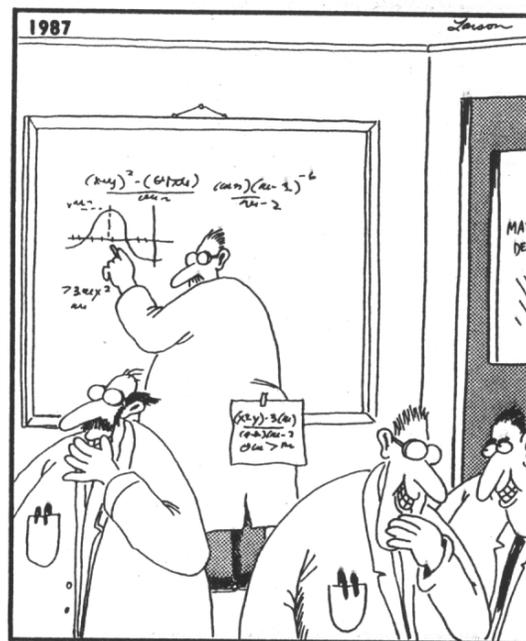


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Office Hours: Wednesdays: 3:30 – 4:30pm  
Or by appointment

Anthropology 399: Special Topics in Anthropology

## Anthropology of Science



from: Larson, Gary. *The Complete Far Side, 1980-1994*, 2003.

**Class Time and Location: Mondays and Wednesdays 2pm – 3:15 pm in AD 142**

### **Course Description:**

The debates over genetically modified foods, fetal testing, drones in warfare and even the veracity of climate change all point to the centrality of science and technology in our lives. Science, as a practice and as a pathway of innovation, is a cultural product that has the ability to completely transform our present lives and to reorganize the future of human existence. Western science and its hegemonic ideals, in particular, command enormous influence in our societies. It has shown the potential for good and for ill, and always, for controversy. This course offers an introduction to both the culture and the politics of science, by drawing on the anthropology, history and philosophy of

science, and with an emphasis on hegemonic western science. In particular, we will examine the rise of ‘the scientific method,’ the training of scientists, the rise of classification in sciences and its implications for difference and inequality, and lastly, the production of relationships between scientists and the wider political, racial, gendered and religious world. Students will develop the critical vocabularies and analytic skills to address contemporary scientific controversy and be active participants in the making of our technoscientific worlds.

### **Course Format:**

This course will follow an interactive lecture and discussion style format, accompanied by the occasional film or documentary in class. Readings are crucial and students are expected to come to class having both read the readings and prepared to discuss them and ask questions. Discussion will be a very important component of this class. All course materials, assignment guidelines and any other relevant information or announcements will be posted on the class D2L website.

### **Course Assignments and Assessment:**

This course is reading intensive. With this in mind, the course writing will be used as a supplement to aid students in cementing their reading techniques, their textual comprehension and their ability to translate apply idea from class to public debates surrounding science and/or scientific breakthroughs and/or scientific controversies. Close weekly readings, detailed in-class discussions of those class readings and student participation will form the backbone of this course.

Students are expected to maintain a “Science in Media” portfolio on our class discussion site, engage in the online discussion and portfolio , write 2 mini science ethnography, and submit one final take-home exam (questions provided in advance), due at the end of the semester.

Students will be evaluated on the basis of a 100-point system, whereby:

Science in Media portfolio (6 entries)	30%
4 portfolio responses	20% (each is worth 4%)
Mini science ethnography 1	10% (October 16)
Mini science ethnography 2	10% (November 27)
Final take-home paper	30%

### **Science in Media Portfolio & Portfolio Responses: Description and Assessment**

As part of trying to understand how science and technology shapes our daily lives and educational knowledge, each class participant will be required to maintain an electronic portfolio on « Science in Media » through D2L’s online discussion board. These

portfolios will serve as a space for personal reflection, an electronic space where we can all share ideas and lastly, a collection of science news through which we can try to understand our class reading. How do our readings influence the way science can shape our everyday thinking? You will need to update your portfolio regularly, and keep up with it all semester – as you can see the portfolio-related assignments (portfolio and responses) are worth 50% of your grade in this class.

