

Report to WWU Board of Trustees

Inclusive Student Success: Strategies and Opportunities

Brilliance and talent come in many shapes, sizes, and colors. When our programs are monochromatic, we are missing many of the best people. They deserve to be included, and we need them as we take on society's great challenges.

Programs that foster inclusive student success consistently develop several student characteristics.¹⁻¹³

- Sense of belonging and feelings of membership
- Identity as a scholar, with recognition by self and others
- Self-efficacy: confidence and competence in skills and abilities
- Role model development and mentoring
- Sustained engagement throughout educational period, esp. through close cohort experience
- Sense of purpose, responsibility, and service to society

Field programs are particularly effective in developing these characteristics and student success, when implemented with an inclusive framework.^{2-7,9,11-13} Students with underrepresented identities can benefit greatly from inclusive field experiences, leading toward equity in academic outcomes.^{3,4,14} Field programs help students overcome obstacles to continuing in degree programs or graduating by building connections to peers, profession, and community.^{2,4} Most field programs involve upper-division students, but lower-division field courses also are effective while providing access to more students at lower cost.^{3,14} Participation in pre-enrollment wilderness trips consistently increases student retention and graduation rates across student identities.^{2,4,15} WWU student retention and graduation data show similar benefits to participants in Wilderness Outdoor Orientation Trips (WOOT).^{16,17} These programs leverage Western's outstanding geographic location and help students develop a sense of place. Extended field programs can achieve transformative outcomes usually restricted to members of challenging expeditions, elite athletic teams, military units, and other groups who work closely to achieve difficult goals.¹⁸ Students in these programs develop sense of purpose and belonging as they achieve more than they imagined possible. The programs can function as a beacon to which graduates orient future endeavors. In this way, field programs help the university achieve our highest aspirations.

Field course efficacy in raising inclusive student success results from several factors that can be applied more broadly to increase inclusivity and student success in other programs.^{2, 11,13,19-23}

- Cohort experience, esp. groups that include multiple students of underrepresented identities
- Shared intensive experience
- Shared challenge and commitment
- Sense of community, accountability, and mutual support
- Financial support to overcome economic barriers
- Development of role models through strong peer and mentor relationships

Several kinds of barriers and obstacles at WWU limit student participation in field courses and other programs that enhance student success.^{13,14} Many of these barriers disproportionately impact students of underrepresented identities.

- Funding: operating expenses for field programs are borne entirely by student participants
- Expenses: field gear can be expensive and may not be owned by underrepresented students
- Information: students may not know about programs, prerequisites, or financial resources
- Prior experience: students may lack or think they lack experience necessary to participate
- Identity: perception of not fitting in, and few peers or faculty with shared identity
- Faculty obstacles: high investment required, lack of recognition, lack of support
- Administrative obstruction and red tape

Inclusive Student Success

How can we engage more WWU students in excellence? The following strategy is effective. (1) Welcome students with an immersive (field) experience, (2) surround them with supportive peers and mentors, (3) sustain engagement with continuing programs, (4) culminate with a transformative experience, and (5) fund these programs to provide access to any student regardless of financial status. Listed below are components to implement this strategy. Some exist already and could be expanded, and others would be new initiatives. Some are particular to field programs, and others can be implemented more broadly.

Programs for entering students

- Cluster recruiting and cluster/cohort support for underrepresented student identities
- Field courses offered at 100 and 200 levels, with requisite staffing and logistical support³
- Wilderness WOOT: 7-day backpacking or sea kayaking courses, prior to fall courses
- Explorers WOOT: local car camping with daily field trips relevant to academic interest and place
- Basecamp WOOT: students stay in WWU residences and participate in local activities
- Funding for WOOT staff and operating expenses, to reduce financial barriers to students
- Leadership courses, to train students to become future WOOT leaders
- Linkages between WOOT programs and First-year Interest Groups (FIGs) courses
- Field trips, other activities after WOOT: to maintain cohort connection among WOOT students
- Living-learning communities, based in WWU residences

