

**SPRING
2020**

BEING HUMAN IN STEM

@ THE UNIVERSITY OF UTAH
FINAL COURSE REPORT

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**"Racial inequity is a problem of bad policy, not bad people."
-Dr. Ibram X. Kendi**



Listen to our conversation with President Watkins [here](#)

INTRODUCTION

Being Human in STEM (SCI 3900) is designed to start a dialogue between students and University faculty and staff regarding pertinent identity inequities such as race, sexual orientation, gender, disability, and economic status, among many others. In particular, we examined how these identities affect students' experiences in STEM majors. This class was new to the U this semester, and this was the first time it has been taught at a public university. Amherst College was the first to offer such a course after issues of discrimination on campus in fall 2015. The course quickly spread to a number of universities including Yale and Brown.

CLASS FORMAT

Each week for our class, we would read articles about the issues people with various identities face in STEM before discussing them as a class. Occasionally, we had guests including faculty from the School for Cultural and Social Transformation, as well as student guests join us for these discussions and share their intimate knowledge on the subject. Towards the end of the semester, we each led a discussion on a topic of our choice, which provided us with the opportunity to further discuss our own identities and passions with our peers.

As part of our discussion on racial groups, we delved into the New York Times Best Seller, *How to be an Antiracist* by Dr. Ibram X. Kendi. In these discussions we spoke about how being an antiracist requires persistent self-awareness, constant self-criticism, and regular self-examination. [1] To close out our module, we attended an incredible Tanner Talk spotlighting Dr. Kendi himself.

PROJECT FINDINGS

WHO ARE WE OVERLOOKING?

A crucial part of this class is the student-led final project. For the Spring 2020 term, our class decided to survey STEM students across the College of Science, College of Engineering, and the College of Mines and Earths Sciences, in an effort to hear their stories and improve the climate in STEM at the U. We collected 48 unique student responses over the course of two weeks (Feb. 27th - March 13th), We were hoping to follow up for more in-depth interviews with participants when the COVID-19 crisis took priority. We did, however, get the opportunity to interview President Watkins on her podcast, *U Rising*, for which we are incredibly thankful. In light of our project, we have collected various impactful quotes and statistics, as well as some suggestions for the future to share with you.

25%

OF 1ST TIME FRESHMEN AT THE U WERE FIRST-GENERATION IN 2018 [2]

50TH

UTAH IS RANKED LAST IN THE NATION FOR WOMEN EMPLOYED IN STEM [3]

70%

OF QUEER SCIENTISTS FEEL THAT DISCUSSING GENDER IDENTITY OR SEXUAL ORIENTATION IN THE WORKPLACE IS "UNPROFESSIONAL" WHILE SUCH DISCUSSIONS FOR CISGENDER HETEROSEXUAL WORKERS IS COMMON [4]

80%

OF COLLEGE STUDENTS WHO NEED MENTAL HEALTH SERVICES WON'T SEEK THEM. [5]

16.6%

OF STEM MAJORS AT THE U ARE FROM UNDERREPRESENTED MINORITY GROUPS [6]

3.2%

OF STEM FACULTY AT THE U ARE FROM UNDERREPRESENTED MINORITY GROUPS [7]



"I am tired of professors implying that people like me who lack some invisible prerequisite knowledge are deficient in some way - I am a first gen from a fishing village. I haven't the slightest clue what any of those things are."

- Computer Science 2022

"They suggest that my interest in math excites others only because I add diversity. That they see me first as a woman, and second as a mathematician. That I somehow represent an entire group of people with whom I do not even identify."

- Mathematics 2020



SURVEY HIGHLIGHTS

HOW ARE STUDENTS DOING AT THE U?

