

# Introduction to the History, Philosophy & Sociology of Science (HPS)

LBC 133 003 Meets Tu+Thu 12:40-2:30 in C101 Holmes

LBC 133 004 Meets Tu+Thu 3-4:50 in C101 Holmes

Instructor: Dr. **Greg Lusk**

Office hours: **11-12 Tu+Thu**. Email me at [genglusk@msu.edu](mailto:genglusk@msu.edu) to arrange meetings outside of regular office hours.

## Overview & Purpose

The purpose of this class is twofold: First, this class will introduce you to fundamental concepts and methods in HPS, and second, it will help build writing confidence and skill.

With regards to HPS we will explore questions like: What is science, and who practices it? What are science's methodologies? How does the methodology of science create scientific controversies? Can more scientific information defuse a controversy? What role do aspects of controversies that are often seen as outside of science (race, gender, values, money) play in science and resulting controversies? Students will be encouraged to form their own opinions on how controversies should be handled and support their opinions with evidence and argumentation.

With regards to writing, students will be encouraged to develop their own healthy writing practices through repeated writing practice. Students will learn to diagram arguments, address audiences, offer peer comments, and revise their work.

## Learning Objectives

There are two main learning objectives, each with sub-objectives. Students will:

- (1) learn to recognize the topics and methods used in HPS [knowledge objective].
  - a. Recognize the differences between history, philosophy, and sociology of science.
  - b. Identify the methods of history, philosophy, and sociology.
- (2) gain confidence in their writing process [skill objective].
  - a. Become more confident...in identifying and addressing particular audiences.
  - b. ...in identifying and formulating theses.
  - c. ...in their drafting and revision process.
  - d. ...in who they are as a writer.

## Required Materials

- We will be using Google Forms for in-class quizzes, thus you will need an electronic device that is capable of filling out these quizzes. Phones are acceptable; however, they

are more prone to typing errors and autocorrect. Students assume all responsibility for their responses.

- Readings will be provided electronically on [Google Drive](#). Please bring the readings with you to class. Paper copies are preferred.
- Bring pen and paper to every class meeting.

## Attendance

As a seminar-style course, your attendance and participation are crucial to you and your classmates.

- You are allowed to be absent three times over the course of the school year without penalty.
- Arriving more than 5 minutes late (without prior approval), leaving 5 or more minutes early (without prior approval), or being unprepared to participate (i.e. half-asleep, without requested materials, etc.) qualifies as an absence.
- If you expect to miss one or more class meetings because of participation in a University-sponsored activity or any other reason, please notify me in advance of any absence. You are expected to complete all work missed by making up the work in advance of your absence, and obtain class notes from a peer.
- Unexcused absence (regardless of the reason) over and above the first three will result in the lowering of your final course grade by one increment (e.g. a 4.0 becomes a 3.5, 3.5 becomes 3.0, etc.).
- If you need to miss class due to a religious observance or for athletic reasons, please email me before that class so we can work together to figure out ways to help you stay on track of assignments and discussions.

## Assessment and Grade Breakdown

### Breakdown

#### **Writing Assignments: 60%**

Assignment #1: 5%  
Assignment #2: 10%  
Assignment #3: 10%  
Assignment #4: 10%  
Assignment #5: 10%  
Assignment #6: 15%

#### **In Class Activities: 15%**

#### **Quizzes: 15%**

#### **Participation: 10%**

### Grade Calculation

Writing assignments will be given grades out of their respective number of points, which is equal to their percentages of the total grade (i.e. 5/5, 7/10, 13/15).

Quizzes and in-class activities may be unannounced. The formula for computing the contribution to your final grade will be:

- $(\text{quiz points earned}/\text{quiz points possible}) * .15 = \text{points towards final grade}$
- $(\text{in-class activity points earned}/\text{points possible}) * .15 = \text{points towards final grade}$

Participation grade (out of 10 pts or 10%) will be done through a combination of self-assessment and professor-assessment.

