

# Being Human in STEM

SCI 3900/HONOR 3990, Spring 2022 Syllabus

## Instructors

Claudia De Grandi (Physics & Astronomy)

[claudia.degrandi@utah.edu](mailto:claudia.degrandi@utah.edu)

James Gagnon (School of Biological Sciences)

[james.gagnon@utah.edu](mailto:james.gagnon@utah.edu)

Holly Godsey (Geology & Geophysics)

[holly.godsey@utah.edu](mailto:holly.godsey@utah.edu)

Eliane Wiese (School of Computing)

[eliane.wiese@utah.edu](mailto:eliane.wiese@utah.edu)

## Class Meeting Time (in person):

Tuesday and Thursday 2-3:55pm in CSC 025

Tuesday: mostly devoted to class discussions of readings.

Thursday: structured-time for group projects and peer-to-peer feedback.

## Prerequisites:

None. The course is aimed at students across STEM fields and pre-medical students. Students who don't have major status but are interested in the course may be approved upon instructor's consent.

## Course goals:

- Investigate the themes of diversity and inclusion in STEM
- Create a community of students and faculty in STEM who critically analyze and discuss these themes
- Design, develop, and implement interventions to improve the STEM climate at the U of U
- Build awareness of issues relating to diversity in inclusion in STEM at the U through an end-of-semester symposium open to the U of U community of faculty, staff and students

## Learning Outcomes:

This course meets the General Education Diversity (DV) requirement. This course addresses the following Essential Learning Outcomes: Creative Thinking, Teamwork, Civic Engagement.

Students will be able to:

- Summarize and critique scholarly articles and media sources
- Respectfully engage in and contribute to classroom discussions
- Communicate personal perspectives, reflections, and questions related to the themes discussed in the course, both verbally and in writing
- Reflect on how different backgrounds and identities affect students' experiences in STEM
- Demonstrate topic fluency with regards to major issues impacting climate and inclusion in STEM fields
- Choose, design, and implement a project informed and motivated by the topics discussed in class and/or by additional research
- Collaborate effectively with groups of classmates on small and large group projects

## Inclusivity

We strive to make this class an inclusive community where we learn from the many perspectives of people of differing backgrounds and beliefs in the course. As a community, we aim to be respectful to all. We reject all forms of prejudice and discrimination, including but not limited to those based on age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status. Faculty and students are expected to commit to creating an environment that facilitates inquiry and self-expression, while also demonstrating diligence in understanding how others' viewpoints may be different from their own. We understand that as a class we will move forward *imperfectly*, and that we will *all* make mistakes. We will use such imperfections and mistakes as learning opportunities to grow as a community, while always owning the responsibility for the impact of our actions and words.

## Course Description

The course combines academic inquiry and the experiences of individuals in the course to develop an understanding of how students' identities shape their experience in STEM. The course has two components that are intertwined throughout the semester:

1. *Reading and discussion*: on Tuesdays, we ground our understanding through discussion of primary scholarly research as well as media sources (e.g. podcasts, films); occasionally we'll welcome guests to enrich and inform our discussions. Sample topics include implicit bias, stereotype threat, imposter syndrome, antiracism, intersectionality, and the roles that gender, race, LGBTQIA+ identity, dis/ability, and many others play in STEM.
2. *Project development*: on Thursdays, students will lead the design, execution, and evaluation of interventions with the goal of improving the experience of STEM students at the U.

This course relies heavily on in-class group discussions and group projects. Students will be asked to engage in group discussion at every class meeting. Students will establish norms for group discussion at the beginning of the semester to facilitate respectful listening and productive, open discussions. Coursework includes weekly readings, reflective/opinion writing, in-class discussion, project development and, as appropriate, execution and quantitative assessment of new or adapted interventions. At the end of the semester, the students in the class will present their project results and other course findings at a symposium that will be open to University of Utah faculty, staff and students.

## Course History

The idea for a [Being Human in STEM](#) course came from chemistry professor Sheila Jaswal from Amherst College in response to [Fall 2015 racial controversies](#)<sup>1</sup> across several American college campuses. The student protests brought to light a need for dialogue between students and faculty about inclusivity; this

---

<sup>1</sup> Events that took place at the University of Missouri, Yale University, and Amherst College form key examples of racial misconduct and protest. For more on these events, see "Racial Tension and Protests," 2015 (<https://www.nytimes.com/2015/11/11/us/racial-tension-and-protests-on-campus-across-the-country.html>); Hartocollis & Bidgood, 2015 (<https://www.nytimes.com/2015/11/12/us/racial-discrimination-protests-ignite-at-colleges-across-the-us.html>); and Dean, 2015 (<https://www.theguardian.com/us-news/2015/dec/29/college-university-campus-racism-protest-yale-georgetown-amherst-missouri>).

need was even more acute in STEM where often students perceive that their “identity should remain at the door.” Consequently, the *Being Human in STEM* course asserts that students’ identities matter and that every student deserves the space and freedom to be themselves in a STEM classroom. A course with the same purpose, *Race and Gender in the Scientific Community*, had already been initiated at Brown University in 2014 by students, including black women, and was adopted by the University. Amherst’s and Brown’s allied courses connected in 2016. Since then the [Being Human in STEM](#) course has been taught with the following mission:

*Collaboratively design projects that aim to foster a more inclusive, supportive STEM community and develop a framework for students and faculty to understand and navigate diverse identities in the classroom and beyond.*

Inspired by Amherst’s and Brown’s work, several other colleges in the Northeast (e.g. Yale University) started their own implementation of the course. Claudia De Grandi, Assistant Professor (Lecturer) of Educational Practice, co-taught the class twice at Yale University before she joined the University of Utah in 2018. Being Human in STEM had never been offered at a public university before, and Dr. De Grandi was delighted to spearhead the implementation of this course at the University of Utah.