- **Portfolio Entries:** Every week starting in Week 2 of the semester, students are expected to upload **one article/video/story from a mainstream media source** about a current scientific breakthrough, controversy or other science news item, to our class discussion thread. Students must upload this article **by Sunday night at midnight**, and this article may be a topic of discussion in the week that follows. On the discussion thread, you must put a link to your article or video, then write **3-4 sentences** about 1.) why you chose to upload this article, 2.) why it is interesting to you, and 3) how it relates to the content of this class. Though you have an opportunity to upload an entry every week, **you only have to upload six entries over the course of the semester**. This is to account for some weeks being busier than others in your schedule, so that you don't have to upload an entry weekly.
- **Portfolio Entries Assessment:** Each portfolio entry is assessed out of **5 points**: you get 1 point just for doing it, 3 points for answering each of the 3 questions listed above, and 1 point for language (correct grammar, spelling, punctuation etc).
- Good sources to turn to would be the « Science » or « Science and Technology » sites of mainstream media outlets. For example :
  - <http://www.nature.com/news/>
  - <http://www.nytimes.com/section/science>
  - <http://www.cbc.ca/news/technology>
  - <http://www.bbc.co.uk/science?1>
  - [http://www.bbc.com/news/science\\_and\\_environment](http://www.bbc.com/news/science_and_environment)
  - <https://www.sciencenews.org>
  - <http://www.wired.com>
  - <http://www.theguardian.com/science>
- **Portfolio Responses:** The last component of the electronic portfolio is the *response assignment*. In addition to posting 6 entries over the course of the semester, students will be required to *respond to another student's entry* 4 times throughout the semester. If students are particularly interested or inspired by an article someone else has posted, they can respond to the article. They must write at least 3 sentences indicating 1.) why they chose to respond to this article, and 2.) what they think of (agree/disagree with) the original poster's comments.

Creative uses of the portfolio are highly encouraged! This online discussion should be a lively space for your reflections on course topics, and engagement with your classroom peers.

### **Mini Science Ethnography #1:**

For your first science ethnography assignment, you are required to attend a science lecture/talk on the University of Calgary campus, conduct participant observation, and write about your experience. You can attend any lecture on campus *as long as the person giving a talk is a scientist* (i.e has a degree in science, works in science/engineering etc).

In addition to describing the content of the talk and your thoughts on the content, think about the whole environment; where was the talk held? How was the room configured? How did the scientist give their talk? Visual aids? Was it easy for you to follow? How many people were in the audience? Were they able to follow the talk? Was the room dark/light? How was the environment? Was there a q&a? What kinds of questions did people ask? Did people interact/discuss after the talk? What were your impressions of the lecture? Of the audience? **You must, at least briefly, relate it to some discussion/text from class.**

The mini ethnography should be the length of a **good, detailed paragraph – no more than 1 page long, double spaced, 12 pt Times New Roman font.**

For the mini ethnography, you will be assessed in the following way:

- 25% will be awarded for language (grammar, spelling, punctuation);
- 25% will be awarded for structure and clarity (is there a clear beginning and conclusion? Does the student use ethnographic evidence to make a claim? Is the mini ethnography clear and easy to follow? Is it the correct length?);
- 25% will be awarded for relating the ethnography to class material (does the mini ethnography insightfully draw from class readings and/or discussions?);
- 25% will be awarded for the originality of the mini ethnography (is the ethnography asking interesting questions? is it an interesting ethnography?)

