces.”

Indigenous status

[JOURNAL ARTICLE] [“Indigenous Canadian University Students’ Experiences of Microaggressions.”](#) *International Journal for the Advancement of Counselling* (2019)

- **Disciplines:** Non-discipline specific
- **Focus:** Indigenous people
- **Region:** Canada
- Documents the experience of microaggressions by Indigenous students in the Canadian university context.

[JOURNAL ARTICLE] [“Do you live in a teepee?” Aboriginal students’ experiences with racial microaggressions in Canada](#) *Journal of Diversity in Higher Education* (2014)

- **Disciplines:** Non-discipline specific
- **Focus:** Indigenous people; undergraduate student experiences
- **Region:** Canada
- “The authors identified 5 distinct themes that represented Aboriginal students’ experiences with racial microaggressions on campus: (a) *encountering expectations of primitiveness*, (b) *enduring unconstrained voyeurism*, (c) *withstanding jealous accusations*, (d) *experiencing curricular elimination or misrepresentation*, and (e) *living with day-to-day cultural and social isolation*.”

[COLUMN] [Towards reconciliation: 10 Calls to Action to natural scientists working in Canada](#) *FACETS* (2020)

- **Disciplines:** STEM, especially the natural sciences
- **Focus:** Indigenous people
- **Region:** Canada
- “we authors have witnessed examples where natural scientists treat Indigenous communities with blatant disrespect or with ignorance of Indigenous rights. These 10 Calls to Action challenge the scientific community to recognize that reconciliation requires a new way of conducting natural science, one that includes and respects Indigenous communities, rights, and knowledge leading to better scientific and community outcomes.”

[REPORT] [How Can More Indigenous People Access STEM Careers? and Indigenous STEM Access Programs: Leading Post-Secondary Inclusion](#) (2020) *Conference Board of Canada*

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** Canada
- “In PSE institutions across Canada, access and retention programs for Indigenous STEM learners aim to increase the number of Indigenous people working in STEM fields... However, the limits of their success demonstrate how change is needed across the broader education system.”

[COLUMN] [“Making science relevant to Indigenous students.”](#) *Working Effectively with Indigenous Peoples® Blog*. (2019)

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** Canada

- “Lessons based on the western perspective of science frequently have not resonated with Indigenous students... In many Indigenous cultures, the way in which children look at the world and learn through that lens can be at odds with the western form of education.”

[NEWS ARTICLE] [How to include Indigenous researchers and their knowledge](#) *Nature* (2021)

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** Canada, US, Australia, New Zealand
- “Researchers from Native American and Indigenous communities explain how colleagues and institutions can help them to battle marginalization.”

[META ANALYSIS] [Supporting Indigenous Students in Science and STEM Education: A Systematic Review](#) *Educational Sciences* (2021)

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** Canada, US, Australia
- Provides meta-analysis of articles studying Indigenous science education programs in K-12 schools. Findings and best practices could be informative for university educators.

[WEBSITE] [The American Indian Science and Engineering Society \(AISES\)](#).

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** US, Canada
- “The American Indian Science and Engineering Society (AISES) is a national non-profit organization focused on substantially increasing the representation of American Indians, Alaska Natives, Native Hawaiians, Pacific Islanders, First Nations, and other Indigenous peoples of North America in science, technology, engineering, and math (STEM) studies and careers.”

[JOURNAL ARTICLE] [“‘We constantly have to navigate’: Indigenous students’ and professionals’ strategies for navigating ethical conflicts in STEMM.”](#) *Cultural Studies of Science Education* (2022).

- **Disciplines:** STEMM (Science, technology, engineering, math, and medicine)
- **Focus:** Indigenous people
- **Region:** US
- “This paper reports on a research project that explored ethical, cultural, and/or spiritual conflicts and the various strategies used to navigate the conflicts among over 400 Indigenous students and professionals in science, technology, engineering, mathematics, and medicine.”

