BIOS 4520 Syllabus

Health, Genes and Society, Section A, 3 credits

Spring 2027

Instructor Information

Instructor: **Professor Greg Gibson**

Email: **greg.gibson@biology.gatech.edu**

General Course Information

Description

This is a non-traditional course designed to engage you in concepts that relate to personalized medicine and public policy, particularly incorporating consideration of the impact of genome analysis. Rather than absorbing lecture material, the emphasis will be on self-directed learning, discussion, and semester-long small-group realization of policy proposals based on contemporary genetic insight. 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.

Course Learning Outcomes

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 place contemporary moral philosophy in context of the Western tradition in light of contemporary genetic theory

3. To deliberate on the implications of eugenic and anti-eugenic approaches in the domains of health education, poverty, race, gender and justice.

Required Course Materials

"The Genetic Lottery", by Kathryn Paige Harden (Princeton Univ Press)

"Natural Virtue: Genetics, Anti-Eugenics, and Moral Philosophy", by Greg Gibson (Amazon Press)

Contemporary primary research articles made available on Canvas.

Grading Policy:

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

Description of Graded Components

Each item is described in course materials. For your Term Project, you will work in groups of 2 or 3 to explore the implications of eugenics and anti-eugenics for society. The basis for this will be reading of the two books above, 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 domains of one of education, health, race, gender and justice.

Each student will also present one lecture on a Thursday on a topic listed below, in the same groups of 2 or 3.

Course Policies

Attendance and/or Participation

Attendance at lectures is at student's discretion, but since 10% of the grade is participation it is advised. Attendance at the 9 class presentations is mandatory. Advisement of expected absence (eg due to athletic or family commitments, or interviews) is appreciated and ensures it does not count against participation.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct. Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Use of AI to assist in research is encouraged and expected in the literature reviews and term paper but must be documented with prompts and responses. Documents suspected of having been generated by AI will however be rejected for credit and the student must explain the circumstances.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. It is not applicable for this course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Tentative Course Content

		MONDAYS	WEDNESDAYS
Jan 11, 13	Week 1	Anti-Eugenics and Virtue Ethics	Precision Medicine
Jan 18, 20	Week 2	MLK Day	Heritability and Inheritance
Jan 25, 27	Week 3	Genetic Risk Evaluation	Personalized Medicine
Personalized Medicine			
Feb 1, 3	Week 4	Recreational Genomics	Student I
Feb 8, 10	Week 5	Newborn Screening	Student II
Feb 15, 17	Week 6	Pharmaceuticalization of Medicine	Student III
Feb 22, 24	Week 7	Microbiome and Health	Student IV
Social Genomics and Health			
Mar 1, 3	Week 8	Racial Health Disparities	Student V
Mar 8, 10		Spring Break	
Mar 15, 17	Week 9	Gender Biases	Student VI
Mar 22, 24	Week 10	Deprivation and Attainment	Student VII
Mar 29, 31	Week 11	Sexual Orientation	Student VIII
Apr 5, 7	Week 12	Religiosity, Temperament, and Politics	Student IX
Health and Behavior			
Apr 12, 14	Week 13	Addiction	Health Behavior
Apr 19, 21	Week 14	Final Term Project presentations I	Final Presentations II
Apr 30	Friday	Final Exam	