### **Mini Science Ethnography #2:**

For your second science ethnography assignment, you must visit the Telus Spark's *Being Human* permanent exhibit, conduct participant observation, and write about your experience. **The goals of this ethnography is to ask and answer the question: how does science think about humans?** How does it differ from anthropology, or other disciplines? You should participate fully in the interactive exhibits, and describe your experience. Additionally, you might want to think about: what human characteristics does the exhibit investigate? What are the important

categories to think about humanity with? What categories matter? How does science define us? Are categories of gender, race, culture explored in the exhibit? If yes, how? **You must, at least briefly, relate your ethnography to some discussion/text from class.**

The mini ethnography should be the length of a **good, detailed paragraph – no more than 1 page long, double spaced, 12 pt Times New Roman font.**

For the mini ethnography, you will be assessed in the following way:

- 25% will be awarded for language (grammar, spelling, punctuation);
- 25% will be awarded for structure and clarity (is there a clear beginning and conclusion? Does the student use ethnographic evidence to make a claim? Is the mini ethnography clear and easy to follow? Is it the correct length?);
- 25% will be awarded for relating the ethnography to class material (does the mini ethnography insightfully draw from class readings and/or discussions?)
- 25% will be awarded for the originality of the mini ethnography (is the ethnography asking interesting questions? is it an interesting ethnography?)

#### **Final take-home exam:**

- At the end of the semester, students will be provided with a set of three questions. Students must pick one questions and answer it in the form of a 5-6 page paper (12pt font double-spaced), which will be handed in during exam period. The questions will be broad, and will be meant to bring together students' understandings of the class readings, class lecture and discussion content, as well as the materials and discussions from the "Science in Media" portfolios. Further details will be handed out in class.
- Students will upload the finals to the Class's D2L Dropbox.

#### **Assignment Details:**

The final mark out of 100, will then be converted to a letter grade as follows:

A+	94.9 – 100%	A	89.9 – 94.8%	A-	84.9 – 89.8%
B+	79.9 – 84.8%	B	74.9 – 79.8%	B-	70.9 – 74.8%
C+	66.9 – 70.8%	C	62.9 – 66.8%	C-	58.9 – 62.8%
D+	54.9% - 58.8%	D	49.9 – 54.8%	F	49.8% and below

#### **A note on plagiarism:**

Any use of another person's words, ideas either taken *directly or indirectly* and *without citation* is cause for a plagiarism investigation. This includes material from the internet. You are too smart to plagiarize. And, trust me, it's not hard to spot plagiarism.

Any plagiarism will automatically result in a failing grade for the submission. Any student caught plagiarizing will also be subject to additional University sanctions. If you have any questions about citation or bibliographical style, please contact me. Please use the same bibliographical style on all written submissions. Students should familiarize themselves with the Anthropology Department's policy on intellectual honesty:

<http://anth.ucalgary.ca/home/links/intellectual-honesty-guidelines>

**Required Texts for Purchase:**

- (1) Kuhn, Thomas S. *The structure of scientific revolutions*. University of Chicago Press, 2012.
- (2) Traweek, Sharon. *Beamtimes and lifetimes: The world of high energy physicists*. Harvard University Press, 2009.
- (3) Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996.

**Schedule of Readings:**

(w) indicates a *web-based* reading. It is available on our class D2L website.

**Monday, September 11: Course Introduction, and "Does science help support white supremacists?"**

You don't have to read the stories below – we will read and discuss in class.

<https://news.vice.com/story/alt-right-trolls-are-getting-23andme-genetic-tests-to-prove-their-whiteness>

and

<https://you.23andme.com/published/reports/37920f26c710401d/>

**Wednesday, September 13: Science and Culture I**

Martin, Emily. "The egg and the sperm: How science has constructed a romance based on stereotypical male-female roles." *Signs* (1991): 485-501. **(w)**

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Levy, Ariel. "Sports, sex, and the case of Caster Semenya." *The New Yorker* (2009).  
<http://www.newyorker.com/magazine/2009/11/30/eitheror> **(w)**

