Genetics & Society (SOCI 138)

Summer 2022
Two three-hour classes per week. Time and location TBD.

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Office hours: TBD

For well over a century now, genetics has powerfully shaped how we think about human difference. This class will explore the many ways in which studying our genomes and inheritance patterns has informed public understanding and policy on topics like race and ethnicity, disability, reproduction, rare disease, intelligence, sociality, delinquency, and personal identity in the United States. We will also see how social forces shape genetics research itself and discuss controversies surrounding gene patenting, forensic science, newborn screening, cloning, and genetic testing for disease, risk and ancestry. Throughout, we will adopt a comparative perspective by examining the way ideas about genetics and heritability have moved back and forth between the UK and US—from phrenology and Darwin in the 19th Century, through the eugenics movement of the early 20th Century, on the rise of modern medical genetics in the post-World War II period, and through to “post-genomic” present. In addition, we will also trace several notable stories where Edinburgh played an especially pivotal role: as the world leader for phrenological research and the intellectual cauldron that set Darwin on his world-changing path; as a leading center for the early study of chromosome abnormalities, and the point of origin for the XYY abnormality that would go on to become the infamous “criminal chromosome” that captivated criminologists, popular media, science fiction writers, and children’s rights advocates in the US; and as the site where the first cloned mammal, Dolly the sheep, was born, lived out her endlessly discussed life, and eventually found her was into a glass display at the National Museum of Scotland just a stone’s throw for the University of Edinburgh. Readings will be drawn from the genetics literature, popular culture and the social sciences. There will also be fieldtrips and guest lectures to help us take full advantage of the Edinburgh and its rich history. By the end of the class, students will possess the critical knowledge base to critically assess the promises and potential pitfalls of contemporary genetics.

Assessment
Assessment for the class will consist of reading response memos, a midterm take-home exam, and a final home exam or paper. The breakdown of final grades will be as follows:

**Weekly mini essays:** 40% of your grade. You will be required to submit four short essays (400–600 words each) in the ‘Weekly Essays’ assignment entries in Canvas. You will have a few prompts to choose from each week, all based on key readings, and your responses will be graded on a 0-10 point scale. You must submit one memo in each of weeks 1-4 by 5pm the night before our second class of the week.

**Take-home final:** 50% of your grade. I will circulate a take-home final exam consisting of short answer and essay questions at the beginning of Week 5. Alternatively, you may produce a final research paper, website, or podcast on a topic related to genetics and society. (Topics must be your own, and they must be approved by the end of Week 3.) All finals will be due towards the end of Week 5 (exact time TBD).
Class attendance and participation: 10% of your grade. This is a small class, so regular attendance and participation is required. Please keep in mind that you do not have to talk more than your peers to receive full participation points—regular engagements based on readings and lecture materials will suffice.

Readings
All texts are available on Canvas. I recommend setting up a VPN to access online readings off campus. See instructions here: https://library.ucsd.edu/computing-and-technology/connect-from-off-campus/ Please let me know if you have trouble accessing the readings.

Some readings will contain technical genetics terms. I strongly recommend that you consult publicly available resources like the NIH’s Genetics Home Reference or the NHGRI glossary (https://ghr.nlm.nih.gov/, https://www.genome.gov/Glossary/).

Course policies
Cheating and plagiarism:
Students are expected to do their own work and to cite sources according to established norms as outlined in the UCSD Policy on Academic Integrity. The policy can be found here: h: http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2 A FAQs page on what counts as cheating can be found here: http://academicintegrity.ucsd.edu/faq/index.html Cheaters will receive a failing grade on the assignment or exam and/or the entire course. They may also be referred for additional disciplinary action elsewhere at UCSD. If you are unsure about what is considered either plagiarism or cheating, please ask.

Missing/late exams and assignments:
Failure to turn in your essays on time without a valid excuse will result the deduction of one half-letter grade for every day (or part thereof) after the deadline. Excuses communicated after the deadline will only be accepted in exceptional circumstances.

Struggles with the class:
If you are having trouble with any aspect of the class, including deadlines, it is always best to contact me as soon as possible. That way we can address the problem before you have fallen too far behind or lost too many points from your final grade. We understand that these are challenging times, and that many of you are facing extraordinary external pressures.

Disability accommodations
Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaisons in the Sociology Department in advance so that accommodations may be arranged.

Fieldtrips
All fieldtrips are mandatory and may be integrated into the course essays (described above).
Weekly themes and readings (* indicates readings suitable for response memos)

Week 1: Introductions and historical origins

Day 1: Introduction to the class, plus genetics and society meets COVID-19

Day 2: Historical origins in Edinburgh, and what do we mean by ‘gene’?

  - ‘Darwin in Edinburgh’: [https://blog.nms.ac.uk/2019/06/07/darwin-in-edinburgh/](https://blog.nms.ac.uk/2019/06/07/darwin-in-edinburgh/)

Fieldtrip 1: Visit to the [University of Edinburgh’s Anatomical Museum](https://glasgow.ac.uk/) to view the collection of the Edinburgh Phrenological Society, arguably the most important center for phrenological research in the world. Then, we will take a walking tour orient students, taking in the site of famous Plinian Society and Charles Darwin’s Edinburgh residence along the way.

Week 2: From eugenics to modern human genetics

Day 1: Eugenics’ origins and early debates, a racist nightmare, and eventual unraveling

Day 2: The new human genetics, ‘geneticization’, and the ghost of eugenics

Week 3: Genetics meets race and sex, behavior and culture

Day 1: Sex and crime, intelligence and race

Day 2: Culture, ‘biosocial’ identity, and the genetics of race and ancestry
Week 4: Genetic testing for risk, disease, and racial/ethnic

Day 1: Prenatal genetic testing and newborn screening


Day 2: Clinical genomics, rare diseases, and direct-to-consumer testing

A special hourlong guest lecture on clinical genomics from Professor Steve Sturdy


Fieldtrip 2: A visit to The MRC Institute of Genetics and Molecular Medicine (IGMM) at The University of Edinburgh—the point-of-origin of the XYY story from Week 3 and the leading center for clinical genomics in Scotland.
Week 5: Our ‘postgenomic’ era and its many dilemmas

Day 1: The human genome project, postgenomics and thorny issues of ownership
A special hourlong guest lecture on epigenetics from Professor Martyn Pickersgill


Day 2: New breakthroughs, new eugenics? Cloning, gene-editing, etc.


Fieldtrip 3: We will visit the National Museum of Scotland, and especially its Science and Technology galleries, where we will pay our respects to the stuffed remains of Polly the cloned sheep. We will likely also visit the Roslin Institute—the pathbreaking center for animal genetics research that created Dolly.