CHEM/SOCI 250:

Being Human in STEM

**Spring 2020**

Monday/Wednesday 8:30 - 9:50, E208

Facilitators: Professors Sheila Jaswal & Leah Schmalzbauer,

Megan Lyster and Kevin Zhangxu ‘20

Consultant: Dr. Sarah Bunnell, Associate Director & STEM Specialist, CTL

# Contact Info and Office Hours:

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Mon 2:30- 4 pm, Wed 1:30-3 pm or by appointment

Prof. Schmalzbauer, [lschmalzbauer@amherst.edu](mailto:lschmalzbauer@amherst.edu), Morgan 306

Tue 10-11 am, Thursday 3:30-5:30 pm or by appointment

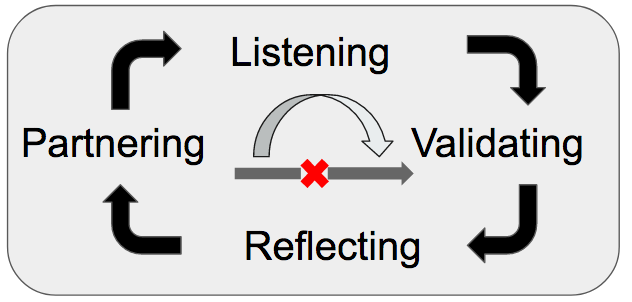
Kevin Zhangxu, [kzhangxu20@amherst.edu](mailto:kzhangxu20@amherst.edu)

# HSTEM course description

This is an interactive course that combines academic inquiry and community engagement to investigate the theme of diversity within STEM fields--at Amherst and beyond. In the first half of the semester we ground our understanding of the STEM experience at Amherst in national and global contexts, We survey the interdisciplinary literature on the ways in which identity - gender, class, race, sexuality- and geographic context shape STEM persistence and belonging. In the second half of the semester, we research the local STEM experience by conducting oral histories with current and past members of the Amherst STEM community, then collectively identify common themes that emerge. In parallel, students will design group projects that apply the findings of our research to develop resources and engage the STEM community at Amherst. Course work includes weekly readings, reflective writing, in-class discussion, and collaborative research, which students will present in a public forum at the end of the course.

# Class Expectations

This class will strive to be an inclusive community, learning from the many perspectives that come from having differing backgrounds and beliefs. As a class community, we will aim to be respectful to all, regardless of ability, race, ethnicity, religion, gender expression, sexual orientation, economic circumstances, ​*etc*​. We expect that all class participants, faculty, staff, and students, will create an environment that facilitates inquiry and self-expression, while also understanding and respecting how others' viewpoints may be different from our own. In addition, on Jan. 29, we will collaboratively design a covenant to help us structure the class to effectively work as a community that challenges and supports each other in discussing sensitive issues.



# Accessibility

If you require accommodations, please be sure to register with Accessibility Services to ensure you receive the appropriate support and coordination of your academic accommodations. You can reach them via email at ​accessibility@amherst.edu​, or via phone at 413-542-2337. Once you have your accommodations in place, Profs. Jaswal or Schmalzbauer will be glad to meet with you privately during office hours or at another agreed upon time to discuss the best implementation of your accommodations.

# Course websites:

Moodle

* <https://moodle.amherst.edu/course/view.php?id=18867>

Resources

* <https://libguides.amherst.edu/CHEM-250>
* [www.beinghumaninstem.com](http://www.beinghumaninstem.com)

# Course Texts:

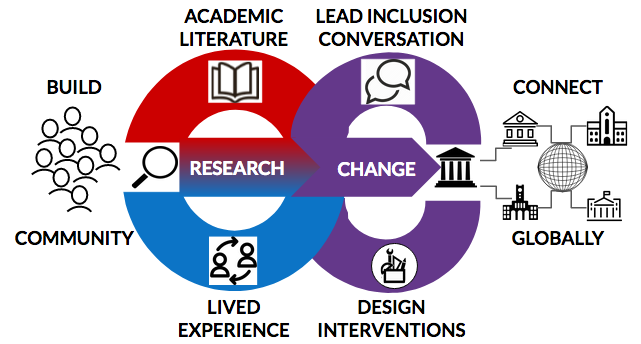
Anthony Jack. 2019. *The Privileged Poor: How Elite Colleges are Failing Disadvantaged Students*. Harvard University Press.

