Readings in Geoscience Diversity, Equity, and Inclusion (DEI) Syllabus

"A lack of diversity and inclusion is the single largest cultural problem facing the geosciences today" Kuheli Dutt

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Meeting Time: Wednesdays, 4-5:30 PM
Location: Webb 2007

I. Course Description

This ten week reading group will cover topics of diversity, equity, and inclusion (DEI) throughout geoscience higher education, defined loosely as between high school geoscience through postdoctoral research. We will also briefly touch on issues at the faculty level, such as hiring practices. For the last week of class, students will read an additional paper of their choosing and present a brief summary to a subset of the class or the entire class, depending on the number of students enrolled. All participants are expected to come to class having read the papers, ready for an active discussion. Each class will begin with sharing reflections from the online assignment before open discussion.

II. Eligibility:

The course is open to junior and senior undergraduates and graduate students. Students do not need to be in Earth Science to enroll, but a general interest in geosciences is encouraged. Staff, faculty, postdocs, and affiliates are asked to join a separate discussion group time section to allow a private space for graduate students and undergraduates for discussion.

III. Learning Goals:

By the end of this course, participants will be able to:

- Identify diversity, equity, and inclusion issues across demographics (e.g., race, ethnicity, gender) within geoscience higher education practices
- Critically read and summarize geoscience DEI papers, placing them in context of cultural experience and related literature
- Evaluate open areas of research and articulate points of strength and weakness in geoscience DEI studies
- Connect ideas from DEI papers to department, institution, or system-wide solutions

IV. Inclusion Statement:

UC Santa Barbara understands that everyone has a unique background and perspective. As a classroom, we should strive for an atmosphere that respects this diversity. While taking this class we ask students to:

- Share their own values, experiences and beliefs but be open to the views of others
- Communicate in a respectful manner (when you disagree, challenge or criticize the idea, not the person)
- Share responsibility for including all voices in discussions (if you have been speaking often, hold back; if you have been hesitant to talk, look for ways to speak up)
- Avoid playing devil's advocate for the sake of conflict - ask genuine questions to receive genuine answers

V. Accessibility Statement:

Students with disabilities may request academic accommodations for exams/assignments online through the UCSB Disabled Students Program at http://dsp.sa.ucsb.edu/. Please make your requests for accommodations through the online system as early in the quarter as possible to ensure proper arrangement; for certain accommodations, DSP requires at least 10 days notice.

VI. Grading

45 %	Online assignments (due by 10:00pm the day before class)
45 %	Class participation
10 %	Final week paper reflection and presentation

Online Assignments

Participants will be asked to provide short response answers to a series of questions on an online gauchospace form. Forms are due by 10pm the day before class. Each survey for the first nine weeks is worth 5% of the grade.

Class Participation

Class participation includes attendance as well as participating in both small and large group discussions, following guidelines of inclusivity outlined above. Each class in the first nine weeks is worth 5% of the grade. Students that expect to miss more than one week of class should speak to the instructor for accommodation.

Final Week

In the last week students will choose an additional paper to read that was not on the required reading list. Students may select from the optional readings provided

or find another paper, as long as it is related to the scope of papers discussed in class. If students aren't sure about their choice of paper, please talk to the instructor to confirm. This assignment is worth 10% of the grade, with half from an online short answer form and the remaining from a short (1-5 min) share-out in class.

VII. Required Readings

Readings (both required and optional) will be posted on Gauchospace for download and easy access, but are cross listed here for reference.

Week One: Talking about Race

Race talk: the psychology of racial dialogues
American Psychologist, Sue 2013

Race and racism in the geosciences
Nature Geoscience, Dutt 2020

Week Two: Geoscience in the Classroom

Promoting the geosciences among grades 8-12 minority students in the urban coastal environment of New York City
Journal of Geoscience, Blake et al. 2018

Making geoscience relevant to First Nation's Students from the north coast of Brittish Columbia
Journal of Geoscience Education, Bevier et al. 1997

Week Three: Majoring in Geoscience

Choosing the geoscience major: important factors, race/ethnicity, and gender
Journal of Geoscience Education, Stokes et al. 2015

Perceptions of scientists held by US students can be broadened through inclusive classroom interventions
Communications Earth and Environment, Sheffield et al. 2021

Week Four: Geoscience Programs at Minority Serving Institutions

Programs to build capacity in geosciences at HBCUs and MSIs: examples from North Carolina A&T State University
Journal of Geoscience Education, Bililign 2019

Week Five: Field Experiences

Attracting diverse students to field experiences requires adequate pay, flexibility, and inclusion
Bioscience, Jensen et al. 2021

Survey of academic field experiences (SAFE): Trainees report harassment and assault
PLOS One, Clancy et al. 2014

Week Six: Inequities at Geoscience Conferences
Diversity in geoscience: participation, behavior, and the division of scientific labor at a Canadian geoscience conference
Facets, King et al. 2018

Women from some minorities get too few talks
Nature, Ford et al. 2019

Week Seven: Geoscience Doctoral Degrees
No progress on diversity in 40 years
Nature Geoscience, Bernard and Cooperdock 2018

