

Course Syllabus v1
Public Health Genetics 2049
HUMAN GENETICS
Fall Semester 2019
Tuesday & Thursday, 4:30-6:00 PM, Room 3121C Public Health

Instructors:

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Course Description:

This course provides a framework in which to assess how advances in genomics may be applied to public health practice and policies that affect both individuals and society. In addition, the ethical, legal, and social consequences of historical, current, and future interventions are considered.

Course Goals:

The goal of this course is to educate the student about the basic principles of genetics and their application to public health practice and research. Public health genetics is the application of advances in genetics and molecular biotechnology to improve public health and prevent disease. This course will provide the knowledge necessary to apply genetic concepts to public health practice.

Learning Objectives:

After completion of this course, the student will be able to:

- Describe the history of genetics and public health
- Describe the public health genetic systems and policies
- Construct and interpret pedigree information
- Apply knowledge of inheritance and risk factors for disease to understand a variety of rare and common health conditions
- Identify interactions among genes, environmental factors & behaviors, and their effects on public health
- Assess the ethics of the application of genetic technologies to public health

Purpose:

We define Public Health Genetics as the application of advances in genetics and molecular biotechnology to improve public health and prevent disease. Our mission is to provide broad training and encourage research in this emerging, multidisciplinary field.

The purpose of this course is to provide you with the knowledge necessary to apply genetic concepts to public health practice. For those enrolled in the Public Health Genetics MPH Program, prior to entering your Practicum you must learn and understand the genetic information commonly addressed in public health settings. This course provides you with this information.

This course introduces students to frameworks for understanding genetic principles, concepts and their application in public health genetics. This approach allows for detailed examination and discussion of social and ethical issues in genetics that arise in research, practice and policy affecting both individuals and populations. We will explore the application of this framework in the context of public health genetics. The potential for tension between individual and societal perspectives is considered throughout the course. Of particular focus will be issues that arise in thinking about how advances in genetic technology can benefit or pose a threat to public health, particularly in the areas of health promotion and disease prevention.

Teaching Philosophy:

This course emphasizes active participation, critical thinking, and continued learning. Because we all know different things and have experienced different events, all questions and viewpoints are encouraged and respected in the classroom and within groups.

Diversity Statement:

The University of Pittsburgh Graduate School of Public Health supports learning environments that are inclusive and respectful of all individuals. Every member of our community is expected to be respectful of the individual perspectives, experiences, behaviors, worldviews, and backgrounds of others.

Texts:

None required.

Additional articles and handouts will be posted on Courseweb OR handed out in class.

Grading:

The grading for this course is based on multiple homework exercises (and in-class activities), five projects, and two exams. Your grade for the course is based upon your work as follows:

Projects	40%
Homework	30%
Midterm exam (in-class)	15%
Final exam (take-home)	15%

Except for the exams, students may help each other to achieve the best work you are capable of producing. Working with one another to achieve mastery will help you learn the material with greater ease and enjoyment.

Grading scale:

94- 100% = A
90-93% = A-
87-89% = B+
84-86% = B
80-83% = B-
70-79% = C
Below 70% = F

Projects:

The initial due dates for the project are listed in the table below.

However, please check Courseweb for details and updates regarding the assignments.

Project #1- Public Health Genetics Book Club (Total: 35 points)

We will discuss the following two books in a book club setting. Each student must read one book in its entirety as well as excerpts from the other book. Page assignments for the excerpts can be found on CourseWeb. Students must participate in the discussion of both books (10 points) and submit a 1-2 page, single-spaced, assignment, based on questions assigned by the instructor (25 points).

Book #1

The Immortal Life of Henrietta Lacks, Rebecca Skloot, Crown, 2010. – Non-fiction

“From a single, abbreviated life grew a seemingly immortal line of cells that made some of the most crucial innovations in modern science possible. And from that same life, and those cells, Rebecca Skloot has fashioned in *The Immortal Life of Henrietta Lacks* a fascinating and moving story of medicine and family, of how life is sustained in laboratories and in memory.”

Book #2

The Philadelphia Chromosome: A Genetic Mystery, a Lethal Cancer, and the Improbable Invention of a Lifesaving Treatment

“Science journalist Jessica Wapner reconstructs more than forty years of crucial breakthroughs, clearly explains the science behind them, and pays tribute—with extensive original reporting, including more than thirty-five interviews—to the dozens of researchers, doctors, and patients with a direct role in this inspirational story. Their curiosity and determination would ultimately lead to a lifesaving treatment unlike anything before it.”