[JOURNAL ARTICLE] [“Cultural taboos as a factor in the participation rate of Native Americans in STEM.”](#) *International Journal of STEM Education* (2018)

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** US
- “Native Americans are underrepresented in STEM. We investigated whether having to violate cultural taboos might be a factor... Many STEM faculty likely know very little about Native Americans’ historical experiences with an education system that has been used to forcibly acculturate them and so may not be aware of the threat many Native Americans

perceive from curricula that claim cultural neutrality yet require Native Americans to violate strongly held cultural beliefs.”

[JOURNAL ARTICLE] “[Giving Back or Giving Up: Native American Student Experiences in Science and Engineering.](#)” *Cultural Diversity & Ethnic Minority Psychology* (2014)

- **Disciplines:** STEM
- **Focus:** Indigenous people
- **Region:** US
- “We examine communal goal incongruence—the mismatch between students’ emphasis on communal work goals and the noncommunal culture of STEM—as a possible factor in this underrepresentation.”

Race and ethnicity

[SOCIAL MEDIA] See the following twitter accounts:

- [@LatinxinSTEM](#)
- [@Blackintheivory](#)
- [@BlackAFinSTEM](#)

[WEBSITE] <https://blackscientists.ca/> [Canadian Black Scientists Network \(CBSN\).](#)

- **Disciplines:** STEM
- **Focus:** Race, Black Canadians
- **Region:** Canada
- “The CBSN exists to Elevate, make Visible, Celebrate and Connect Black Canadians in Science, Technology, Engineering, Mathematics & Medicine (STEMM) across sectors.”

[COLUMN] “[Canadian universities must collect race-based data.](#)” *McLean’s* (2020)

- **Disciplines:** All disciplines, but written by a PhD student in Environmental Toxicology
- **Focus:** Race, especially Black representation in academia
- **Region:** Canada
- “Data from the National Science Foundation (NSF) shows that in 2016, just 3.5 per cent of American doctoral recipients in STEM were Black women... The Natural Sciences Engineering Research Council (Canada’s NSF equivalent) does not record the race of scholarship winners or grantees. I found a report from 2018 by the Canadian Association of University Teachers stating that two per cent of university teachers are Black.”

[NEWS ARTICLE] “[Black in X Addresses Long-Standing Inequity in STEM.](#)” *The Scientist* (2020)

- **Disciplines:** STEM, with specific mention of ecology, geosciences, microbiology, and other subfields.
- **Focus: Race** (African American/Black American experiences)
- **Region:** US

[NEWS ARTICLE] “[Black Birders Week’ Promotes Diversity and Takes on Racism in the Outdoors](#)” *National Audubon Society* (2020)

- **Disciplines:** Naturalist/birding community (not explicitly focused on academia, but highlights experiences of Black naturalists and birders in field settings).
- **Focus:** Race (African American experiences)

- **Region:** US
- See also: the #BlackBirdersWeek hashtag. For treatment of these issues among the Latinx community see the hashtag #LatinoConservationWeek

Discipline-Specific EDI Barriers in STEM

The following resources focus on one or two specific disciplines within the STEM fields and focus on all aspects of inequality.

[SOCIAL MEDIA] Key Twitter accounts:

- [Black Microbiologists Association \(BlackInMicro\)](#)
- [DiversifyMicro](#)
- [BlackInGeoscience](#)
- [Científico Latino](#)
- [PEERs in Parasitology \(PiP\)](#)

[JOURNAL ARTICLE] "[How Gender and Race Stereotypes Impact the Advancement of Scholars in STEM: Professors' Biased Evaluations of Physics and Biology Post-Doctoral Candidates](#)" *Sex Roles* (2020)

- **Disciplines:** Biology, physics
- **Focus:** Gender/women, Race (Asian, Black, Latinx, and White); Hiring and retention of post-doctoral candidates
- **Region:** US
- "[B]iology and physics professors... were asked to read one of eight identical curriculum vitae (CVs) depicting a hypothetical doctoral graduate applying for a post-doctoral position in their field, and rate them... The candidate's name on the CV was used to manipulate race (Asian, Black, Latinx, and White) and gender (female or male), with all other aspects of the CV held constant across conditions... Our results highlight how understanding the underrepresentation of women and racial minorities in STEM requires examining both racial and gender biases as well as how they intersect."