Valerie R. Yow. 2015. *Recording Oral History: A Guide for the Humanities and Social Sciences*, 3rd Edition. Rowman and Littlefield.

Optional: Binta Colley and Kabba Colley. 2013. *Resilience and Success: The Professional Journeys of African American Women Scientists*. Peter Lang Publishing.

Books are available on reserve in Frost Library and for purchase at Amherst Books. Other readings are accessible via e-reserves on the Moodle course site (<https://moodle.amherst.edu/mod/ereservesall/view.php?id=490590>).

# HSTEM course components and assessment:



## Seminar Participation (10%):

Punctual attendance and active participation (even at 8:30AM!) are critical to the learning of all HSTEM class members and to building strong community so that our class can have important hard conversations and support each other in making change to strengthen the STEM community on campus. Your seminar participation grade will be based on your attendance and participation in discussions.

## Reading Reflections (20%):

To help you prepare for active participation in our discussions and get the most out of reading the foundational academic literature, you will receive credit for completing reading reflections. Please address each of the following questions in a one paragraph response. You should address these questions for **each** individual reading:

1. What is the most important take-away from this reading, particularly in the context of Being Human in STEM?
2. What questions, confusions, new ideas did the reading prompt for you?

**Print** out your reflections and bring them to class so they can serve as a base for discussion, and you can take notes on them. We will collect the reading reflections at the end of each class. We will not grade them, but will give you credit if we feel you engaged fully with the reading. If you turn in all reading reflections for the course, you get 100% for this segment. If you miss 1-3, you get 95%, 4 = 85%, 5= 75% and so on…. We will return your reflections during the next class period.

## Oral History Interviews and Transcriptions (30%):

Beginning in Week 6, you will be working in groups of three to conduct three oral history interviews with current students and alumni. You will also be responsible for transcribing the interviews, which will become part of a Being Human in STEM archive. You will be trained in the methods of oral history as part of this class. Your grade will include assessment of your contributions to the group, in addition to the quality of the completed oral histories.

## Project Proposals (30%):

Building on what you learn from the readings, discussions, outside speakers, and your oral history work, you will work in small groups to develop project proposals that identify and test an idea for an action item that addresses a need or opportunity in STEM on campus. Your group will identify at least one department or office with which your project idea aligns, and develop your idea with feedback from that entity. At the end of the semester, you will deliver your proposal to the department or office you identified. Your grade will include assessment of your contributions to the group, in addition to the quality of project documentation and final proposal.

## Community engagement (10%):

A key component of the HSTEM experience includes connecting with thinkers and communities outside of class, to place our work in context and learn from cutting edge research and practice, as well as to share our ideas and projects broadly. Previous students have found that despite initial discomfort, expanding our learning beyond the classroom in this way helps us practice integrating the human and STEM in our conversations and leads to rewarding connections with others, from peers we thought we had nothing in common with, to distinguished professors and presidents of universities.

We require attendance at three of the five outside class events listed below, along with a reflection on each experience.

1. [**Thursday, 1/30 4:30-6 pm, SCCE E110. “Gender/Sex Identity is in the Body**](https://drive.google.com/file/d/1PNPiPtdfCFG2xVcdPKZhfmYQW7VrFBR0/view?usp=sharing)” by Anne Fausto Sterling, the Nancy Duke Lewis Professor Emerita of Biology & Gender Studies in the Department of Molecular & Cell Biology & Biochemistry at Brown University & founder of the Science & Technology Studies Program at Brown University. One of the pioneering scholars investigating Gender and Science, AFS co-taught one of the first HSTEM-like courses in the country called “Women and Minorities in Science: an Interdisciplinary Course” in 1986.
2. [**Friday, 1/31, 10-11 am, 30 Boltwood**](https://drive.google.com/file/d/1pZOO1pZnAPhFemJ9Zuph5ayyY_LUQn0Z/view?usp=sharing). Breakfast with AFS and our HSTEM class only, to discuss why 30 years after her course, we had to reinvent the wheel with “Being Human in STEM” at Amherst in 2016...
3. [**Thursday 2/6, 8 pm, Johnson Chapel.**](https://drive.google.com/file/d/13a1UpXxnMKTx-nlk0fJ5_i0009n2D4hP/view?usp=sharing) A conversation with the authors Tony Jack (*The Privileged Poor: How Elite Colleges are Failing Disadvantaged Students*) and Tara Westover (author of *Educated: A Memoir*) moderated by Prof. Schmalzbauer
4. **Thursday 3/5 12-1pm, CHI Think Tank.** Lunch with our HSTEM class and Dr. Freeman Hrabowski, president for over 20 years of University of Maryland Baltimore, where he helped develop the Meyerhoff Scholars Program which has been at the forefront of efforts to increase diversity among future leaders in science, engineering, and related fields, through creating an environment of mutual support and positive peer pressure. His ted talk about this innovative work “4 pillars of college success in science” has been viewed > 1 million times.
5. **Thursday 3/5 7:30pm, SCCE E110**. Seminar on “The Empowered University: Shared Leadership, Culture Change, and Academic Success” by Dr. Hrabowski, who also authored *Holding Fast to Dreams: Empowering Youth from the Civil Rights Crusade to STEM Achievement*.