I will add the totals from the above components and use the following scale for final grade assignment:

A (92.5–100), 4.0; A-/B+ (87.5 – 92.4), 3.5  
B (82.5–87.4), 3.0; B-/C+ (77.5-82.4), 2.5  
C (72.5-77.4), 2.0; C-/D+ (67.5-72.4), 1.5  
D (62.5 – 6.4), 1.0; F (less than 62.5), 0

## Assignment Submission

- All writing assignments are to be turned in on D2L unless otherwise noted.
  - Assignments are due BEFORE CLASS BEGINS on the due date indicated on the schedule.
- All other assignments may take different forms. In class assignments are due at the end of class, unless otherwise noted.
  - Quizzes and in class assignments may be unannounced.
  - Quizzes will always be graded, in class assignments may or may not be graded, and their contributions to grades may or may not be announced before hand.

## Participation

To earn full marks on participation a student must:

- read the readings and have made notes or questions; bring reading notes and course materials to class; make an attempt to understand the main arguments and has a few questions or comments prepared.
- participate actively in discussion **every class, or every-other class**; offer questions or comments without prompting; responds to classmates' comments; makes connections with other readings or personal experiences.
- be respectful of classmates and considers alternatives to his/her/their point of view; engage classmates and take a leadership role small group work.

## Typical Class

A particular sequence will likely constitute a class session:

- A quiz or activity that recalls the readings or other material read in advance of the class.
- A quick review or discussion of the material for the class.
- A group activity or assignment to explore the concepts introduced in the class in more depth.
- A discussion of that activity that responds to or goes beyond the class material.

## Technology Policy

Technology is a double-edged sword: it makes many tasks easier, but it makes getting distracted by tasks easier as well. My pet peeve is unauthorized social media usage in the classroom (Facebook, SMS, SNAP, Insta, etc.).

- If you are caught using social media or SMS during class time, or during class activities, you will be marked absent for that day and forfeit marks for any in class assignments that day. Apple watches are not as discreet as you think they are.

## Course Policies

Respect — All course policies flow from a fundamental commitment to respect one another. I aim to treat my students with respect, and I expect students to treat me and fellow students with respect. In a discussion-based classroom, this translates to listening charitably, speaking thoughtfully, and taking responsibility for your actions. In pursuit of this general maxim, I have created the following specific policies:

Communication — Almost anything in this class can change, you just have to communicate with me. I will communicate my changes to you by making in-class announcements and I will send updates via email. Students may contact me during office hours or offline via email (I will typically respond within 48 hours, not including weekends). If you do send me email, please use your MSU email account and include the course designation ("LB 133 SECTION ###") in the subject line. Please be brief and direct.

Plagiarism — I do not tolerate plagiarism. You must give credit to those who contribute to your work. This means explicitly identifying the source of the ideas, arguments, and evidence you make use of in this class. If in doubt, talk to me. I encourage students to keep all materials related to the course until after the final grades are submitted. Students are responsible for familiarizing themselves with the definition of plagiarism and its consequences at MSU, which can be found here: <https://ombud.msu.edu/academic-integrity/index.html>

Inclusion — At Briggs, we take on the challenge of examining our core values and beliefs, but in order to do so we must foster an inclusive, safe classroom environment. All of us, myself included, need to feel safe before exposing or questioning our core values and beliefs. We need not always

agree, but we must respect one another, allow one another to make mistakes, and—when appropriate—extend a helping hand. If you ever feel excluded by me or a classmate, please talk to me or find some way to let me know. I will try to do better.

Accommodation and Special Consideration — Students needing accommodation or special consideration should contact me as early in the semester as possible. This includes Students with Disabilities, athletes, others requesting accommodation, or those who wish to explore an Honors Option or other special consideration. Students with Disabilities requesting accommodation should register with the Resource Center for Persons with Disabilities. RCPD is in 120 Bessey Hall and may be reached at 353-9642.

## Student Wellness

College students often experience issues that may interfere with academic success such as academic stress, sleep problems, juggling responsibilities, life events, relationship concerns, or feelings of anxiety, hopelessness, or depression. If you or a friend is struggling, we strongly encourage you to seek support. Helpful, effective resources are available on campus, and most are free of charge.