### **Monday, September 18: Science and Culture II**

Palsson, Gisli, and Paul Rabinow. "Iceland: the case of a national human genome project." *Anthropology today* (1999): 14-18. **(w)**

TallBear, Kimberly. "DNA, blood, and racializing the tribe." *Wicazo Sa Review* 18, no. 1 (2003): 81-107. **(w)**

### **Wednesday, September 20: Science and the 'natural'**

Knapton, Sarah. "Genetically modified crops are the future and must not be blocked, say scientists." *The Guardian*, October 30, 2014. Available at: <http://www.telegraph.co.uk/news/earth/agriculture/geneticmodification/11196045/Genetically-modified-crops-are-the-future-and-must-not-be-blocked-say-scientists.html> **(w)**

Kaufman, Sharon R. "Regarding the rise in autism: Vaccine safety doubt, conditions of inquiry, and the shape of freedom." *Ethos* 38, no. 1 (2010): 8-32. **(w)**

### **Monday, September 25: Anthropology and Science**

Evans-Pritchard, Edward Evan. *Witchcraft, oracles and magic among the Azande*. Oxford: Clarendon Press, 1976. Please read excerpt only, from pp 63-83. Available at: <http://faculty.washington.edu/stevehar/Witchcraft.pdf> **(w)**

### **Wednesday, September 27: Laboratory Life**

Latour, Bruno. "Give me a laboratory and I will raise the world." *The science studies reader* (1999): 258-275. **(w)**

### **Monday, October 2: Cultures of Science**

Traweek, Sharon. *Beamtimes and lifetimes: The world of high energy physicists*. Harvard University Press, 2009. Please read the *Prologue: An Anthropologist Studies Physicists* (pp 1-17) and *Chapter 1: Touring the Site: Powerful Places in the Laboratory* (pp 18-45).

Video in class: CERN and the Rise of the Standard Model  
<https://www.youtube.com/watch?v=cfwBelQubYI>

### **Wednesday, October 4: Scientific Community and Revolution**

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. University of Chicago press, 2012. Please read the *Preface* by Ian Hacking.

### **Monday, October 9: NO CLASS - HAPPY THANKSGIVING!**

### **Wednesday, October 11: What is 'Normal Science' I?**

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. University of Chicago press, 2012. Please read *Chapter 1: Introduction – A Role for History*, *Chapter 2: The Route to Normal Science* and *Chapter 3: The Nature of Normal Science*, pp 1-34.

### **Monday, October 16: What is 'Normal Science' II?**

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. University of Chicago press, 2012. Please read *Chapter 4: Normal Science as Puzzle Solving*, *Chapter 5: The Priority of Paradigms*, pp 35 – 51.

**Documentary in Class:** Naturally Obsessed: The Making of a Scientist

**MINI SCIENCE ETHNOGRAPHY #1 IS DUE TODAY.**

### **Wednesday, October 18: Anomaly and Crisis**

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. University of Chicago press, 2012. Please read *Chapter 6: Anomaly and the Emergence of Scientific Discoveries*, *Chapter 7: Crisis and the Emergence of Scientific Theories* and *Chapter 8: The Response to Crisis*, pp 52 – 91.

### **Monday, October 23: Revolutions and how World Views Change**

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. University of Chicago press, 2012. Please read *Chapter 9: The Nature and Necessity of Scientific Revolutions* and *Chapter 10: Revolutions as Changes of World View*, pp 92 – 134.

**In class case study:** The Trial of Galileo Galilei

### **Wednesday, October 25: Science and Falsifiability**

Popper, Karl R. "Normal science and its dangers" in Lakatos, Imre, and Alan Musgrave. "Criticism and the Growth of Knowledge." (1970). Find article at:  
[http://earthweb.ess.washington.edu/roe/Knowability\\_590/Week1/Normal%20Science%20and%20its%20Dangers.pdf](http://earthweb.ess.washington.edu/roe/Knowability_590/Week1/Normal%20Science%20and%20its%20Dangers.pdf) (w)

If you would like some additional information on Karl Popper, please see:  
<http://plato.stanford.edu/entries/popper/>

### **Monday, October 30: Women in Science**

Merchant, Carolyn. "Introduction." *The Death of Nature: Women, Ecology, And the Scientific Revolution*. HarperOne, 1990. (w)

Rapp, Rayna. "Chromosomes and communication: the discourse of genetic counseling." *Medical anthropology quarterly* 2, no. 2 (1988): 143-157.

