NSERC Discovery Grant Application

EDI in the Training of HQP Component

Enrico Scarpella, NSERC Evaluation Group 1501 (Genes, Cells, and Molecules), Genes Stream, 2016–2020

NSERC Discovery Grant Application

Three components:

1. Excellence of the Researcher
2. Merit of the Proposal
3. Training of HQP

- Each of these three components will receive a separate score.
- This tripartite score will be used by NSERC to calculate your funding level.
- Training of HQP is therefore worth one-third of your application.

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NSERC Discovery Grant Application

Training of HQP

A few general pieces of advice:

- Avoid platitudes.
- Be specific and detailed.
- Assume reviewers and evaluators are at least as smart as you are.

Training of HQP

Two components:

1. HQP Training Plan
2. Past Contributions to HQP Training

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1. HQP Training Plan

Max. 9,000 characters, i.e. approximately two letter-size pages, one-inch margins, single-spaced, 12-point Times New Roman.

Two components:

1.1. Training Philosophy

1.2. Research Training Plan

1. HQP Training Plan

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Two components:

1.1. Training Philosophy

1.2. Research Training Plan

Quote Notation

1. Somebody else’s quote

Reference or Reference

Quote Notation

1. Somebody else’s quote

Reference or Reference

2. “Made-up quote”

Quote Notation

1. Somebody else’s quote

Reference or Reference

2. “Made-up quote”

3. *My own grant application*

1.1. Training Philosophy

The Training Philosophy should describe the applicant's approach to training HQP, detailing the mentoring approach and the type of research training and development opportunities provided.

NSERC — Discovery Grants Program — Instructions for completing an application

Nobody expects you to be a philosopher; everybody expects you to be thoughtful. Instead, most Training Philosophy components lack details and individuality.

1.1. Training Philosophy

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.

NSERC — Discovery Grants Program — Instructions for completing an application

1.1. Training Philosophy

You are expected to increase the inclusion and advancement of **under-represented and disadvantaged 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, where each individual—including those from under-represented and disadvantaged 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 in order to increase access to the largest pool of qualified potential participants and the overall excellence of research, across all natural sciences and engineering disciplines.

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1.1. Training Philosophy

Under-represented and disadvantaged groups are not only women, but also…

…visible minorities, Indigenous peoples, people with diverse gender identities and people with disabilities.

NSERC Statement on Equity, Diversity and Excellence in Natural Sciences and Engineering Research

1.1. Training Philosophy

…and people of different…

…age, sexual orientation, parental status/ responsibility, immigration status, religion, language, race, place of origin, ethnicity, culture and socio-economic status.

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

1.1. Training Philosophy

More in general:

For the purpose of Discovery Grant assessment, “under-represented groups” is not limited to existing equity employment groups (women, Indigenous Peoples, persons with disabilities, members of visible minorities/ racialized groups, and members of LGBTQ2+ communities), rather it broadly refers to any group that is under-represented in the research environment.

1.1. Training Philosophy

The more diverse an organization, the higher the caliber of its thinking.

Attitudes, cognitive functioning, and beliefs are not randomly distributed in the population but tend to vary systematically with demographic variables such as age, race, and gender. Thus, an expected consequence of increased cultural diversity in organizations is the presence of different perspectives for problem solving, decision making, and creative tasks.

Cox T. H. & Blake S. (1991). Managing Cultural Diversity: Implications for Organizational Competitiveness. Academy of Management Perspectives 5: 45–56.

1.1. Training Philosophy

Yet universities are still mostly white, male, and heterosexual.

...despite decades of efforts to increase faculty, staff, and student diversity, the culture of academia remains distinctly white, male, heterosexual, and middle- to upper-class.

G. Gutiérrez y Muhs, Y. Flores Niemann, C.G. González, & A.P. Harris eds. (2012). Presumed Incompetent: The Intersections of Race and Class for Women in Academia.