- Drop by Counseling & Psychiatric Services (CAPS) main location (3rd floor of Olin Health Center) for a same day mental health screening.
- Visit <https://caps.msu.edu> for online health assessments, hours, and additional CAPS services.
- Call CAPS at 517-355-8270 any time, day or night.
- 24-Hour MSU Sexual Assault Crisis Line 517-372-6666 or visit <https://go.msu.edu/SAP>

## Mandatory Reporting

Essays and other materials submitted for this class are generally considered confidential, based on MSU student record policies. However, students should be aware that MSU employees, including instructors like myself, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of our community. As the instructor, I must report the following information to other university offices (including the MSU Police) if you share it with me:

- Suspected child abuse/neglect, even if this happened years ago.
- Allegations of sexual assault or harassment involving MSU students, faculty, or staff.
- Credible threats of harm to self or others.

These reports may initiate contact from a campus official to talk about the issue, though in most cases it is the student's decision whether to have that conversation.

Date	Topic	Work to complete PRIOR to meeting/Activity to Prepare For
Thu, Aug 29, 2019	Introduction: Course Goals and HPS	All readings can be found at <a href="https://drive.google.com/drive/folders/1vGSKxh_EkLPVkj6CsBgZwP677FOk3gpp?usp=sharing">https://drive.google.com/drive/folders/1vGSKxh_EkLPVkj6CsBgZwP677FOk3gpp?usp=sharing</a>
Tue Sep 3	What is Science?	<b>DUE Writing Assignment #1: What do you hope to get out of this class?</b>  Harry Collins and Trevor Pinch, "Introduction" The Golem: What you should know about science (Cambridge: 2015), 1-4
Thu Sep 5	Science vs. PseudoScience	Carl Sagan: The Fine Art of Baloney Detection: <a href="http://www.inf.fu-berlin.de/lehre/pmo/eng/Sagan-Baloney.pdf">http://www.inf.fu-berlin.de/lehre/pmo/eng/Sagan-Baloney.pdf</a>
Tue, Sep 10, 2019	Should we trust scientists?	Ken Clark (2017) "Why the Myth of the Solitary Scientist is Dangerous" The Conversation: <a href="http://theconversation.com/myth-of-the-genius-solitary-scientist-is-dangerous-87835">http://theconversation.com/myth-of-the-genius-solitary-scientist-is-dangerous-87835</a> Gleb Tsyplursky "Distrust in Science" <a href="https://blogs.scientificamerican.com/observations/dis-trust-in-science/">https://blogs.scientificamerican.com/observations/dis-trust-in-science/</a>
Thu Sep 12	Bias in Medicine	<i>Cosmo</i> (2018) "Doctors Told Her She Was Just Fat. She Actually Had Cancer." <a href="https://www.cosmopolitan.com/health-fitness/a19608429/medical-fatshaming/">https://www.cosmopolitan.com/health-fitness/a19608429/medical-fatshaming/</a> Is Medicine Over Rated? <a href="https://blogs.scientificamerican.com/cross-check/is-medicine-overrated/">https://blogs.scientificamerican.com/cross-check/is-medicine-overrated/</a>
Tue Sep 17	Racism in Medicine	Allan M. Brandt. 1978. "Racism and research: The case of the Tuskegee Syphilis study." <i>The Hastings Center Report</i> 8(6): 21-29. Radiolab Podcast: Henrietta's Tumor <a href="https://www.wnycstudios.org/story/91716-henrietta-s-tumor">https://www.wnycstudios.org/story/91716-henrietta-s-tumor</a>
Thu Sep 19	Racism in Public Health and Environmental Medicine	Robert Bullard (2000). <i>Dumping in Dixie: Race, Class, and Environmental Quality</i> . Westview Press. [Provided Excerpt]
Tue Sep 24	Animal Exploitation	<b>Assignment #2 Due: "Why Should I Trust This?"</b> Susan Lederer (1992). Political Animals: The Shaping of Biomedical Research Literature in Twentieth-Century America. <i>Isis</i> , Vol. 83, No. 1 (Mar), pp. 61-79