The course was offered for the first time at the University of Utah in Spring 2020, co-taught by five instructors across the College of Science: Claudia De Grandi (Physics & Astronomy), Kelly MacArthur (Mathematics), Jon Rainier (Chemistry), Holly Sebahar (Chemistry), and Anil Seth (Physics & Astronomy).

The course is supported and managed under the Center for Science and Mathematics Education (CSME) and satisfies the General Education Diversity (DV) requirement.

Course website: <https://csme.utah.edu/beinghumaninstem/>

### **Course Projects**

Students will work in groups to design and implement interventions aimed at improving the experience and climate for STEM students at the U. These interventions can take different forms, some examples from past implementation of the course are:

- Design and implement surveys to assess some aspects of the STEM climate on campus<sup>2</sup>
- Organize a student-led workshop for STEM faculty to inform them of campus-relevant statistics and best teaching practices from a student perspective
- Establish support groups and visibility for specific groups on campus (e.g. first-generation and low income students, disabled students)
- Design and lead diversity and inclusion discussion with faculty and students in a STEM course;
- Create online resources, peer-to-peer mentoring and informative sessions for incoming students interested in STEM.

---

<sup>2</sup> At Yale University this project eventually led to a publication: STEM Climate survey developed through student–faculty collaboration, *Teaching in Higher Education*, DOI: <https://doi.org/10.1080/13562517.2019.1636219>. At University of Utah students discussed the results of the survey with former President Watkins as part of her [U Rising podcast](#). Listen to the podcast [here](https://bit.ly/3biOMSx) or <https://bit.ly/3biOMSx>

Students may develop something similar to the above, or something completely new. It will be up to them to identify the major needs, via research and data collection, and maximize the impact of their intervention.

**Required Text:** Ibram X. Kendi, *How to be an antiracist*, New York : Random House Publishing Group (2019). Online access to the book is available to all students through the Marriot Library. If you prefer a printed copy of the book, you can purchase a used/new copy at the [Campus bookstore](#) (\$20-25) or online (\$10-14 plus shipping). Audible versions of the book are also available on a few audiobook websites. If you wish to have a printed copy but cannot afford the cost, please reach out to the instructors, we have five copies that we can lend. (Please email Claudia De Grandi [claudia.degrandi@utah.edu](mailto:claudia.degrandi@utah.edu) before or during the first week of class to inquire about borrowing a book).

Additional required readings will be available on Canvas each week.

### **Overview of course assignments:**

#### Individual assignments:

- Weekly written reflections on assigned readings
- Scientific Autobiography
- Written Op-Ed or Scientific/Another Identity Autobiography

#### Group assignments:

- “Student Voices” project: students select readings and lead a class discussion
- Design and execution of intervention project and write up of findings
- Written and oral presentation of project proposals
- Public presentation of projects at end-semester symposium during Final Exam period: **Tuesday May 3<sup>rd</sup> 1-3pm**

### **Assignments and Discussion posts**

- Reading assignments will be posted by Wednesday morning and due every Sunday at midnight. Together with articles, these assignments may also include watching videos, and/or listening to podcasts. You will be expected to submit a summary of the assignment and/or a post on a Discussion Board. Discussion Board posts will be an important component of the class to inform and guide our Tuesday’s class discussion and to facilitate conversation outside of class.
- Additional assignments in preparation for the Thursday class will be due on Wednesday at midnight.
- Late submission: all assignments will be subjected to a 3% late penalty per each hour the submission is late.

### **Expected Student Workload**

3 credits = average of 9 hours of work per week

- 4 hours a week in class (Tue and Thu)
- 5 hours outside of class divided roughly among:
  - Outside reading per week: 2-3 hours

- Outside writing per week: 1-2 hours
- Outside work on projects: 1-2 hours
- Note: outside of class work will vary, some weeks there will be more readings and less writing, some weeks there will be more work on projects.

### **Class Participation and Attendance**

Attendance and in-class participation in discussions and activities is crucial to success in this course. Participation includes actively listening, reading all required readings, and thoughtfully contributing to the weekly discussion, activities, and group work. Much of what we do in this class requires us to reflect on the implications of the material we read and discuss. Thus, your presence is important. You will be excused up to three absences. Four or more absences will result in a 4% deduction from your attendance score for each additional class missed. Attendance will be tracked on Canvas using the Roll Call Attendance tool. Please email your instructors ahead of time if you will not be able to attend a particular class session and/or if you are experiencing an exceptional situation that prevents you from attending class.