1.1. Training Philosophy

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

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A.K.A: **Context**

1.1. Training Philosophy

Clearly described **context**:

- Identifies the field of research and institution* related to the proposed program of research.
- Names the participating and under-represented group(s) in proximity to the applicant's program of research.
- Gives further details of known challenges and barriers to participation, including current level of participation if known.

* Context details related to the "institution" can describe academic (team, department, faculty etc.), industrial (sector, company, etc.), or other institutional research environments trainees will encounter as part of the proposed program of research.

1.1. Training Philosophy

A problematic, yet common, way of integrating equity, diversity, and inclusion:

> "I have a strong track record of training HQP. The environment I maintain is both equitable and inclusive, as demonstrated by the gender balance of my team."

Context: not described / partially described

1.1. Training Philosophy

Under-represented trainee groups and faculty members:

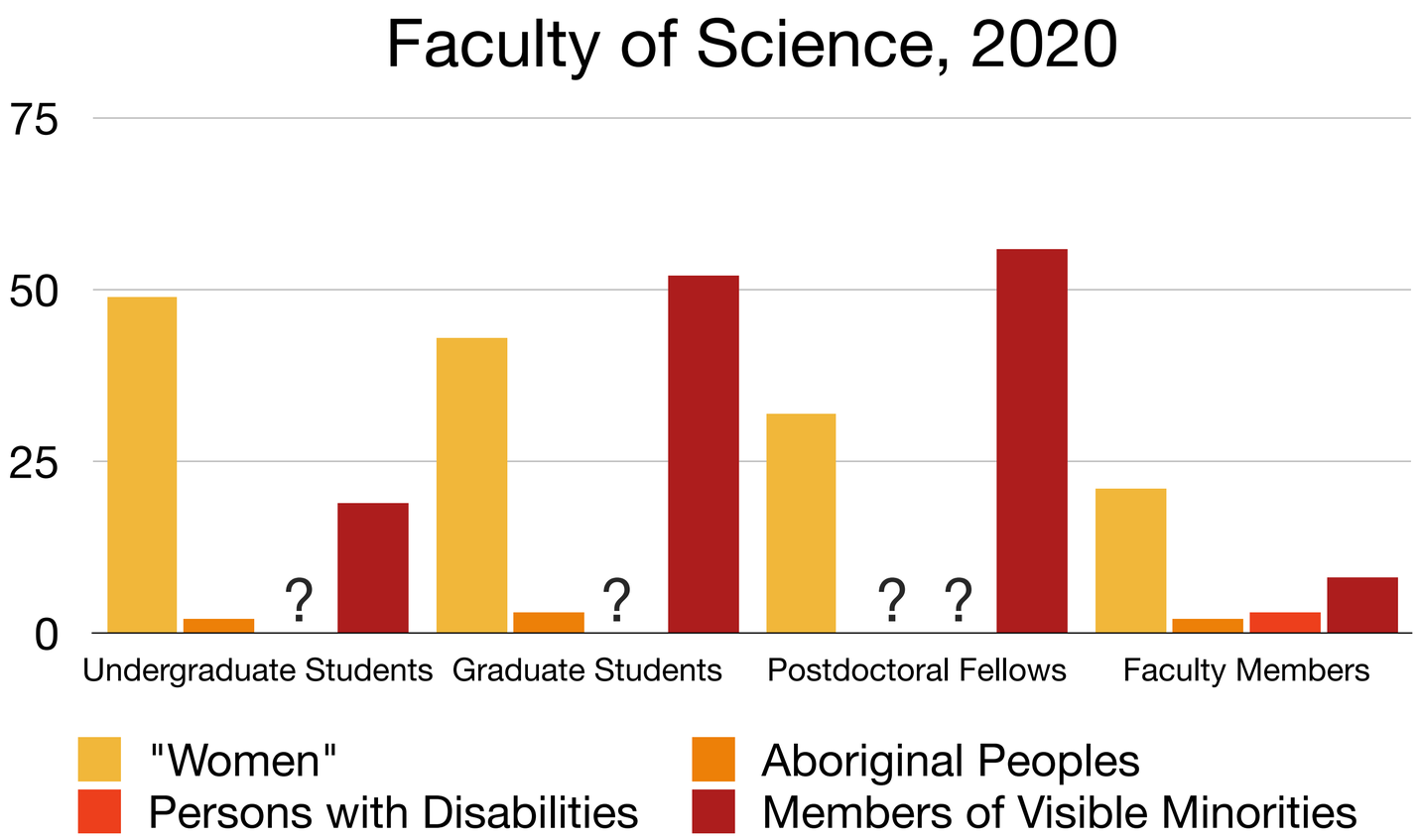
- “Women” — “Females”, really (GS, PDF, and FM)**
- Aboriginal peoples (UGS, GS, and FM; PDF?)*
- Persons with disabilities?**
- Members of visible minorities?**