Project #2 – Family History (Total: 20 points)

- Part 1: You will draw your family pedigree including three generations using the Surgeon General’s My Family Health History tool. If you do not wish to reveal personal medical information, you may fictionalize your family health history. In addition, you will also turn in a short critique of the family history tool. (10 points)
- Part 2: You will create a form or list of questions (1 page front and back maximum length) that could be given to an individual to complete to elicit their three generation family history information. Your completed pedigree from Part 1 can be used to guide the types of questions asked on the form. (10 points)

Project #3 – Ethics report and debate (Total: 30 pts)

Using ethical principles, you will assess the ethical issues involved in one of the three current topics in public health genetics outlined below.

The instructor will assign you to a specific topic and post it on Courseweb.

You first will write a report stating your personal assessment and conclusions (18 pts). You will also be part of a group and debate one of three pre-assigned positions in class (12 pts). Please check Courseweb for your topic and assignment.

Project #4- Newborn Screening State Statutes (Total: 35 points)

- Part 1: After reviewing Public Health Genetics Policy in class, each student will be assigned several states to research and gather information on regarding state newborn screening policies.

Students will enter their information into a universal spreadsheet that will be available through Box (located on your My Pitt page). (20 points)

- Part 2: Students will be assigned to groups for the second part of this project. Each group will assess the data collected in Part 1 to identify trends of interest and report out statistics to the class. Groups will give a short oral presentation of their data during class. (15 points)

Project #5 – Public Health Case Study – (20 points)

You will represent a member of a Blue Ribbon Commission on Ethics and Human Genetic Technologies to study and report on genetics issues in state health policy. As a representative of your constituency, you will write a short position statement (including ethical and other concerns) and post this document on Courseweb for your fellow students and the instructors to read. (10 points)

Then, you will meet as a group during the 60-70 minutes in class, to devise a report that you will make to the “legislature” (represented by the instructors). (10 points)

Homework

Throughout the semester, seven short homework assignments will be given based on the material covered in class. Each homework assignment will include instructions and due date. Homework assignments will collectively be worth 30% of the final grade.

****The instructors reserve the right to make changes to the Due Dates and Class Schedule****

Project and Homework Due Date Summary

Projects and Homework	Due Date
Hmwk#1: 10 Components of Public Health	Sep 3
Project 2A: Family History Pedigree	Sep 5
Hmwk#2: Havasupai Case	Sep 10
Hmwk#3: Ethics Cases	Sep 12
Hmwk #4: GATTACA questions	Sep 20
Project 3A: Ethics Report	Sep 26
Project 2B: Family History Forms	Oct 3
Project 3B: Debate1&2	Oct 8
Project 3B: Debate 3	Oct 10
MIDTERM	Oct 15
Project 4A: Statute- Assigned States	Oct 22
Hmwk#5: Literacy	Oct 29
Hmwk#6: Personalized Medicine	Oct 31
Project 1: Book Report	Nov 5
Hmwk#7: Warfarin	Nov 7
Project 4B: Statute – In class presentation	Nov 22
Project 5A: Panel Position Statement	Dec 3
Project 5B: Blue Ribbon Panel – In class	Dec 5
FINAL EXAM	Dec 10

Class Schedule

Date	Class Topic	Project/Homework Due dates	Instructor (Out)
27-Aug	Syllabus review; Introduction Public Health and Genetics, Newborn Screening		CK & AD
29-Aug	Diversity/Havasupai		CK
3-Sep	Genetics, Ethics, and Law	Hmwk1: 10 components	CK
5-Sep	Ethics continued	Proj2A: Family Hx pedigree	CK
10-Sep	Discussion of Havasupai Case	Hmwk2: Havasupai	CK
12-Sep	Ethics Cases Discussion	Hmwk3: Ethics cases	CK
17-Sep	GATTACA – <i>movie night</i>		CK
19-Sep	GATTACA – <i>movie night</i>	Hmwk4: GATTACA	CK (AD)
24-Sep	Overview of the Public Health System	Proj3A: Ethics Report	AD
26-Sep	Overview of the Public Health Genetics System		AD
1-Oct	Public Health Genetics Policy/ Statutes		AD
3-Oct	CDC Tier 1 Genomic Applications	Proj2B: Family Hx Forms	AD
8-Oct	Public Health Genetics in the News		CK&AD
10-Oct	Ethics Debates 1&2	Prpj3B: Debate	CK&AD
15-Oct	**MIDTERM**		
17-Oct	Literacy		AD
22-Oct	Topics in Public Health (Certificate students)	Proj4A: Statute- Assigned States	CK&AD
24-Oct	Negotiation skills		RM
29-Oct	Common Disease – Personalized Medicine	Hmk5: Literacy	CK
31-Oct	Common Disease – Personalized Medicine	Hmk6: Personalized medicine	CK
5-Nov	Personalized Medicine/Warfarin	Proj1: Book Report	CK (AD)
7-Nov	Personalized Medicine/ Warfarin	Hmk7: Warfarin	CK (AD)
12-Nov	The Public Health Book Club		CK&AD
14-Nov	OneHealth		CK (AD)
19-Nov	OneHealth		CK
21-Nov	Student Statute Presentations	Proj4B: Statute - in class	AD&CK
26-Nov	NO CLASS – Thanksgiving week		
28-Nov	NO CLASS – Thanksgiving week		
3-Dec	OneHealth	Proj5A: Position Statement	CK
5-Dec	Blue Ribbon Panel	Proj5B: Panel Discussion	CK
10-Dec	**FINAL EXAM** DUE		
12-Dec	NO CLASS		