### **Final grade calculation:**

Weekly readings, summaries and Canvas discussion	30%
Class participation and attendance	15%
Writing assignments: Autobiography/OpEd	15%
“Student Voices” project	10%
Group course project	30%
(including proposal, design, implementation, oral presentation, write up and dissemination)	

**Final Examination (Symposium):** Tuesday May 3<sup>rd</sup> 1-3pm

### **Policies and Resources:**

1. **COVID:** Current information about the university’s response to COVID-19 can be found at:
  - <https://coronavirus.utah.edu/>
  - <https://returntocampus.utah.edu/>
  - <https://coronavirus.utah.edu/checklists/#student-checklist>

In order to help monitor the spread of COVID-19 and respond appropriately, the university requires that all students complete a reporting form if they have been exposed to, are being tested for, or have been diagnosed with COVID-19, following the links above.

2. **Masks:** Because this class is held in person, we recommend that everyone wear face coverings in our classroom. As a reminder, when I wear a face mask, I am protecting you. When you wear a face mask, you are protecting me and all of your classmates. If you forget your mask, there will be masks available in class. Note that some students may qualify for accommodations through the Americans with Disabilities Act (ADA), and exceptions can be requested through the Center for Disability and Access (CDA).

3. Student Names and Personal Pronouns Statement: Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, we will honor you by referring to you with the name and pronoun that feels best for you in class, on lab reports, group assignments, etc. Please advise your instructor and TA of any name or pronoun changes (and update CIS) so we can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your uID card, please visit the LGBT Resource Center ([lgbt.utah.edu](http://lgbt.utah.edu)) Room 409 in the Olpin Union Building, or email [bpeacock@sa.utah.edu](mailto:bpeacock@sa.utah.edu) to schedule a time to drop by. The LGBT Resource Center hours are: M, W-F 8am-5pm, and 8am-6pm on Tuesdays.
4. The Americans with Disabilities Act: The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
5. Learners of English as an Additional/Second Language: If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center ([writingcenter.utah.edu/](http://writingcenter.utah.edu/)); the Writing Program ([writing.utah.edu/](http://writing.utah.edu/)); and the English Language Institute ([eli.utah.edu/](http://eli.utah.edu/)). Please let us know if there is any additional support you would like to discuss for this class.
6. Veterans Center: If you are a student veteran, the University of Utah has a Veterans Support Center ([veteranscenter.utah.edu/](http://veteranscenter.utah.edu/)) located in Room 161 in the Olpin Union Building. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources. Please also let us know if you need any additional support in this class for any reason.
7. Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources, contact the Center for Student Wellness ([wellness.utah.edu/](http://wellness.utah.edu/)); 801-581-7776.
8. University Counseling Center: The University Counseling Center (UCC) ([counselingcenter.utah.edu/](http://counselingcenter.utah.edu/)) provides developmental, preventive, and therapeutic services and programs that promote the intellectual, emotional, cultural, and social development of University of Utah students. They advocate a philosophy of acceptance, compassion, and support for those they serve, as well as for each other. They aspire to respect cultural, individual and role differences as they continually work toward creating a safe and affirming climate for individuals of all ages, cultures, ethnicities, genders, gender identities, languages, mental and physical abilities, national origins, races, religions, sexual orientations, sizes and socioeconomic statuses.
9. Office of the Dean of Students: The Office of the Dean of Students ([deanofstudents.utah.edu/](http://deanofstudents.utah.edu/)) is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assist with the interpretation of University policy and regulations. Please consider reaching

out to the Office of Dean of Students for any questions, issues and concerns. 200 South Central Campus Dr., Suite 270. Monday-Friday 8 am-5 pm.

10. Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).
11. University Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. Lauren's Promise – We will listen and believe you if you are being threatened. If you are in immediate danger call 911. Utah Domestic Violence Coalition is another good resource 800-897-5465. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).
12. We are committed to make sure all students have the support they need if they are experiencing violence, including but not limited to domestic violence, interpersonal violence, and stalking. If you are experiencing violence we encourage you to tell someone and seek help from the resources listed below:

#### Campus Resources

- o Safe U [safeu.utah.edu](http://safeu.utah.edu)
- o Advocacy/Mental Health [wellness.utah.edu](http://wellness.utah.edu)
- o Contact a Victim Advocate [advocate@sa.utah.edu](mailto:advocate@sa.utah.edu)
- o University Police 801-585-2677

#### Area Resources

- o Utah's Domestic Violence Coalition [www.udvc.org](http://www.udvc.org)
- o YWCA of Utah [www.ywcautah.org](http://www.ywcautah.org)
- o Utah Coalition Against Sexual Assault [www.ucasa.org](http://www.ucasa.org)
- o Rape Recovery Center Crisis Line 901-467-7273
- o Love is Respect [www.loveisrespect.org](http://www.loveisrespect.org)

13. Undocumented Student Support: Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your

residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit [dream.utah.edu](https://dream.utah.edu).

We reserve the right to change the policies stated in this syllabus at some point in the semester. If we do make a change, we will announce it in class and post a Canvas announcement about it.