

Conservation Education Essay

Due date: 21 November 2023

Recommended Length: 1 page

Access, diversity, equity, and inclusion (ADEI) are inadequate in most sectors in the United States, but they are disproportionately lacking in Science, Math, Engineering, and Technology (STEM; Odekunle 2020; Wingfield 2020). Effectiveness in addressing issues associated with the environment, particularly environmental conservation, often depends on participation among a broad scope of identities (Taylor 2014). Among many factors contributing to STEM disparities, the “leaky pipeline” is well documented. Women and underrepresented minorities often encounter obstacles, discouragement, and discrimination throughout STEM educational and training programs, leading to disproportionately low rates of retention, graduation, and promotion (Mourad and Middendorf 2020). Many articles published in recent years describe reforms and interventions to increase access, diversity, equity, and inclusion in STEM. Cronin et al. (2021) developed one of the most comprehensive set of recommendations, directed at university departments in ecology, evolution, and conservation biology. They distilled their recommendations into an anti-racism checklist organized into three categories relevant to courses, research groups, and departments. The recommendations are supported by evidence demonstrating increased inclusion of underrepresented identities, but many also improve learning and performance for all identities.

Table 1 below contains recommendations for courses and curricula, adapted from the checklist in Cronin et al. (2021; Supplementary Data 1). Please reflect on your undergraduate experience, which may include study at WWU and/or other institutions. Then mark the fraction of your courses in which each recommendation was implemented: all or most courses, some courses, few courses, or no course. After recording your selections, complete the following.

- (1) Attach your marked table to your essay.
- (2) Based on your experience, identify the three most effective recommendations in Table 1. Your selections may derive from direct experience with each recommendation, or your experience in their absence.
- (3) For each recommendation identified in (2), briefly describe why it was or would be especially effective.
- (4) Describe an intervention, change, or new initiative that would be most effective in helping more WWU students succeed in STEM within the university and/or after graduating. The recommendation may be one listed in Table 1 or another.

References

- Cronin MR, et al. 2021. Anti-racist interventions to transform ecology, evolution and conservation biology departments. *Nature Ecology & Evolution* 5:1213-1223. doi: 10.1038/s41559-021-01522-z
- Mourad T, and G Middendorf. 2020. Using collective impact to overcome systemic racism. *Front.Ecol.Environ.* 18:368. <https://doi.org/10.1002/fee.2245>
- Odekunle EA. 2020. Dismantling systemic racism in science. *Science* 369:780-781. <https://doi.org/10.1126/science.abd7531>
- Taylor DE. 2014. The State of Diversity in Environmental Organizations. Univ. Michigan, prepared for Green 2.0. [online] https://diversegreen.org/wp-content/uploads/2021/01/FullReport_Green2.0_FINAL.pdf
- Wingfield AH. 2020. Systemic racism persists in the sciences. *Science* 369:351. <https://doi.org/10.1126/science.abd8825>

Table 1. Anti-racism practices and pedagogy appropriate for courses and curricula, adapted from Cronin et al. 2021, Supplementary Data 1. Ratings on the right indicate the fraction of courses implementing a given recommendation. The checklist is intended to provide a starting point, from which more comprehensive or intensive measures could be developed.

Category	Recommendation	Most	Some	Few	None
Build an inclusive classroom	Include diversity statements on syllabi.				
	Discuss anti-racist values & establish zero-tolerance policy.				
	Frequently solicit course feedback from students.				
Implement active learning	Incorporate field courses within the curricula.				
	Use well-planned group activities to practice scientific skills (e.g., hands-on activities).				
Incorporate wise interventions	Incorporate utility-value* interventions.				
	Incorporate values-affirmation† interventions.				
	Promote a growth mindset‡ in the classroom.				
Acknowledge racist history & barriers	Reveal the fields’ past and present, including racism, colonialism, and displacement.				
	Acknowledge historically ignored local and traditional knowledge and resources.				
	Highlight examples of research by scientists of color and explicitly discuss societal and institutional barriers that hamper representation of BIPOC scientists.				
Unveil hidden curriculum	Explain the importance of academic and professional opportunities outside formal STEM curriculum.				
	Reveal unspoken norms, behaviors, etiquette, and implicit expectations around seeking and gaining access to scientific careers.				

* Exercises that increase perceived value & importance of a given topic for students’ lived experiences.

† Affirmation of personal core values and belonging in a previously threatening academic environment.

‡ Intellectual abilities are malleable, not fixed, and can be developed with effort and guidance.