**Syllabus: BIOS 4520A “HEALTH, GENES and SOCIETY” Spring 2022**

**Overview**

This is a non-traditional course designed to engage you in concepts that relate to personalized medicine, particularly incorporating consideration of the impact of genome analysis. Rather than absorbing lecture material, the emphasis will be on self-directed learning, discussion, and realization of genomic policy proposals in small teams working throughout the semester. We will start with a survey of predictive health (past, present and future), lay down the essentials of genetic risk evaluation, and spend quite a bit of time on various genetic assessments related to social traits. Most weeks, pairs of students will be responsible for a presentation on the assigned topic and for leading discussion, and we will work together in class to make constant progress on your policy deliberations.

**Objectives**

1. To understand the potential contribution of whole genome sequencing and genomic profiling for personalized medicine
2. To place genomic medicine in the context of other emerging trends in healthcare including mobile health, evidence-based medicine, and big-data driven public health
3. To deliberate on the implications of eugenic and anti-eugenic approaches in the domains of health, education, poverty, race, gender and justice.

**Evaluation**

50% Term Project (20% Project, 20% monthly updates, 10% class assessment)

20% Class presentations and Reports on 3 of them (5% each)

20% Final Exam

10% Participation in weekly discussion

**Term Project Outline**

In past years, I have had groups of students work on semester-long capstone projects around some theme of public health and personalized medicine. Those have been awesome, but this semester I am changing the theme, and instead will have you work in teams of four to explore the implications of eugenics and anti-eugenics for society. The basis for this will be reading of a new book **“The Genetic Lottery” by Kathryn Paige Harden**, which outlines concepts of equality and equity as they relate to genetics and the social sciences. We will build on her foundation by developing position papers on how genomic analysis should be considered in the six domains of health, education, poverty, race, gender and justice. Each group will give an initial statement, a half-way position, and a mature position formulated in response to class discussion.

You will each also present one lecture on a Thursday on a topic listed below, in groups of 3.

**Weekly Content**

**Classes from 3:30 – 4:45**

**Introduction - Professor Greg Gibson**

 **TUESDAYS THURSDAYS**

Jan 11, 13 Week 1 Precision Medicine and Health Equity (Group formulation)