[BLOG POST] [Zenobia Lewis: On being a token](#) *The Applied Ecologist, British Ecological Society* (2020).

- **Disciplines:** Ecology
- **Focus:** Race (Black Asian and Minority Ethnic groups – BAME)
- **Region:** UK
- Dr. Zenobia Lewis reflects on her experiences as a BAME (Black, Asian and Minority Ethnic) ecologist and discusses what it means to be a BAME person in ecology today.

[NEWS ARTICLE] "[As a Black zoologist, a BAME \(Black, Asian and Minority Ethnic\) network matters.](#)" *British Ecological Society* (2020)

- **Disciplines:** Zoology, ecology
- **Focus:** Race (Black Asian and Minority Ethnic groups – BAME)
- **Region:** UK
- "Reuben Fakoya Brooks speaks powerfully from personal experience about the importance of Black representation in ecology and introduces a new BAME network to support People of Colour in ecology."

[JOURNAL ARTICLE] [Underrepresented faculty play a disproportionate role in advancing diversity and inclusion](#) *Nature Ecology & Evolution* (2019)

- **Disciplines:** Ecology, evolutionary biology
- **Focus:** Gender, ethnicity, and other dimensions
- **Region:** US
- “A diverse and inclusive scientific community is more productive, innovative and impactful, yet ecology and evolutionary biology continues to be dominated by white male faculty. Through a nationwide survey, we show that faculty with underrepresented identities disproportionately engage in diversity and inclusion activities, yet such engagement was not considered important for tenure.”

[JOURNAL ARTICLE] [Breaking barriers? Ethnicity and socioeconomic background impact on early career progression in the fields of ecology and evolution](#) *Ecology & Evolution* (2020)

- **Disciplines:** Ecology, evolutionary biology, behaviour, and related disciplines
- **Focus:** Ethnicity, age, sexual orientation, sex, socioeconomic background, and disability
- **Region:** UK/US
- “Senior women authors at ASM journals were underrepresented compared to global and society estimates of microbiology researchers. Additionally, manuscripts submitted by corresponding authors that were women received more negative outcomes than those submitted by men.”

[REPORT] [“Sacred Science – Indigenous women and our relationship with water.”](#) *Office of the High Commissioner for Human Rights, United Nations* (2022)

- **Disciplines:** Indigenous science, climate science
- **Focus:** Indigenous people
- **Region:** Canada
- “Indigenous student representation in STEM is less than 1% and Indigenous women make up only about 8% of Indigenous People enrolled in STEM fields. Despite 30 years of effort to increase the numbers of women in science, the uptake rate of women in the field has stagnated. Some of the reasons for this are varied but a common thread is harassment in the workplace. Half of women in STEM report that they have experienced systemic harassment, and for Indigenous women, rates of sexism and racism are higher still. Women working in fields such as climate change – an area of natural synergy with several areas of Indigenous scientific enquiry, also report extraordinary levels of online harassment, as well as death and rape threats.”

[JOURNAL ARTICLE] [Bridging Indigenous and Western sciences in freshwater research, monitoring, and management in Canada](#) *Ecological Solutions and Evidence* (2020)

- **Disciplines:** Indigenous science, ecology, aquatic management
- **Focus:** Indigenous people
- **Region:** Canada
- “Through the Government of Canada's commitment to achieving reconciliation with Indigenous peoples... there has been a renewed emphasis on the inclusion and consideration of Indigenous knowledge in [water] regulatory decisions... [however] developing and implementing inclusive approaches that bridge multiple ways of knowing remains a challenge.”