### **Wednesday, November 1: Feminist Perspectives**

Ortner, Sherry B. "Is female to male as nature is to culture?" *Feminist Studies* (1972): 5-31. (w)

### **Monday, November 6: Male Tales in Physics**

Traweek, Sharon. *Beamtimes and lifetimes: The world of high energy physicists*. Harvard University Press, 2009. Please read *Chapter 3: Pilgrim's Progress: Male Tales Told During a Life in Physics*, pp. 74-105.

### **Wednesday, November 8: Collaboration**

Traweek, Sharon. *Beamtimes and lifetimes: The world of high energy physicists*. Harvard University Press, 2009. Please read *Chapter 4: Ground States: Distinctions and the Ties That Bind*, pp 106 – 125.

Guest Lecturer: Dr. Whitney Lackenbauer

**Monday, November 13: NO CLASSES – Remembrance Day, University Holiday**

**Wednesday, November 15: Collaboration across Cultures**

Traweek, Sharon. *Beamtimes and lifetimes: The world of high energy physicists*. Harvard University Press, 2009. *Chapter 5: Buying Time and Taking Space: Negotiations, Collaboration and Change*, pp 126 – 156 and *Epilogue*, pp 157 – 162.

**Monday, November 20: Science and Racecraft**

Palmié, Stephan. "Genomics, divination, " racecraft". *American ethnologist* (2007): 205-222. (w)

Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996. Please read the introduction to the introduction, pp 19-50.

Please read for general information:

<http://learn.genetics.utah.edu>

**Wednesday, November 22: Craniometry in the 19<sup>th</sup> century United States**

Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996. Please read *Chapter 1: Introduction* and *Chapter 2: American Polygeny and Craniometry* before Darwin, pp 51 – 104.

**Monday, November 27: Measuring Heads and Bodies**

Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996. Please read *Chapter 3: Measuring Heads* and *Chapter 4: Measuring Bodies*, p. 105 – 175

**Documentary in class:** Tracked Down by Our Genes

**MINI SCIENCE ETHNOGRAPHY #2 IS DUE TODAY.**

**Wednesday, November 29: Racializing IQ**

Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996. Please read *Chapter 5: The Hereditarian Theory of IQ*, pp 176 – 263.

**Monday, December 4: The Bell Curve and the Contemporary Moment**

Gould, Stephen Jay. *The mismeasure of man*. WW Norton & Company, 1996. Please read *Chapter 7: A Positive Conclusion and Epilogue: Critique of The Bell Curve*, pp 351 – 390.

Guest Lecturer: TBA

### **Wednesday, December 6: Regulating DNA?**

Lakoff, Andrew. "Diagnostic liquidity: mental illness and the global trade in DNA." *Theory and Society* 34, no. 1 (2005): 63-92.

**TAKE HOME FINAL IS DUE ON DROPBOX, DATE TBA**

### **ACADEMIC ACCOMMODATIONS**

<http://www.ucalgary.ca/access/accommodations/policy>

Students needing an Accommodation because of a Disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities

Students needing an Accommodation based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the instructor of this course.

### **ACADEMIC INTEGRITY**

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Calgary is a strong signal of each student's individual academic achievements. As a result, the University treats cases of cheating and plagiarism very seriously. Non-academic integrity also constitutes an important component of this program.