In addition, we require all students to attend the fourth annual HSTEM regional summit, which we are hosting at Amherst **Friday April 17, 3:30-7pm**. Students from Amherst, Brown, Yale, Mt. Holyoke, and Williams HSTEM classes will come together in community to share our research and progress on projects. Importantly, because we are hosting at Amherst, this event will enable you to share the results of your work with your Amherst campus community as well- meeting another HSTEM goal of keeping the conversation about diversity & inclusion in STEM ongoing and current.

# TENTATIVE CLASS SCHEDULE- WILL BE UPDATED WEEKLY ON MOODLE

## WEEK 1- Note additional Anne Fausto Sterling events 1/30 & 1/31

**Jan. 27 (Monday): Introductions & Community Building**

Assignment for 1/29:

* Reading reflections
* Pre-class case study
* Pre-class survey:<https://forms.gle/tbkk3aRq4Lq14keQA>
* Bring in a cultural “artifact”/object of personal significance

**Jan. 29 (Wednesday): Facilitating Discussions and Class Norms**

Readings:

* "Fundamentals of Facilitation for Racial Justice Work - Workshop Pre-reading." Interaction Institute for Social Change. N.p., n.d. Web. 23 Mar. 2014. (10 pages)
* English, Lydia, and Anne Fausto-Sterling. "Women and Minorities in Science: An Interdisciplinary Course." The Radical Teacher 30 (1986): 16-20. Web.

Assignments for 2/3:

* \*Attend Anne Fausto Sterling talk 1/30 & write reflection on talk
* \*Attend HSTEM breakfast with Anne Fausto Sterling 1/31 & write reflection on discussion
* Reading Reflections

**Jan. 30 (Thursday)** 4:30- 6 SCCE E110: Gender/Sex Identity is in the Body, AFS

**Jan. 31** **(Friday)** 10-11AM Inn on Boltwood: private conversation over breakfast with AFS

## WEEK 2- Note additional Tony Jack (Privileged Poor)/Tara Westover (Educated) event 2/6

**Feb. 3 (Monday): General Philosophy of Science**

Readings:

* Kuhn, Thomas S. The Structure of Scientific Revolutions. pp. 10-34, 92-110
* Longino, Helen E. Science as Social Knowledge: Values and Objectivity in Scientific Inquiry. pp. 62-82

Assignment for 2/5:

* Reading Reflections

**Feb. 5 (Wednesday): Feminist Philosopy of Science and Diversity Arguments**

Readings:

* Haraway, Donna. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” [24 pages]
* Harding, Sandra. “Rethinking Standpoint Epistemology: What is ‘Strong Objectivity’” in Feminist Epistemologies, ed. Linda Alcoff and Elizabeth Poger. New York: Routledge, 1992. [33 pages]

Suggested Reading:

* Colley and Colley: Resilience and Success: The Professional Journeys of African American Women Scientists Ch. 6

Assignment for 2/10:

* Reading Reflections
* \*Attend Tony Jack/Tara Westover conversation & write reflection on conversation

**Feb. 6 (Thursday)** 8pm, Johnson Chapel: A Conversation with Authors Tony Jack (Privileged Poor) and Tara Westover (Educated) moderated by Prof. Schmalzbauer

## WEEK 3

**Feb. 10 (Monday): Postcolonial and Native Perspectives on Science**

Readings:

* <https://www.ladyscience.com/podcast/ep25-native-science-and-indigenous-knowledge>
  + For example Kim TallBear <http://jrp.icaap.org/index.php/jrp/article/view/405/371>
* Harding, Sandra, ed. The postcolonial science and technology studies reader. Duke University Press, 2011. Selected essays from Parts II, Other Culture's Sciences (Page numbers: 159-198.)

