EARTH203: Diversity & Inclusion in the Geosciences (DIG)
Course Syllabus
Winter 2018 (1 or 2 credits)

Co-Instructors
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Class Meetings
Day/Time: Thursdays 9AM-10:20AM
Location: Green Earth Sciences 134
Office Hours: by appointment

Course Overview
This course will prepare students to address participation and inclusion challenges uniquely faced in the geosciences. By bringing awareness to specific tools and tactics which improve learning and working environments, we hope to help others develop inclusive environments where diversity is valued and celebrated.

Diverse thinking coupled with inclusive practices improves science and team performance. In the past 40 years, the geosciences have had the lowest diversity of all STEM fields within higher education. Using insights from recent literature and perspectives from guest speakers, we will evaluate current practices and identify those that hold promise in improving broader participation and inclusion in the geosciences. Discussions will focus on actions that individuals can take to promote greater inclusion within every level of higher education in the earth sciences.

Course Structure and Content
The course will be discussion based and benefit from participation by all. We will couple our discussions with guest speakers who will also contribute personal stories and perspectives. All weekly readings for the class will be posted on Canvas (https://canvas.stanford.edu/)

Grading
Grades are based on attendance and participation in class discussion. Grading basis is Satisfactory/No Credit and will be reflected as S/NC on your transcript.

Course Topics
Given the interests of the participants, the potential themes and scope of the class may shift though it will aim to address the following:

- Broadening participation in today's geoscience fields: there has been low ethnic diversity represented. How can that change?
- Unconscious Bias
- Combating stereotype threat and imposter syndrome in a learning spaces
- Gender Inequity: manifestation throughout career levels
- Harassment in the geosciences: factors that lead to hostile workplaces and tools for improving our community's climate
- Inclusion: necessity, benefits, and examples of inclusive micro-practices

- Allyship: how we can advocate for others and develop inclusive practices in the lab, classroom, and geoscience community

Learning Goals

By the end of this course, students will be able to do the following:

- Define diversity, inclusion, and why and how they are necessary in science
- Summarize the state of diversity/representation specifically in the geosciences using recent literature/insights
- Identify concrete actions or programs which enhance diversity, promote inclusivity, or broaden participation
    - Gain an understanding of successful programs and their practices that fulfill these goals in the community (e.g. at Stanford and beyond)
    - Outline a set of inclusive practices that can be undertaken by the individual
- Explain implicit bias & strategies to personal and group implicit bias in professional settings
- Act as advocates, allies, and/or mentors for people with different life experiences than their own

Honor Code

Students are expected to follow the university's honor code, which asks students to pursue their studies in a manner consistent with academic integrity. For the complete text, see: communitystandards.stanford.edu

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: http://oae.stanford.edu) .

Readings Covered

Bernard RE, Cooperdock EHG (2018). No progress on diversity in 40 years. *Nature Geoscience* 11**:** 292-295.

Carabajal IG, Marshall AM, Atchison CL. (2017) A synthesis of instructional strategies in geoscience education literature that address barriers to inclusion for students with disabilities. *Journal of Geoscience Education.*

Clancy KB, Nelson RG, Rutherford JN, Hinde K. (2014) Survey of academic field experiences (SAFE): Trainees report harassment and assault. *PLoS One.*

Clancy KB, Lee KM, Rodgers EM, Richey C. (2017) Double jeopardy in astronomy and planetary science: Women of color face greater risks of gendered and racial harassment. *Journal of Geophysical Research: Planets.*

Devine PG, Forscher PS, Austin AJ, Cox WTL (2012). Long-term reduction in implicit race bias: a prejudice habit-breaking intervention. *Journal of Experimental Social Psychology* 48: 1267-1278.

Dutt K, Pfaff DL, Bernstein AF, Dillard JS, Block CJ. (2016) Gender differences in recommendation letters for postdoctoral fellowships in geoscience. *Nature Geoscience.*

Ford HL, Brick C, Blaufuss K, Dekens PS. (2018) Gender inequity in speaking opportunities at the American Geophysical Union Fall Meeting. *Nature communications.*

Harrison C, Tanner KD (2018). Language matters: considering microaggressions in science. *Cbe-Life Sciences Education* 17: 8.

Marín Spiotta E, Schneider B, Holmes MA (2016). Steps to building a no-tolerance culture for sexual harassment. *Eos (0096-3941)* 97:9.

Nielsen MW, Alegria S, Borjeson L, Etzkowitz H, Falk-Krzesinski HJ, Joshi A *et al* (2017). Gender diversity leads to better science. *Proceedings of the National Academy of Sciences of the United States of America* 114: 1740-1742.

Nishii LH (2013). The benefits of climate for inclusion for gender-diverse groups. *Academy of Management Journal* 56:1754-1774.

Powell K (2018). The power of diversity being inclusive gives teams a competitive edge in science. It also happens to be the right thing to do. *Nature* 558: 19-22.

Rock D (2016). Why diverse teams are smarter. *Harvard Business Review* 4: 2.

Sherbin L, Rashid R (2017). Diversity Doesn't Stick Without Inclusion. *Harvard Business Review Digital Articles*: 2-5.