For detailed information on what constitutes academic and non-academic misconduct, please refer to the following link: <http://www.ucalgary.ca/pubs/calendar/current/k-2-1.html>

All suspected cases of academic and non-academic misconduct will be investigated following procedures outlined in the University Calendar. If you have questions or concerns about what constitutes appropriate academic behavior or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources.

Where there is a criminal act involved in plagiarism, cheating or other academic misconduct, e.g., theft (taking another student's paper from their possession, or from the possession of a faculty member without permission), breaking and entering (forcibly

entering an office to gain access to papers, grades or records), forgery, personation and conspiracy (impersonating another student by agreement and writing their paper) and other such offences under the Criminal Code of Canada, the University may take legal advice on the appropriate response and, where appropriate, refer the matter to the police, in addition to or in substitution for any action taken under these regulations by the University

### **TEACHING EVALUATIONS / USRI (Universal Student Ratings of Instruction)**

At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. **Your responses make a difference, please participate!** Website: <http://www.ucalgary.ca/usri/>

### **Writing Across the Curriculum**

Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The University supports the belief that throughout their University careers, students should be taught how to write well so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their University courses and, where appropriate, members of faculty can and should use writing and the grading thereof as a factor in the evaluation of student work. The services provided by the Writing Support, part of the Student Success Centre, can be utilized by all undergraduate and graduate students who feel they require further assistance

**Emergency Evacuation Assembly Points:** In the event of an emergency that requires evacuation, please refer to the following link to become familiar with the assembly points for the class: <http://www.ucalgary.ca/emergencyplan/assemblypoints>

### **Freedom of Information and Protection of Privacy Act: Freedom of Information and Protection of Privacy Act**

The University of Calgary is committed to protecting the privacy of individuals who work and study at the University or who otherwise interact with the University in accordance with the standards set out in the Freedom of Information and Protection of Privacy Act. Please refer to the following link for detailed information:

<http://www.ucalgary.ca/legalservices/foip>

The Department of Anthropology and Archaeology's FOIP (Freedom of Information and Privacy) policy requires all reports/examinations to be returned to students during class time or the instructor's office hours. Any term work not picked up will be placed in the Anthropology and Archaeology Office (ES620) for distribution. Any student not wishing to have their work placed in the office must make alternative arrangements with the course instructor early in the term.

**Safewalk Information:** Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day to any location on Campus including the LRT, parking lots, bus zones and University residences. Contact Campus Security at (403) 220-5333 or use a help phone, and Safewalkers or a Campus Security Officer will accompany you to your campus destination.

**Faculty of Arts Program Advising and Student Information Resources:** Have a question, but not sure where to start? Arts Students' Centre

The Faculty of Arts Students' Centre is the overall headquarters for undergraduate programs in the Faculty of Arts. The key objective of this office is to connect students with whatever academic assistance that they require.

In addition to housing the Associate Dean, Undergraduate Programs and Student Affairs and the Associate Dean for Teaching and Learning, the Arts Students' Centre is the specific home to:

- program advising
- the Faculty's Co-operative Education Program
- the Arts and Science Honours Academy
- the Faculty's Interdisciplinary Programs
- a Student Help Desk

Location: Social Sciences Room 102

Phone: 403.220.3580

Email: [ascarts@ucalgary.ca](mailto:ascarts@ucalgary.ca)

Website: [arts.ucalgary.ca/undergraduate/](http://arts.ucalgary.ca/undergraduate/)

For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at (403) 210-ROCK [7625] or visit them at the MacKimmie Library Block.

Contacts for Students Union Representatives for the Faculty of Arts:

[arts1@su.ucalgary.ca](mailto:arts1@su.ucalgary.ca)

[arts2@su.ucalgary.ca](mailto:arts2@su.ucalgary.ca)

[arts3@su.ucalgary.ca](mailto:arts3@su.ucalgary.ca)

[arts4@su.ucalgary.ca](mailto:arts4@su.ucalgary.ca)

**Ombudsman's office:** <http://www.ucalgary.ca/ombuds/>