Assignment for 2/12:

* Reading Reflections

**Feb. 12 (Wednesday): Statistics on Women, Minorities, and Persons with Disabilities in Science and Engineering**

Reading:

* <https://ncses.nsf.gov/pubs/nsf19304/digest/about-this-report> *Women, Minorities, and Persons with Disabilities in Science and Engineering* - subsections will be assigned to groups on Feb. 6th
* Garrison, Howard (2013). Underrepresentation by Race–Ethnicity across Stages of U.S. Science and Engineering Education. *CBE—Life Sciences Education*, Vol. 12, pp. 357–363. 7 pages
* Colley and Colley. *Resilience and Success: The Professional Journeys of African American Women Scientists*. Ch. 9.

Assignment for 2/17:

* Reading Reflection

## WEEK 4

**Feb. 17 (Monday):**  **The Sociological Imagination**

Reading:

* C. Wright Mills. 1959. The Promise (Ch. 1). *The Sociological Imagination*. Oxford University Press.

Assignment:

* Reading Reflection

**February 19 -“The Privileged Poor,” Tony Jack**

Reading:

* *The Privileged Poor (Introduction - Ch. 1)*

Assignment:

* Reading Reflection

## WEEK 5

**February 24 - “The Privileged Poor,” Tony Jack**

Reading:

* *The Privileged Poor (Ch. 2 - Conclusion)*

Assignment:

* Reading Reflection

**February 26 - Why Diversity Alone Doesn’t Equate to Inclusion**

Reading:

* “When Birds of a Feather Don’t Flock Together”, Jeremy Margolis ‘20E

Assignment:

* Reading Reflection

## WEEK 6 Note additional Freeman Hrabowski events 3/5

**Mar. 2 (Monday): History of Being Human in STEM**

Readings:

* Jaswal, S. “Being Human in STEM: Moving from Student Protest to Institutional Progress.” <https://www.aacu.org/diversitydemocracy/2019/winter/jaswal>
* Bunnell, Lyster, et. al. “From Protest to Progress through Partnership with Students”
* A Promise to Keep Report

Assignments:

* Go back through foundational readings/reflections from Weeks 1-5, summarize 5-7 takeaways that stand out important and at least one gap in our coverage
* Reading reflection

**Mar. 4 (Wednesday): Prep for Oral Histories & Projects**

* Brainstorm project ideas
* Decide on sample pool for oral histories

Reading:

* Ch 1, *Recording Oral History*

Assignment:

* \*Attend Freeman Hrabowski lunch & write reflection on conversation
* \*Attend Freeman Hrabowski seminar & write reflection on seminar
* Reading Reflections

**Mar.5 (Thursday):**

* 12-1, CHI Think tank: HSTEM class lunch with Dr. Hrabowski
* 7:30, SCCE E110: Dr. Hrabowski seminar: The Empowered University: Shared Leadership, Culture Change, and Academic Success”

## WEEK 7

**March 9 - Oral Histories: Mini-training**

Readings:

Ch. 2, 4 and 6: *Recording Oral History*

**March 11 - Prep for Oral Histories:tech training**

Technical workshop with John Kuhnardt

## WEEK 8 - SPRING BREAK

**March 16 - NO CLASS**

**March 18 - NO CLASS**

## WEEK 9 Oral History & Project Work

**March 23 - Oral History Support & Work**

**March 25 - Project Proposal Research Training**

Zotero Workshop with Dawn Cadogan in Frost Library, Baker room

## WEEK 10 Oral History & Project Work

**March 30 - Oral History Support & Work**

**April 1 - Project Work**

## WEEK 11 Oral History & Project Work

**April 6 - Oral History Support & Work**

**April 8 - Project Work**

## WEEK 12 Summit Preparation- note additional commitment Friday 4/17 HSTEM summit at Amherst 3:30-7

**April 13 - Project Work**

**April 15- Project Work**

**April 17 - HSTEM Summit 3:30-7**

## WEEK 13 Project Completion

**April 20 - Summit Reflections & Project Adjustment from Feedback**

Assignment:

* Final project proposal

**April 22 - Proposal due**

## WEEK 14 Oral History Completion

**April 27 - Oral History Work**

Assignment:

* Final oral history transcripts and summary

**April 29 - Final Celebration & Reflection**

Assignment for May 1:

* Post-class case study narrative
* Post-class survey