Programs for all students

- Outdoor classroom(s), to facilitate sense of place and help Indigenize the curriculum²⁴
- Student attendance at Salish Sea Ecosystem Conference to connect with professional leaders, scientists, employers, Indigenous knowledge holders (need funding for registration and travel)
- Programs developed to serve student interests and needs, via partnerships between colleges, departments, Outdoor Center, and WWU offices and organizations: Student Outreach Services, Ethnic Student Center, Multicultural Center, Tribal Relations Office, Native American Student Union, Disability Access Center, Veterans Services, Womxn's Identity Resource Center, LGBTQ+ Western, Queer Resource Center, and constituent student organizations
- Academic field programs: recognize and provide incentives for faculty efforts and success⁷
- Fund field course operating expenses to reduce student cost, increase access and inclusivity
- Establish outdoor gear repository available at low or no cost to students; partner with gear vendors and manufacturers interested in reaching underrepresented demographics
- Cluster scholarships for BIPOC students, to overcome feelings of isolation and increase retention
- Training in cultural sensitivity, diversity, and inclusion in field settings
- Outdoor skills and safety training; no prior experience needed. Address comfort, belonging, technical skills, social skills, racism and intolerance,^{25,26} and access for different abilities²⁷⁻²⁹
- Remove bureaucratic barriers (e.g., "red tape" from Procurement and Contract Administration)
- Support student roles in programs on climate change and food security with Tribes, First Nations

Programs for upper division students

- Participate in Undergraduate Field Experiences Research Network (UFERN).¹¹
- Support established programs: ENVIS Spring Block, GEOL Field Camp, ESCI Field Camp, RECR cohort experience, ANTH Archaeological Summer Field Program
- Develop Mountains to Ocean interdisciplinary program
- Establish a Mountain field station (partner with SPMC for course, research support?)
 - field station administrative support (administrator/course director – manage course logistics)
 - seed funding: program director(s) or leadership team: develop strategic plan, grant proposals
 - seed funding for course-based research experiences

Inclusive Student Success

References

1. American Association for the Advancement of Science (AAAS). 2011. Vision and change in undergraduate biology education: A call to action. Washington, DC. [online] <https://visionandchange.org/> (accessed 21 August 2019)
2. Bell, B. J. 2012. Assessing the effectiveness of an adventure-based first-year experience class. *Journal of College Student Development* 53: 347-355. doi: 10.1353/csd.2012.0031
3. Beltran, R.S., Marnocha, E., Race, A., Croll, D.A., Dayton, G.H., and Zavaleta, E.S. 2020. Field courses narrow demographic achievement gaps in ecology and evolutionary biology. *Ecology and Evolution* 10: 5184-5196. doi: 10.1002/ece3.6300
4. Bernier, N. 2019. Well-oriented. *Mary Christie Quarterly* 14: 16-23.
5. Boyle, A., Maguire, S., Martin, A., Milsom, C., Nash, R., Rawlinson, S., Turner, A., Wurthmann, S. and Conchie, S. 2007. Fieldwork is good: The student perception and the affective domain. *Journal of Geography in Higher Education* 31: 299-317.
6. Easton, E. and Gilburn, A. 2012. The field course effect: gains in cognitive learning in undergraduate biology students following a field course. *Journal of Biological Education* 46: 29-35. doi:10.1080/00219266.2011.568063
7. Fleischner, T.L., Espinoza, R.E., Gerrish, G.A., Greene, H.W., Kimmerer, R.W., Lacey, E.A., Pace, S., Parrish, J.K., Swain, H.M., Trombulak, S.C. and Weisberg, S. 2017. Teaching biology in the field: importance, challenges, and solutions. *BioScience* 67: 558-567. doi:10.1093/biosci/bix036
8. Kuh, G. D. and O'Donnell, K. 2013. *Ensuring Quality & Taking High-Impact Practices to Scale*. Association of American Colleges & Universities, Washington D.C.
9. McConnell, D.A., and van Der Hoeven Kraft, K.J. 2011. Affective domain and student learning in the geosciences. *Journal of Geoscience Education* 59: 106-110. doi:10.5408/1.3604828
10. Miriti, M.N. 2020. Nature in the eye of the beholder: a case study for cultural humility as a strategy to broaden participation in STEM. *Education Sciences* 9:291. doi:10.3390/educsci9040291
11. O'Connell, K., Hoke, K., Berkowitz, A., Branchaw, J., and Storksdieck, M. 2020. Undergraduate learning in the field: Designing experiences, assessing outcomes, and exploring future opportunities. *Journal of Geoscience Education* 0(0): 1–14. doi: 10.1080/10899995.2020.1779567
12. Scott, G.W., Goulder, R., Wheeler, P., Scott, L.J., Tobin, M.L. and Marsham, S. 2012. The value of fieldwork in life and environmental sciences in the context of higher education: A case study in learning about biodiversity. *Journal of Science Education and Technology* 21: 11-21.
13. Zavaleta, E.S., Beltran, R.S., and Borker, A.L. 2020. How Field Courses Propel Inclusion and Collective Excellence. *Trends in Ecology & Evolution* 35(11): 953-956. doi: 10.1016/j.tree.2020.08.005
14. Banger, G., and Brownell, S. 2014. Course-based undergraduate research experiences can make scientific research more inclusive. *CBE—Life Sciences Education* 13: 602–606.
15. Association for Experiential Education. 2011. Wilderness orientation programs. Association for Experiential Education, St. Petersburg, FL. [online] <https://www.aee.org/assets/docs/whitepaper-wilderness-orientation-aee-2011.pdf> (accessed 28 May 2021)
16. Krieg, J. 2016. Western Outdoor Orientation Trips (WOOT) Freshmen and Running Start Students Fall 2012-Fall 2015: Demographics and Retention. Office of Institutional Research, Western Washington University, Bellingham, WA.
17. Magnuson, S. 2017. Western Outdoor Orientation Trips: Winter 2017 Program Report. Outdoor Center, Western Washington University, Bellingham, WA.
18. Junger, S. 2016. *Tribes: On Homecoming and Belonging*. Twelve, New York.