Week Eight: Gender Inequity in Higher Geoscience Academia
Gender differences in recommendation letters for postdoctoral fellowships in geoscience
Nature Geoscience, Dutt et al. 2016

A global survey on the perceptions and impacts of gender inequity in the Earth and space sciences
Earth and Space Sciences, Popp et al. 2019

Week Nine: Faculty Representation
Trends in the representation of women among US geoscience faculty from 1999 to 2020: the long road toward gender parity
AGU Advances, Ranganathan et al. 2021

VIII. Optional Supplemental Readings

Week One: Talking about Race
Racism, sociology of
International Encyclopedia of the Social & Behavioral Sciences, Clair and Denis 2015

Does our vision of diversity reduce harm and promote justice?
GSA Today, Keisling et al. 2020

Addressing unconscious coloniality and decolonizing practice in geoscience
Nature Reviews Earth and Environment, Klymiuk 2021

An actionable anti-racism plan for geoscience institutions
Nature Communications, Ali et al. 2021

Hostile climates are barriers to diversifying the geosciences
Advances in Geosciences, Marin-Spiotta et al. 2020

Week Two: Geoscience in the Classroom
Pathways to the geoscience summer high school program: a ten-year evaluation
Journal of Geoscience Education, Carrick et al. 2016

Week Three: Majoring in Geoscience
Understanding perceptions of the geosciences among minority and nonminority undergraduate students
Journal of Geoscience Education, Sherman-Morris and McNeal 2016

Increasing diversity in the geosciences: recruitment programs and student self-efficacy
Journal of Geoscience Education, Baber et al. 2010

Uneven increases in racial diversity of US geoscience undergraduates
Communications Earth and Environment, Beane et al. 2021

Week Four: Geoscience Programs at Minority Serving Institutions
Looking in the Right Places: Minority-Serving Institutions as Sources of Diverse Earth Science Learners
Journal of Geoscience Education, McDaris et al. 2017

An Educational Partnership Program with Minority Serving Institutions: A Framework for Producing Minority Scientists in NOAA-Related Disciplines
Journal of Geoscience Education, Robinson et al. 2007

Week Five: Undergraduate Fieldwork
Barriers to fieldwork in undergraduate geoscience degrees

Nature Reviews Earth & Environment, Giles et al. 2020

Mental health in the field
Nature Geoscience, John and Khan 2018

Safe fieldwork strategies for at-risk individuals, their supervisors and institutions
Nature Ecology & Evolution, Demery and Pipkin 2021

A synthesis of instructional strategies in geoscience education literature that address barriers to inclusion for students with disabilities
Journal of Geoscience Education, Carabajal et al. 2017

Geoscientists' perceptions of the value of undergraduate field
GSA Today, Petcovic et al. 2014

Ten steps to protect BIPOC scholars in the field
EOS, Anadu et al. 2020

<u>Week Six: Inequities at Geoscience Conferences</u>
Gender inequity in speaking opportunities at the American Geophysical Union conference
Nature Communications, Ford et al. 2018

<u>Week Seven: Geoscience Doctoral Degrees</u>
Diversity in the Geosciences
American Geosciences Institute, Gonzales and Keane 2020

<u>Week Eight: Gender Inequity in Higher Geoscience Academia</u>
Journals invite too few women to referee
Nature, Lerback and Hanson 2017

First Authorship Gender Gap in the Geosciences
Earth and Space Science, Pico et al. 2020

<u>Week Nine: Faculty Representation</u>
Gender imbalance in US geoscience academia
Nature Geoscience, Holmes et al. 2008

Under-represented and overlooked: Māori and Pasifika scientists in Aotearoa New Zealand's universities and crown-research institutes

Journal of the Royal Society of New England, McAllister et al. 2022

IX. Additional Resources

Unlearning Racism in Geosciences (URGE)
https://urgeoscience.org/resources/

- Large compilation of readings about DEI issues by theme (e.g. racism and history) with both general readings and specific links to geosciences

Earth Science Women's Network (ESWN)
https://eswnonline.org/online/eswn-resources/

- A search based resource center with readings in DEI by field category and intended audience

Long Term Ecological Research (LTER)
https://lternet.edu/network-organization/diversity-resources/

- Both general and field specific (ecology) focused resource list

X. About the Instructor

Alex Phillips received her undergraduate degree from UC Santa Barbara in 2015 from the College of Creative Studies. She recently completed a PhD in organic geochemistry from the California Institute of Technology, where she researched sulfur cycling in lakes and oceans using stable isotope techniques. She also conducted collaborative social science research as part of her PhD, investigating the ability of social media to provide diverse models for women in STEM. She has served on various DEI-related committees at Caltech, the Geochemical Society, and UC Santa Barbara. Alex was also an AGU Voices for Science Policy fellow from 2019 to 2020, where she connected graduate students to local policymakers and co-authored a ten step guide to federal policy engagement. Alex is also the founder of the popular social media platform "Women Doing Science" - dedicated to increasing the visibility of diverse women in STEM.