Diversity:

The University of Pittsburgh Graduate School of Public Health considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. Pitt Public Health is committed to creating and fostering inclusive learning environments that value human dignity and equity. Every member of our community is expected to be respectful of the individual perspectives, experiences, behaviors, worldviews, and backgrounds of others. While intellectual disagreement may be constructive, no derogatory statements, or demeaning or discriminatory behavior will be permitted.

If you feel uncomfortable or would like to discuss a situation, please contact any of the following:

- the course instructor;
- the Pitt Public Health Associate Dean for Diversity at 412-624-3506 or nam137@pitt.edu;
- the University's Office of Diversity and Inclusion at 412-648-7860
or <https://www.diversity.pitt.edu/make-report/report-form> (anonymous reporting form).

Disabilities:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services](#), 140 William Pitt Union, 412-648-7890 as early as possible in the term.

Academic Integrity:

All students are expected to adhere to the school's standards of academic honesty. Cheating/plagiarism will not be tolerated. The Graduate School of Public Health's policy on academic integrity, which is based on the University policy, is available online in the Pitt Public Health Academic Handbook www.publichealth.pitt.edu/home/academics/academic-requirements. The policy includes obligations for faculty and students, procedures for adjudicating violations, and other critical information. Please take the time to read this policy.

Plagiarism:

University of Pittsburgh policy: "Integrity of the academic process requires that credit be given where credit is due. Accordingly, it is unethical to present as one's own work the ideas, representations, words of another, or to permit another to present one's own work without customary and proper acknowledgement of sources.

A student has an obligation to exhibit honesty and to respect the ethical standards of the profession in carrying out his or her academic assignments. Without limiting the application of this principle, a student may be found to have violated this obligation if he or she:^{*}

10. Presents as one's own, for academic evaluation, the ideas, representations, or words of another person or persons without customary and proper acknowledgment of sources.

11. Submits the work of another person in a manner which represents the work to be one's own."

Source: <http://www.bc.pitt.edu/policies/policy/02/02-03-02.html>

Therefore, you must clearly indicate which thoughts are yours and which thoughts belong to others by citing your sources. If you are uncertain, please contact the instructor. Plagiarism detection software will be used in this course. If plagiarism is detected, you will automatically receive a grade of zero for that assignment.

Sexual Misconduct, Required Reporting and Title IX Statement:

The University is committed to combatting sexual misconduct. As a result, you should know that University faculty and staff members are required to report any instances of sexual misconduct, including harassment and sexual violence, to the University's Title IX office so that the victim may be provided appropriate

resources and support options. What this means is that as your professor, I am required to report any incidents of sexual misconduct that are directly reported to me, or of which I am somehow made aware.

There are two important exceptions to this requirement about which you should be aware:
A list of the designated University employees who, as counselors and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: www.titleix.pitt.edu/report/confidentiality

An important exception to the reporting requirement exists for academic work. Disclosures about sexual misconduct that are shared as part of an academic project, classroom discussion, or course assignment, are not required to be disclosed to the University's Title IX office.

If you are the victim of sexual misconduct, Pitt encourages you to reach out to these resources:

- Title IX Office: 412-648-7860
- SHARE @ the University Counseling Center: 412-648-7930 (8:30 A.M. TO 5 P.M. M-F) and 412-648-7856 (AFTER BUSINESS HOURS)

If you have a safety concern, please contact the University of Pittsburgh Police, 412-624-2121.
Other reporting information is available here: www.titleix.pitt.edu/report-0

Statement from the Department of Gender, Sexuality, and Women's Studies

[This statement was developed by Katie Pope, Title IX Coordinator, in conjunction with GSWS instructors.]