* FoS target: ≥5%

** Target unknown

Engagement & EDI Plan 2020–2023 for the Faculty of Science

FGSR Graduate Student Enrolment Report 2019–20



1.1. Training Philosophy

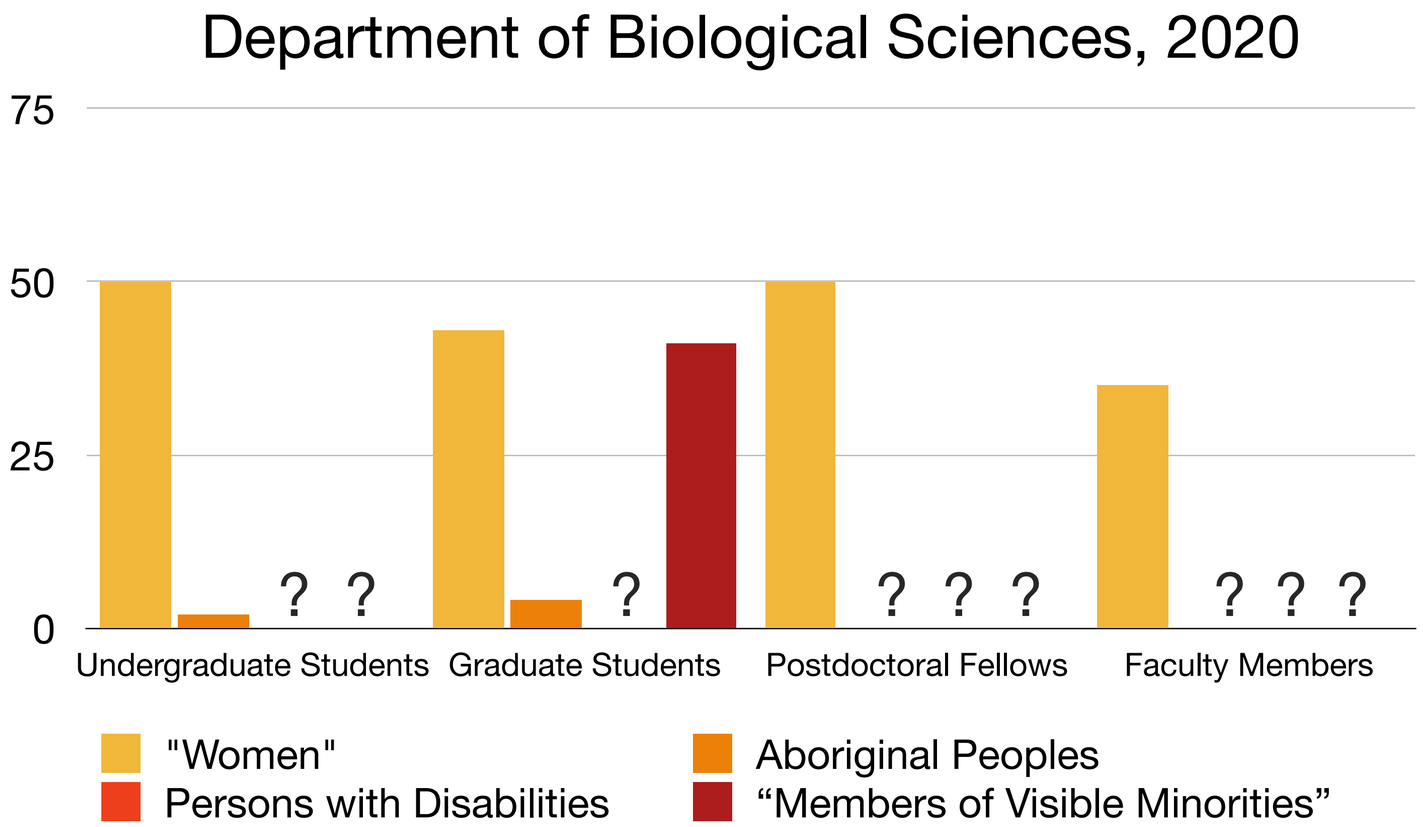
Under-represented trainee groups and faculty members:

- “Women” (GS and FM)*
- Aboriginal peoples?*
- Persons with disabilities?*
- “Members of visible minorities” (i.e. ~75% of international students)?*

* Target unknown

Engagement & EDI Plan 2020-2023 for the Faculty of Science

Data from the UofA ACORN Database, courtesy of the Department of Biological Sciences



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- Aboriginal peoples?*
- Persons with disabilities?*
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Engagement & EDI Plan 2020-2023 for the Faculty of Science

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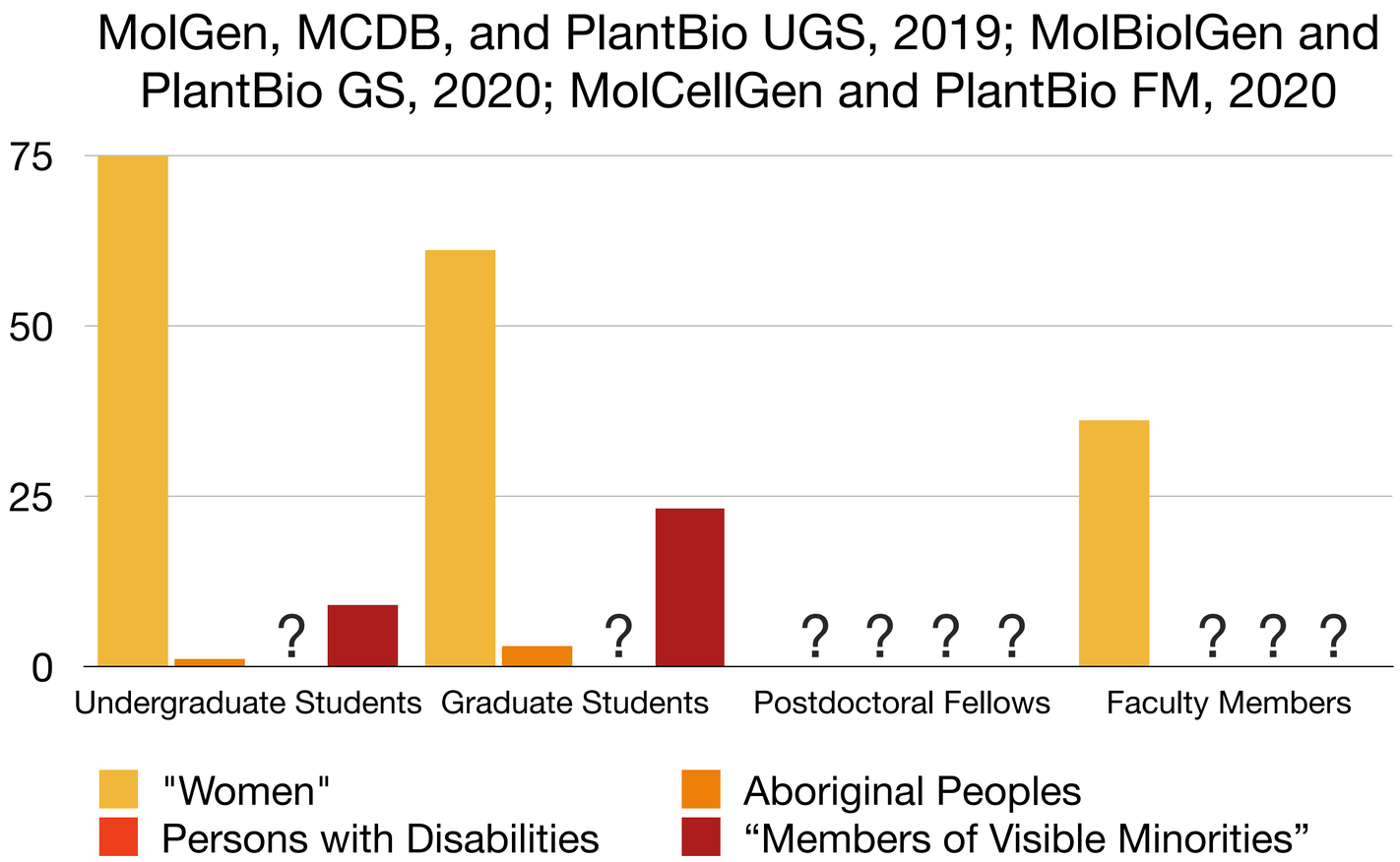