I've been dating a guy for a couple months and I've found myself significantly less comfortable mentioning him with math friends or in classes as opposed to other classes. I think this results in part, from the apathy toward gender and sexual identities in both math as a discipline and with mathematicians themselves

- Mathematics 2020

Muslim students pray and fast. We should not have to choose between our religion and our studies. It is the responsibility of the University to ensure that I can practice my religion without the fear of doing poorly in my classes

- Chemistry 2021

I am Filipino, and when I walked into the room of my BME major and watched as people sat around me on the first day of class I didn't see brown people. I remember my heart falling a bit

- anonymous



[8]

I didn't feel like I was being treated like a human, I felt like a machine.

- Civil Engineering 2022

I really appreciate the balance of a flipped classroom with out-of-class learning and in-class practice, it is really helpful to come to class prepared with questions so that I leave feeling more solid in the material than when I entered.

- anonymous

RESOURCES

HOW CAN WE EFFECTIVELY MOVE FORWARD?

Simply said, resources empower people. Below you will find a few resources & suggestions to implement so we can effectively move forward:

University

- Be aware of how students are responding to your teaching style & evaluate often. (**Resources**)
- Create a humane environment (i.e. give reasonable deadlines for homework, have a straightforward & forgiving grading policy, be open about making mistakes & asking questions)
- Include closed captions for videos you post or share
- Offer to discuss accommodations for the course
- Educate students regarding additional resources

For All

- Ask for & respect pronouns and preferred names
- Be open about mental illness and create a safe space to talk about it

Students

- Student Success Advocates help with stress & time management, test anxiety, study skills & personal growth, among others.
<https://ssa.utah.edu/>
- Counseling Center provides crisis services, individual/group/couple counseling, psychiatric medication services, and mindfulness clinics.
<https://counselingcenter.utah.edu/>
- LGBTQ Resource center offers mentorship, scholarships & aid in name changes. <https://lgbt.utah.edu/>
- Center for Disability and Access provides scholarships, accommodation services, and assistive technology.
<https://disability.utah.edu/>

SPECIFIC SUGGESTIONS

WHAT DO STUDENTS RECOMMEND?

While almost every student we surveyed had something positive to say about their STEM Learning Environment at the U, many students also had suggestions for how they could be improved:



Put your students in a Growth Mindset. Let them know they can improve with effort. Studies have shown that this can improve student performance. [9]



Put more prayer spaces in various campus buildings so students don't have to go to the Union to pray.



Make sure your grading scales are ethical. If you find yourself constantly curving grades because students do poorly on tests or assignments, reconsider that test or assignment. Was it too long? Was it too hard?



Have more opportunities for students and faculty to interact outside of class.



Take care not to make your assignments too long. This can force students to choose between doing well in school and putting food on the table.



Recognize in class events that might be impacting students. We have lost peers to gun violence in recent years and some professors only acknowledged the loss of a class period, not the loss of a fellow student.



Do not use words like "trivial", "obvious", "easy", or "stupid" as this makes students feel uncomfortable and insulted.



Include fun activities in class every once in a while. Ask for a subject-related joke on homework, put a meme on an exam, have students do a group activity in class.

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THANK YOU FROM THE BEING HUMAN IN STEM STUDENTS

[1] Kendi, Ibram X. How to be an Antiracist. 2019

[2] <https://www.obia.utah.edu/data/university-strategy-engage-community/>

[3] <https://www.uvu.edu/uwlp/docs/infographics/stem.pdf>

[4] Jeremy B. Yoder & Allison Mattheis (2016). *Journal of Homosexuality*, 63:1, 1-27, DOI: 10.1080/00918369.2015.1078632

[5] <https://www.wbur.org/commonhealth/2012/11/09/mit-meltdown-blog-stressed-students>

[6] <https://www.obia.utah.edu/data/student-data/enrolled-majors/>

[7] <https://www.obia.utah.edu/wp-content/uploads/2019/01/E4.pdf>

[8] <https://visual.ly/community/Infographics/education/exam-stress-what-causes-exam-anxiety-and-solutions-work>

[9] Walton, G. M. (2014). The New Science of Wise Psychological Interventions. *Current Directions in Psychological Science*, 23(1), 73-82. <https://doi.org/10.1177/0963721413512856>