Inclusive Student Success

19. Bennett, J.C., Lattuca, L., Redd, K., and York, T. 2020. Strengthening pathways to faculty careers in STEM: Recommendations for systemic change to support underrepresented groups. Association of Public and Land-grant Universities, Washington, DC. [online] <https://www.aplu.org/library/> (accessed 27 January 2021)
20. Houghton, J.J., Morgan, D.J., Gordon, C.E., Stokes, A., Atchison, C.L., Collins, T. D., Craven, B., and Willis, K. 2020. Access Anglesey 2018: Lessons from an inclusive field course. *Advances in Geosciences* 53: 183-194. doi: 10.5194/adgeo-53-183-2020
21. Humphrey, D. 2019. Science summary. 3. Increasing representation of ethnic minorities in STEM fields. *Mary Christie Quarterly* 14:41-42.
22. Tilghman, S., Alberts, B., Colón-Ramos, D., Dzirasa, K., Kimble, J., and Varmus, H. 2021. Concrete steps to diversify the scientific workforce. *Science* 372:133-135. doi: 10.1126/science.abf9679
23. Schwartz, A., and Corkery, M. R. 2011. Barriers to Participation among Underrepresented Populations in Outdoor Programs. *Recreational Sports Journal* 35(2): 130–144. doi: 10.1123/rsj.35.2.130
24. Wildcat, D. 2021. Power and place in Indian education in America: Indigenous indigenuity. Presentation in 16th Annual Vine Deloria, Jr. Indigenous Studies Symposium, 13 May 2021, Northwest Indian College, Lummi Nation.
25. Demery, A.J.C., and Pipkin, M.A. 2021. Safe fieldwork strategies for at-risk individuals, their supervisors and institutions. *Nature Ecology and Evolution* 5: 5–9. doi: 10.1038/s41559-020-01328-5
26. Hill, A. F., Jacquemart, M., Gold A.U., and Tiampo K. 2021. Changing the culture of fieldwork in the geosciences, *Eos*, 102. <https://doi.org/10.1029/2021EO158013>
27. Houghton, J.J., et al. 2018: Lessons from an inclusive field course. *Advances in Geosciences* 53: 183-194. doi: 10.5194/adgeo-53-183-2020
28. Atchison, C.L., Marshall, A.M., and Collins, T.D. 2019. A multiple case study of inclusive learning communities enabling active participation in geoscience field courses for students with physical disabilities. *Journal of Geoscience Education* 67: 472-486. doi: 10.1080/10899995.2019.1600962
29. Whitmeyer, S.J., Atchison, C.L., and Collins, T. 2020. Using mobile technologies to enhance accessibility and inclusion in field-based learning. *Geological Society of America Today* 30. doi: 10.1130/GSATG462A.1