1.1. Training Philosophy

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.

NSERC — Discovery Grants Program — Instructions for completing an application

A.K.A. **Actions**

1.1. Training Philosophy

Clearly defined, specific **actions**:

- Identify the stage(s) associated with the chosen specific actions (Outreach, Recruitment, Hiring, Training Environment, Mentorship)*.
- Name the underrepresented group(s) being considered.
- Identify one or more specific actions to address participation of the named group(s).

* Specific actions can occur at any stage of training (Outreach, Recruitment, Hiring, Training Environment, Mentorship); there is no priority or value placed on different stages; and applicants are not expected to participate at every stage.

1.1. Training Philosophy

Another problematic, yet common, way of integrating equity, diversity, and inclusion:

> “I accept the best students based on research excellence to become part of my research team. I recruit through word of mouth within my department and through my Canadian and international collaborators. I will continue to use this successful approach throughout my next Discovery Grant.”

Actions: not defined / partially defined

1.1. Training Philosophy

In all programs NSERC encourages applicants to explain their process of identifying, recruiting and selecting research personnel based on equity and diversity best practices* as one means to enhance excellence in research, training and outreach.

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

* For example, check out **Reviewing Applicants — Research on Bias and Assumptions**

1.1. Training Philosophy

In line with best EDI practices in HQP hiring, to include more women and visible minorities I post vacancies on my lab website, jobRxiv, websites of stock centers and professional associations, and bulletin boards at conferences. Over the years, I have also established a relationship with key people (e.g., chairs and advisors) in relevant departments at major universities in developing countries (e.g., Ghana, Nigeria, Tanzania). I send ads for available positions to those key people, who kindly select their best students and invite them to apply. I explicitly encourage women and members of visible minorities to apply.

1.1. Training Philosophy

Develop and rank evaluation criteria prior to evaluating candidates and apply them consistently to all applicants.

Different standards are used to evaluate male and female applicants, and when criteria are not clearly expressed before evaluating candidates, reviewers may shift or emphasize criteria that favor candidates from well-represented demographic groups.

Steinpreis R. E. et al. (1999). The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A National Empirical Study. Sex Roles 41: 509–528.

