

Human Genetics 2091
Genetics of Complex Diseases 2
Spring Term 2023; Tuesday and Thursday, 2:30-3:45 PM
1 credit, 5 weeks

Classroom: 226 Benedum Hall

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Office Hours: by appointment

Course Description:

This course provides students with an understanding of the biochemical and molecular genetic approaches to understand genetically determined susceptibility to common diseases. This will be presented using selected examples of complex human diseases, including cardiovascular and neurodegenerative diseases. Risk of common, complex diseases is determined by genotypes at multiple genetic loci and a complex interaction of genetic variation and environmental exposures. Risk of almost every common disease is influenced by genes, but the relationship between genotype and disease phenotype is weak compared to that observed with rare Mendelian traits. However, understanding the contribution of genes to common disease susceptibility is important to public health.

Course Objectives:

At the end of this course the student will be able to:

- Describe the epidemiology and biochemical and molecular bases of selected common diseases of public health importance.
- Describe the cardiovascular architecture and environmental risk factors that influence genetic susceptibility to cardiovascular and neurodegenerative disorders

Purpose of Course:

The goal of this course is to provide students with an understanding of the molecular and biochemical genetic approaches to understanding genetically determined susceptibility to common diseases. This goal will be achieved by using selected examples of complex human diseases (cardiovascular and neurodegenerative diseases).

Risk of common and complex diseases is determined by the genotypes at multiple genetic loci and their complex interaction with environmental exposures. Understanding the contribution of genetic factors to common disease susceptibility is important to public health because these diseases account for a large fraction of morbidity and mortality in the general population.

Prerequisites:

HUGEN 2090 - Genetics of Complex Diseases I

Textbook:

There is no textbook for this course. Lecture notes/slides, suggested readings, and other course materials will be posted on Canvas.

Grading:

Grades will be assigned based on online tests for each topic discussed in the class. The following will be the grade scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
<60%	F

Behavior/Ground Rules

All students are expected to behave professionally in the class (i.e. listen to the lectures attentively and participate in discussion; no use of cell phones; laptops are allowed only related to the classroom teaching activities).

Academic Integrity

Students in this course will be expected to comply with the [University of Pittsburgh's Policy on Academic Integrity](#). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

To learn more about Academic Integrity, visit the [Academic Integrity Guide](#) for an overview of the topic. For hands-on practice, complete the [Understanding and Avoiding Plagiarism tutorial](#).

Disability Services

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](#) (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Equity, Diversity, and Inclusion

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, visit the [Civil Rights & Title IX Compliance web page](#).

I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be [filed online](#). You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).

Sexual Misconduct, Required Reporting, and Title IX

The university's Sexual Misconduct, Required Reporting, and Title IX statement (below) is required. The text must be included verbatim on all syllabi.

If you are experiencing sexual assault, sexual harassment, domestic violence, and stalking, please report it to me and I will connect you to University resources to support you.

University faculty and staff members are required to report all instances of sexual misconduct, including harassment and sexual violence to the Office of Civil Rights and Title IX. When a report is made, individuals can expect to be contacted by the Title IX Office with information about support resources and options related to safety, accommodations, process, and policy. I encourage you to use the services and resources that may be most helpful to you.

As your professor, I am required to report any incidents of sexual misconduct that are directly reported to me. You can also report directly to Office of Civil Rights and Title IX: 412-648-7860 (M-F; 8:30am-5:00pm) or via the Pitt Concern Connection at: [Make A Report](#)

An important exception to the reporting requirement exists for academic work. Disclosures about sexual misconduct that are shared as a relevant 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 wish to make a confidential report, Pitt encourages you to reach out to these resources:

- The University Counseling Center: 412-648-7930 (8:30 A.M. TO 5 P.M. M-F) and 412-648-7856 (AFTER BUSINESS HOURS)
- Pittsburgh Action Against Rape (community resource): 1-866-363-7273 (24/7)

If you have an immediate safety concern, please contact the University of Pittsburgh Police, 412-624-2121

Any form of sexual harassment or violence will not be excused or tolerated at the University of Pittsburgh.

Class Schedule:

<u>Date</u>	<u>Topic</u>
3/28	Coronary Artery Disease – Epidemiology, Atherosclerosis process and Genetics
3/30	Plasma Lipoprotein-lipid Metabolism and Genetics
4/4	Familial Hypercholesterolemia – Part 1
4/6	Familial Hypercholesterolemia – Part 2
4/11	Apolipoprotein E – Part 1
4/13	Apolipoprotein E – Part 2
4/18	Alzheimer’s Disease – Part 1
4/20	Alzheimer’s Disease – Part 2
4/25	Parkinson’s Disease
4/27	Review