[COLUMN] [“A talent network of Black microbiologists”](#) *Nature Microbiology* (2022)

- **Disciplines:** Microbiology
- **Focus:** Race (Black American experiences)
- **Region:** US
- “In response to the need to advance equity in scientific communities, we founded the Black Microbiologists Association (BMA)... to ensure that Black microbiologists have access to the tools and support needed to ensure the best possible chance of career success.”

[COLUMN] “[Introducing the Black Microbiologists Association](#)” *The Lancet Microbe* (2021)

- **Disciplines:** Microbiology
- **Focus:** Race (Black American experiences)
- **Region:** US
- “This environment of persistent underrepresentation and subsequently culturally violent spaces contribute to the high attrition rates of Black microbiology trainees and junior faculty from academia. This, in addition to the impacts of systemic racism and White supremacy faced and continuously enforced in our everyday lives, makes survival in these spaces exceedingly difficult for Black scientists. Despite continued efforts at discussion over decades, little progress has been made in uprooting these barriers that continue to deprive science of the voices, ideas, and skills of Black people.”

[JOURNAL ARTICLE] [Women Are Underrepresented and Receive Differential Outcomes at ASM \(American Society for Microbiology\) Journals: A Six-Year Retrospective Analysis](#) *mBio* (2020)

- **Disciplines:** Microbiology
- **Focus:** Gender
- **Region:** US
- “Barriers in science and academia have prevented women from becoming researchers and experts that are viewed as equivalent to their colleagues who are men. We evaluated the participation and success of women researchers at ASM journals to better understand their success in the field of microbiology. We found that women are underrepresented as expert scientists at ASM journals.”

[NEWS ARTICLE] “[‘Pervasive’ inequality derailing black UK chemists’ careers, report finds.](#)” *The Guardian* (March 16, 2022)

- **Disciplines:** Chemistry
- **Focus:** Race (Black-British experiences)
- **Region:** UK
- “The Royal Society of Chemistry says black and minority ethnic chemists paid less and less likely to get research funding; there is currently only one black professor of chemistry out of the 575 professors working in UK universities today.”

[COLUMN] “[A Conversation with Dawn Pratt: Her Mission to Indigenize STEM](#)”

- **Disciplines:** Chemistry
- **Focus:** Indigenous people
- **Region:** Canada
- “When she got to university, studying chemistry was an obvious choice – but not by any outside measures. Indigenous women account for less than 1% of the science and engineering degrees awarded in Canada.”

[JOURNAL ARTICLE] [“Steps to improve gender diversity in coastal geoscience and engineering.”](#) *Palgrave Communications* (2018)

- **Disciplines:** Geoscience, engineering
- **Focus:** Gender
- **Region:** International
- This article analyses gender representation in 9 societies, 25 journals, and 10 conferences in coastal geoscience and engineering, and 314 survey responses from academics in these fields to determine the causes and possible solutions of gender inequalities in the coastal sciences.

[JOURNAL ARTICLE] [Hostile climates are barriers to diversifying the geosciences](#) *Advances in Geosciences* (2020)

- **Disciplines:** Geosciences
- **Focus:** US
- “The geosciences are one of the least diverse disciplines in the United States, despite the field's relevance to livelihoods and local and global economies. Bias, discrimination, and harassment present serious hurdles to diversifying the field. These behaviors persist due to historical structures of exclusion, severe power imbalances, unique challenges associated with geoscientist stereotypes, and a culture of impunity that tolerates exclusionary behaviors and marginalization of scholars from underserved groups.”

[JOURNAL ARTICLE] [“Exclusionary Behaviors Reinforce Historical Biases and Contribute to Loss of Talent in the Earth Sciences”](#) *Earth's Future* (2023).