Biernat M. & Fuegen K. (2001). Shifting Standards and the Evaluation of Competence: Complexity in Gender-Based Judgment and Decision Making. Journal of Social Issues 57: 707–724.

Uhlmann E. L. & Cohen, G. L. (2005). Constructed Criteria: Redefining Merit to Justify Discrimination. Psychological Science 16: 474–480.

Moss-Racusin C. et al. (2012). Science Faculty's Subtle Gender Biases Favor Male Students. Proceedings of the National Academy of Science USA 109: 16474–16479.

van Dijk D. et al. (2014). Publication Metrics and Success on the Academic Job Market. Current Biology 24: R516–R517.

Milkman K. L. et al. (2015). What Happens Before? A Field Experiment Exploring How Pay and Representation Differentially Shape Bias on the Pathway Into Organizations. Journal of Applied Psychology 100: 1678–1712.

Eaton A. A. et al. (2020). How Gender and Race Stereotypes Impact the Advancement of Scholars in Stem: Professors' Biased Evaluations of Physics and Biology Post-Doctoral Candidates. Sex Roles 82: 127–141.

1.1. Training Philosophy

When criteria are not articulated before reviewing applicants, evaluators favor applicants from well-represented demographic groups. Therefore, I develop and rank criteria before evaluating applicants and apply them consistently to all of them. I rate values more highly than skills: values are more ingrained; most skills can be acquired. I forward applications to my wife, who kindly blacks out personal details. My wife keeps the original; I only evaluate the redacted copy. In interviews, I ask the same questions to all candidates, and I rate them according to predetermined scoring. At the end, I offer candidates the chance to ask questions: in my experience, great questions are a better indicator of success than great answers.

1.1. Training Philosophy

Inequality is not only the result of demographic inertia but of unconscious bias.

Shaw A. K. & Stanton D. E. (2012). Leaks in the Pipeline: Separating Demographic Inertia From Ongoing Gender Differences in Academia. Proceedings of the Royal Society B: Biological Sciences 279: 3736–3741.

1.1. Training Philosophy

Women are just as biased as men.

Steinpreis R. E. et al. (1999). The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A National Empirical Study. Sex Roles 41: 509-528.

1.1. Training Philosophy

Prejudicial behavior can be effectively reduced by combining internal motivation to act impartially with awareness of the gap between ideal and actual impartiality.

Valian V. (1998). Why So Slow?

Devine P. G. et al. (2002). The Regulation of Explicit and Implicit Race Bias: The Role of Motivations to Respond Without Prejudice. Journal of Personality and Social Psychology 82: 835–848.

Smith J. L. et al. (2015). Now Hiring! Empirically Testing A Three-Step Intervention To Increase Faculty Gender Diversity In STEM. Bioscience 65: 1084–1087.

1.1. Training Philosophy

Mere representation of diverse individuals doesn't ensure inclusion of their contributions because inequality is not only the result of demographic inertia but of unconscious bias. So because awareness of discrepancies between ideals of impartiality and actual performance together with internal motivation to respond without prejudice effectively reduce prejudicial behavior, we all yearly (re)take the Bias in Peer Review module and Gender-Based Analysis Plus course.

1.1. Training Philosophy

- Provide flexible hours to allow communication with family in different time zones; to allow dropping off and picking up children to and from school and day care; and to respect religious obligations, rituals, celebrations, and ceremonies.
- Consider family and religion when scheduling times of lab journal clubs as well as of lab and individual meetings.
- Discuss lab tasks so that each lab member invests a comparable amount of time and energy in their tasks; re-evaluate tasks on a regular basis (e.g., every six months).
- Consider dietary concerns when planning social outings (e.g., lab lunches and guest hosting).

1.1. Training Philosophy

Be aware of and correct unconscious bias in the reference letters you write for your trainees and referees write for candidate trainees in your lab.