Tanner KD (2013). Structure matters: twenty-one teaching strategies to promote student engagement and cultivate classroom equity. *CBE-Life Sciences Education* 12: 322-331.

Trujillo G, Tanner KD (2014). Considering the role of affect in learning: monitoring students' self-efficacy, sense of belonging, and science identity. *CBE-Life Sciences Education* 13: 6-15.

Class Schedule

Week	Topic	Assignments / Speaker event	Readings
1 Jan 10	Introductions & Motivations	Introductory group activities	Ch.4 Diversity from *Scientific Teaching* Powell 2018: “The power of diversity” Bernard & Cooperdock: “No progress on diversity in 40 years”
2 Jan 17	Inclusivity (in-class) & Implicit Bias (readings)	**Guest facilitator:** Callum Bobb, Stanford	Ford et al., 2018: “Gender inequity in speaking opportunities at the American Geophysical Union Fall Meeting" Dutt et al., 2016: “Gender differences in recommendation letters for postdoctoral fellowships in geoscience”
3 Jan 24	Inclusivity & Implicit Bias	Assignment: Implicit bias test reflection DUE	Sherbin and Rashid 2017: “Diversity doesn’t stick without inclusion” Tanner 2013, “Structure Matters: 21 Strategies”
4 Jan 31	Ethnic & Racial Diversity Part 1	**Guest speaker:** Prof. Jerry Harris, Stanford	Rock, 2018: “Why diverse teams are smarter” Cohen et al., 2006: “Reducing the racial achievement gap”
5 Feb 7	Ethnic & Racial Diversity Part 2: Discuss Perspectives & Readings		Tropp: “Overcoming Implicit Bias and Racial Anxiety” Devine et al., 2012: “Long-term reduction in implicit bias”
6 Feb 14	Disability, Access, & Physical Diversity		Carabajal et al., 2018: “A Synthesis of Instructional Strategies in Geoscience Education Literature That Address Barriers to Inclusion for Students With Disabilities” Trujillo and Tanner 2014: “Considering the role of affect in learning”

			Harrison and Tanner 2018: “Language matters: considering microaggressions in science”
7 Feb 21	Gender Diversity	**Guest speaker** Dr. Melissa Burt, CSU	Nielsen et al., 2017: “Gender diversity leads to better science” Nishii 2013: “The benefit of climate for inclusion for gender-diverse groups”
8 Feb 28	Gender & Sexual Harassment Part 1		Clancy et al 2014: "Survey of academic field experiences (SAFE): Trainees report harassment and assault." Clancy et al., 2017: “Double jeopardy in astronomy and planetary science: Women of color face greater risks of gendered and racial harassment.”
9 Mar 7	Gender & Sexual Harassment Part 2	**Guest speaker** Prof. Erika Marin Spiotta, UW-Madison	Spiotta et al., 2016: “Steps to building a no-tolerance culture for sexual harassment”
10 Mar 14	Final Project: actions for inclusion at multiple scales	**Final project DUE Mar 18**	Poster fair of final projects

*Supplemental readings: NSF Broadening Participation, NSF Broader Impacts

Assignments

Implicit Bias Test and reflection: Take a implicit bias test from the following site. You may choose which test you take. https://implicit.harvard.edu/implicit/takeatest.html By Jan 17 at 9AM (class time), a post in the forums on Canvas is required. Post which test you took. In a separate reflection (not on Canvas), note the degree of preference for the automatic preference (e.g. slight, strong, etc) and bring a short paragraph reflection to class for further reflection and sharing.

Final Project: *What is a concrete action that an individual can take to promote inclusion and diversity?* As we move throughout the course, we want to keep returning to this question, and to make it personal. *What is one concrete action that YOU can do at Stanford?* **You will deliver an extensive project proposal on an action that can take place at Stanford Earth (or a similar context) and then present this via a poster at the end of the quarter.** Depending on the scope of the project, the proposal will be the only deliverable (if time and resources needed

to carry out the project would be too much); however some project deliverables can be fully turned in. Because we define diversity broadly in this course, you are welcome to make your project targeted at promoting inclusion for a particular people group or keeping a broad reach. You also have a choice in what kind of space the project will take place in, including but not limited to…

Classroom spaces / implementing pedagogical practices, facilitating a campus/department discussion event, designing a speaker event or panel about diversity, developing a web app to detect unconscious biases, designing posters to promote positive workplace climates, developing a survey for data collection for a geoscience department, etc.

It is up to you to develop the scope of the project in accordance with the number of credits you have enrolled in. Forming teams of two is acceptable. We will discuss the final project more in class.

Final Project Milestones:
Week 6: Students identify realm and medium. Post on Canvas a short paragraph pitch of their project.
By this time, the course facilitators will upload a project rubric.
Week 8: Project progress check in. Short (2min) update per team on project. Class discusses next steps.
Week 10: Poster presentations.
March 18: Posters and proposals due via Canvas.

Grades:
Grading is credit/no credit. Your grade will be based on the following:

- Weekly participation and discussion (30%)
- Weekly readings (30%). You must post a short response after reading the papers each week on Canvas. Prompt is in Canvas. There is a thread for each week's readings.
- Final project (30%): 50 points for proposal, 50 points for poster.
- Assignments (10%).