Jan 18, 20 Week 2 Nature and Nurture Genetic Risk Evaluation

**Personalized Medicine**

Jan 25, 27 Week 3 Recreational Genomics Group 1

Feb 1, 3 Week 4 Newborn Screening Group 2

Feb 8, 10 Week 5 Pharmaceuticalization of medicine Group 3

Feb 15, 17 Week 6 Microbiome and health **Initial Position Statements**

**Social Genomics and Health**

Feb 22, 24 Week 7 Racial Health Disparities Group 4

Mar 1, 3 Week 8 Gender Biases Group 5

Mar 8, 10 Week 9 Deprivation and Attainment Group 6

Mar 15, 17 Week 10 Sexual Orientation **Mid-Way Presentations**

Mar 22, 24 Spring Break

Mar 29, 31 Week 11 Religiosity, Temperament, and Politics Group 7

**Health and Behavior**

Apr 5, 7 Week 12 Addiction Group 8

Apr 12, 14 Week 13 Health Behavior Group 9

Apr 19, 21 Week 14 Final Term Project presentations

Apr 26 Wrap-Up

**Term Project Teams**

**JUSTICE**

Elizabeth Beveridge Hannah Goodsite

Aram Shaji Sutton West

**POVERTY**

Clarke Britton Neha Bhatia

Erika deAndrade Daniella Haas

**HEALTH**

Sarah Burchfield Anshu Dendukuri

Julia Stager Shreshtha Shah

Akshaya Thoutam

**EDUCATION**

Ayomide Ayeni Xiyi Fan

Christopher Newhouse Tana Nguyen

**GENDER**

Cadence Brown Nithya Jameshenry

Michelle Seeler Celina Zhang

**RACE**

Gaby Ajibade Jada Allen

Kemuel Russell Ayo Sogbesan

**CLASS PRESENTATION GROUPS**

**Group 1 - Recreational Genomics Jan 27**

Akshaya Thoutam Anshu Dendukuri Shreshtha Shah

**Group 2 - Embryonic Selection Feb 3**

Christopher Newhouse Julia Stager Tana Nguyen

**Group 3 - Pharmaceuticalization Feb 10**

Hannah Goodsite Neha Bhatia

**Group 4 - Health Disparities Feb 24**

Ayo Sogbesan Jada Allen Kemuel Russell

**Group 5 - Gender Biases March 3**

Erika deAndrade Celina Zhang Michelle Seeler

**Group 6 - Social Deprivation March 10**

Clarke Britton Daniella Haas Elizabeth Beveridge

**Group 7 - Temperament March 31**

Cadence Brown Nithya Jameshenry Xiyi Fan

**Group 8 - Addiction April 7**

Ayomide Ayeni Gaby Ajibade Sarah Burchfield

**Group 9 - Health Behavior Feb 3**

Aram Shaji Sutton West

**Commitment to Freedom of Expression**

This Class necessarily engages in discussion of topics that will be challenging to some students’ values, and may make them uncomfortable. Consequently, I ask each of you to consider the following revised statement based on the University of Chicago statement of Freedom of Expression that may be read in full here: <https://provost.uchicago.edu/sites/default/files/documents/reports/FOECommitteeReport.pdf>

This Class recognizes and celebrates freedom of expression as an essential element of a university’s culture. University of Chicago President Robert M. Hutchins, speaking in the early 1930s, noted that the “cure” for ideas we oppose “lies through open discussion rather than through inhibition,” and “free inquiry is indispensable to the good life, that universities exist for the sake of such inquiry, [and] that without it they cease to be universities.” Similarly and more recently, University of Chicago President Hanna Holborn Gray observed that “education should not be intended to make people comfortable, it is meant to make them think. Universities should be expected to provide the conditions within which hard thought, and therefore strong disagreement, independent judgment, and the questioning of stubborn assumptions, can flourish in an environment of the greatest freedom.”

Consequently, we all have the latitude to speak, write, listen, challenge, and learn, except insofar as limitations on that freedom are necessary to the functioning of the class in a respectful manner. The freedom to debate and discuss the merits of competing ideas does not, of course, mean that individuals may say whatever they wish, wherever they wish. Expression that violates the law, that falsely defames or is targeted toward a specific individual, that constitutes a genuine threat or harassment, that unjustifiably invades substantial privacy or confidentiality interests, or that is otherwise directly incompatible with the functioning of the Class will not be tolerated.

We are nevertheless all fundamentally committed to the principle that debate or deliberation may not be suppressed because the ideas put forth are thought by some or even by most members of the class to be offensive, unwise, immoral, or wrong-headed. It is for the individual members of the Class to make those judgments for themselves, and to act on those judgments not by seeking to suppress speech, but by openly and vigorously contesting the ideas that they oppose. Indeed, fostering the ability of members of the Class to engage in such debate and deliberation in an effective and responsible manner is an essential part of the educational mission.

Specifically, discussion of the role of genetics in relation to such core concepts as race, gender and sexuality may challenge preconceptions and lead to discomfort and anxiety; discussion of the role of genetics in relation to public policy in the domains of education, poverty and justice may lead to strong disagreements and challenge our commitment to respect and tolerance for one another. It is thus essential that debate be conducted in an atmosphere devoid of shouting, trolling, and personal attacks. The process of challenging others helps to define our own values and sharpen our commitment to rational and informed policy development. Members of the Class must not obstruct, intimidate, or otherwise interfere with the freedom of others to express views we disagree with if we are all to find greater comfort and confidence in our own views. This is the path toward student success in life and a richer society.