Reference letters for female applicants differ systematically from those for males: they are shorter; provide “minimal assurance”, rather than solid recommendation; raise more doubts; portray women as students and teachers, and men as researchers and professionals; and more frequently mention women’s personal lives.

Trix F. & Psenka C. (2003). Exploring the Color of Glass: Letters of Recommendation for Female and Male Medical Faculty. Discourse & Society 14: 191–220.

Dutt K. et al. (2016). Gender Differences in Recommendation Letters for Postdoctoral Fellowships in Geoscience. Nature Geoscience 9: 805–808.

Madera J. M. et al. (2009). Gender and Letters of Recommendation for Academia: Agentic and Communal Differences. Journal of Applied Psychology 94: 1591–1599.

1.1. Training Philosophy

Because evidence of bias has been found in reference letters for female applicants, I correct such bias by running the letters I write through a gender-bias calculator.

Training of HQP

Two components:

1. HQP Training Plan
2. Past Contributions to HQP Training

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2. Past Contributions to HQP Training

Max. 6,000 characters, i.e. approximately one and a half letter-size pages, one-inch margins, single-spaced, 12-point Times New Roman.

Discuss your most significant contributions to the training of HQP over the last six years.

The assessment of past contributions to HQP training focuses on the quality and impact of training, as demonstrated through three components. Each component should be supported by your CCV and/or application text.

NSERC — Discovery Grants Program — Instructions for completing an application

2. Past Contributions to HQP Training

Three components:

2.1. Training Environment

2.2. HQP Awards and Research Contributions

2.3. Outcomes and Skills Gained by HQP

2. Past Contributions to HQP Training

Three components:

2.1. Training Environment

2.2. HQP Awards and Research Contributions

2.3. Outcomes and Skills Gained by HQP

2.1. Training Environment

Describe the research training and development opportunities provided for HQP.

Trainee demographic data is not requested, nor required to assess impacts of consideration of equity, diversity and inclusion in the past research and training environment.

NSERC — Discovery Grants Program — Instructions for completing an application

2.1. Training Environment

Though lab demographics are not evidence of commitment to EDI, lack of HQP diversity is difficult to reconcile with such a commitment. In the past six years, 11 of my 19 HQP (i.e. 58%) were women; 11/19 (i.e. 58%) belonged to visible minorities; and 2/19 (i.e. 11%) identified themselves as members of the LGBTQ2+ community. As such, my lab is more diverse than the Faculty of Science (36% women, 34% visible minorities) and the Department of Biological Sciences (45% women, 41% visible minorities) at the UofA.

General References

- Sapienza, A. M. (2004). Managing Scientists: Leadership Strategies in Scientific Research (2nd ed.). Hoboken, NJ: Wiley-Liss.
- Bonetta, L. (Ed.). (2006). Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty. Based on the BWF-HHMI Course in Scientific Management for the Beginning Academic Investigator (2nd ed.). Howard Hughes Medical Institute and Burroughs Wellcome Fund.
- Bonetta, L. (2009). Writing a Letter of Recommendation. Addendum to L. Bonetta (Ed.), Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty. Based on the BWF-HHMI Course in Scientific Management for the Beginning Academic Investigator (2nd ed., p. 17). Howard Hughes Medical Institute and Burroughs Wellcome Fund.
- Barker, K. (2010). At the Helm. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.

Many thanks to:
(in alphabetical order)

- Corey Davies, Department of Biological Sciences, Faculty of Science
- Maya Evenden, ex Associate Chair — Undergraduate Studies, Department of Biological Sciences, Faculty of Science
- Tara McGee, Associate Dean — EDI, Faculty of Science
- Tracy Raivio, ex Acting Chair, Department of Biological Sciences, Faculty of Science; Associate Dean — Awards and Scholarships, FGSR; Vice-Provost and Dean, FGSR (from November 1, 2023)

Good Luck!