Thu Sep 26	The Methods of Science	Daniel Engber (2011) "The Trouble with Black 6" Slate <a href="http://www.slate.com/articles/health_and_science/the_mouse_trap/2011/11/black_6_lab_mice_and_the_history_of_biological_research.html">http://www.slate.com/articles/health_and_science/the_mouse_trap/2011/11/black_6_lab_mice_and_the_history_of_biological_research.html</a>
Tue Oct 1	The Methods of Science	Collins, Harry M., and Trevor Pinch. The golem: What you should know about science. Cambridge University Press, 1998. "The Germs of Dissent"
Thu Oct 3	The Methods of Science	Realism vs. Anti-Realism: TBD
Tue Oct 8		<b>Assignment #3 DUE: Black Box Video Presentations.</b>
Thu Oct 10	Science and Controversy: Flat Earth	Movie in Class: Behind the Curve
Tue Oct 15	Science and Controversy: Anti Vaxx (Middle of Semester)	"Read: Dube et al. "Vaccine Hesitancy - An Overview." <i>Human Vaccines &amp; Immunotherapeutics</i> 9:8, 1763-1773; August 2013(Introduction, Definition, Potential Causes, and Role of Media sections only; please skip also the Challenges in Defining Vaccine Hesitancy Section.)  WATCH: The Dr.'s on Vaccines: <a href="https://www.youtube.com/watch?v=eMrFV2rnHlo">https://www.youtube.com/watch?v=eMrFV2rnHlo</a> and TED talk on herd immunity <a href="https://www.youtube.com/watch?v=dWObit8KNc4">https://www.youtube.com/watch?v=dWObit8KNc4</a> "
Thu Oct 17	Science and Communication: Anti Vaxx	Goldenberg, Maya. (2016). "Public Misunderstanding of Science?: Reframing the Problem of Vaccine Hesitancy" <i>Perspectives on Science</i> , Volume 24, Number 5, September-October 2016, pp. 552-581
Tue Oct 22	Science Communication: Gene Editing	<b>Assignment #4 DUE "What do they Mean? Argument Summary and Response"</b> Undiscovered Podcast: Mouse's Vineyard <a href="https://www.wnycstudios.org/story/mouse-s-vineyard">https://www.wnycstudios.org/story/mouse-s-vineyard</a> and Update: <a href="https://www.wnycstudios.org/story/mouses-vineyard-update">https://www.wnycstudios.org/story/mouses-vineyard-update</a>
Thu Oct 24	Science And Values	Kevin Elliott (2017) <i>A Tapestry of Values</i> . Oxford University Press "Introduction"
Tue Oct 29	Science and Values	Kevin Elliott (2017) <i>A Tapestry of Values</i> . Oxford University Press "Chapter 5: What if We Are Uncertain?"
Thu Oct 31	Values in Communication	In Class: Science of the Lambs
Tue Nov 5	Science and Values: Lost Species	Switek, B. (2013). "How to Resurrect Lost Species": <a href="https://news.nationalgeographic.com/news/2013/13/130310-extinct-species-cloning-deextinction-genetics-science/">https://news.nationalgeographic.com/news/2013/13/130310-extinct-species-cloning-deextinction-genetics-science/</a>  Brand, S. (2013). "The Case for Reviving Extinct Species" <a href="https://news.nationalgeographic.com/news/2013/03/130311-deextinction-reviving-extinct-species-opinion-animals-science/">https://news.nationalgeographic.com/news/2013/03/130311-deextinction-reviving-extinct-species-opinion-animals-science/</a>
Thu Nov 7	Lost Species	In Class: The Great Woolly Mammoth Debate
Tue Nov 12	Outbreak: Patient Zero	Radio Lab "Patient Zero": <a href="https://www.wnycstudios.org/story/169879-patient-zero">https://www.wnycstudios.org/story/169879-patient-zero</a>
Thu Nov 14	Medicine and Sport	<b>ASSIGNMENT #5 DUE: "You've got to do this!"</b> Something Only I Can See," This American Life, (January 15 2016): <a href="https://www.thisamericanlife.org/577/something-only-i-can-see/listen-to-first-40-minutes">https://www.thisamericanlife.org/577/something-only-i-can-see/listen-to-first-40-minutes</a>
Tue Nov 19	Climate Change	Mike Hulme "Why we disagree about climate change." Carbon YearBook
Thu Nov 21		In Class: Merchants of Doubt
Tue Nov 26	Team Building	<b>Opportunity for Extra Credit (In Class)</b>
Thu Nov 28	BREAK	BREAK
Tue Dec 3	Paper Work Day	Peer Editing and Paper Consultations
Thu Dec 5	Debrief	
Friday Dec 6		<b>Assignment #6 Due: "What do you want to say? Finding Your Own Argument"</b>