- **Disciplines:** Geoscience; earth sciences
- **Focus:** Race; gender and sexual identity (LGBQPA+)
- **Region:** US
- “Key points: ... Historically excluded groups report more negative workplace environments and negative career outcomes; Diversity, equity, and inclusion efforts need to address hostile behavior effects on careers and retention in the geosciences.”

[BLOG POST] [“Water Researchers of Color experts in their fields.”](#) *Hydrological Sciences Division of the European Geosciences Union (EGU) Blog*. (2020)

- **Disciplines:** Water research: Geosciences, hydrology, engineering, climate sciences, etc
- **Focus:** Race
- **Region:** Europe
- “[R]ecent research highlights that racialized individuals are systematically excluded from post-graduate careers by an exclusionary and hostile environment... This leaves very few people of color high on the career ladder to serve as role models and mentors to support students trying to overcome the hurdles currently present in academia.”

[JOURNAL ARTICLE] [“Gender bias is alive and well in the vet profession.”](#) *Veterinary Record* (2018)

- **Disciplines:** Veterinary science
- **Focus:** Gender
- **Region:** UK
- Reports on research that demonstrates “compelling evidence” of gender discrimination in the veterinary profession.

[JOURNAL ARTICLE] "[Women Representation and Gender Equality in Different Academic Levels in Veterinary Science.](#)" *Veterinary Sciences* (2021).

- **Disciplines:** Veterinary science
- **Focus:** Gender
- **Region:** Australia, New Zealand, US, Canada, Europe
- Compared to their male counterparts, female academics in veterinary medicine are more likely to hold lower ranked positions; men hold more senior positions at or above associate professor level in all analyzed regions. This article argues that gender inequality in academic progression demonstrates that there is a continued need to develop strategies to eliminate inequity in veterinary science faculties worldwide.

[JOURNAL ARTICLE] "[Prevalence of mental health outcomes among Canadian veterinarians.](#)" *Journal of the American Veterinary Medical Association* (2020).

- **Disciplines:** Veterinary science
- **Focus:** Gender, race
- **Region:** Canada
- "Relative to the general population, [Canadian veterinarians] had significantly higher mean scores for subscales of burnout and compassion fatigue, anxiety, and depression and significantly lower mean resilience. Relative to males, females had significantly higher mean scores for perceived stress, emotional exhaustion, burnout, secondary traumatic stress, anxiety, and depression and significantly lower mean resilience...The 12-month prevalence of suicidal ideation for participants was 26.2%, which was substantially higher than the estimated prevalence for the general international population (2.1% to 10.0%)."

[JOURNAL ARTICLE] "[Where do deans of veterinary medicine in the United States and Canada come from?](#)" *Canadian Veterinary Journal* (2020).

- **Disciplines:** Veterinary science
- **Focus:** Gender, race
- **Region:** US, Canada
- "The data showed 91.2% of deans were Caucasian males. It was only about 20 y ago that the first woman, Dr. Shirley Johnston, was appointed dean of a North American veterinary school. So far only 5% of the deans of veterinary colleges have been women and all of them are Caucasian. Ethnic minorities (Blacks, Hispanics, and Asians) have made up only 3.7% of the total number of deans.

[JOURNAL ARTICLE] "[Race and Ethnicity in Biology Research Mentoring Relationships.](#)" *Journal of Diversity in Higher Education* (2020).

- **Disciplines:** Biology
- **Focus:** Gender, race
- **Region:** US, Canada
- "Our findings revealed a variety of insights regarding the potential challenges and opportunities of engaging with race and ethnicity in research mentoring relationships with a sample of predominantly White mentors and predominantly HU (historically underrepresented) mentees in one biology summer research opportunity program. Overall, we found a general "culture of silence" about the relevance of race and ethnicity in mentoring relationships and scientific work in general. This perception that science is beyond culture was reflected by participants who expressed the view that talking about or bringing attention to these issues in a research setting is to introduce that which is perceived

to be subjective and irrelevant to the scientific enterprise. Several factors may have contributed to the responses we observed in both mentors and mentees.”