

**Graduate School of Public Health
Department of Human Genetics
HUGEN 2090 Genetics of Complex Diseases I
Tuesday and Thursday, 2:30PM - 3:55PM
207 Lawrence Hall
Spring Term 2022**

The instructor reserves the right to change the course schedule if necessary

Contact Information:

- F. Yesim Demirci, M.D., Instructor
- Associate Professor of Human Genetics
- fyd1@pitt.edu
- 3133 Public Health
- Office hours by appointment (email)
- Office telephone: (412) 383-7193

Course Description:

This course will provide an overview of genetic and molecular basis of complex human diseases with primary focus on immune-mediated conditions, autoimmune diseases, common eye disorders, and psychiatric/behavioral health disorders. Common human diseases largely contribute to the public health burden of diseases and are influenced by a complex interplay of genetic, epigenetic, demographic, and environmental risk factors. Selected examples will be used in the classroom to illustrate the multifactorial nature of complex human diseases. Identifying multiple genetic loci/variants involved in common disease susceptibility and understanding the biological functions/pathways impacted by complex interactions of these genetic factors with other risk factors/exposures constitute an essential step towards improving the prevention, diagnosis, and management of these common conditions, hence improving the public health. This course will also provide an overview of the epigenetic regulation, immune system, and microbiota/microbiome as related to their increasingly recognized important roles in influencing the development and/or progression of a diverse array of complex human diseases.

Learning Objectives:

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

- Describe and discuss the complex and multifactorial nature of common human diseases.
- Describe the complex genetic architecture and molecular basis of selected diseases of public health importance.
- Recognize and discuss the important roles of epigenetic mechanisms, immune system, and microbiota/microbiome in influencing the development and/or progression of various human diseases.
- Apply the knowledge gained in the classroom to conduct and/or interpret research relating to complex human diseases and their impact on public health.

Health and Safety Statement:

During this pandemic, it is extremely important that you abide by the public health regulations, the University of Pittsburgh's health standards and guidelines, and Pitt's Health Rules. These rules have been developed to protect the health and safety of all of us. Universal face covering is required in all classrooms and in every building on campus, without exceptions, regardless of vaccination status. This means you must wear a face covering that properly covers your nose and mouth when you are in the classroom. If you do not comply, you will be asked to leave class. It is your responsibility have the required face covering when entering a university building or classroom. For the most up-to-date information and guidance, please visit coronavirus.pitt.edu and check your Pitt email for updates before each class.

If you are required to isolate or quarantine, become sick, or are unable to come to class, contact me as soon as possible to discuss arrangements.

Required Textbooks/Articles/Readings:

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

Required or Recommended Equipment:

Computer (<https://www.technology.pitt.edu/services/computer-purchasing-students>) and internet connection are required for accessing course materials, using online tools/resources, and completing assignments.

Class Expectations/Behavior and Ground Rules:

Class attendance and participation are strongly encouraged. Students are expected to silence their cell phones (and keep their microphones muted until ready to speak if they participate remotely) and focus only on class activities (and avoid other/distracting activities). Class lectures/sessions may be recorded by the instructor. Any other recording(s) will require special permission of the instructor.

Classroom Recording Statement:

To ensure the free and open discussion of ideas, students may not record or make copies of classroom lectures, discussions and/or activities without prior approval of the instructor. Any such recording properly approved in advance can be used solely for the student's own private use but may not be further copied, distributed, published, or otherwise used for any other purpose.

Copyright Notice:

Course materials may be protected by copyright. United States copyright law, 14 USC section 101, et sec., in addition to University policy and procedures, prohibit unauthorized duplication or retransmission of course materials. See [Library of Congress Copyright Office](#) and the [University Copyright Policy](#).

Student Performance Evaluation and Grading Scale:

Grades will be assigned based on two exams (graded for correctness):

Exam 1 (45% of final grade) and Exam 2 (55% of final grade)

Tentative grading scale:

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

Class Schedule:

<u>Date</u>	<u>Topic/Focus</u>
1/11	Genetic Basis of Common Diseases - Part 1
1/13	Genetic Basis of Common Diseases - Part 2
1/18	Epigenetics / Epigenetic Regulation - Part 1
1/20	Epigenetics / Epigenetic Regulation - Part 2
1/25	The Immune System
1/27	Innate Immune Response
2/1	Adaptive Immune Response
2/3	Immunogenetics
2/8	Exam 1
2/10	Eye Structure/Function & Ocular Genetics
2/15	Common Complex Eye Diseases - Part 1
2/17	Common Complex Eye Diseases - Part 2
2/22	Immunological Tolerance
2/24	Mechanisms of Autoimmunity
3/1	Autoimmune Diseases - Part 1
3/3	Autoimmune Diseases - Part 2
3/8 & 3/10	Spring Recess
3/15	Microbiota / Microbiome
3/17	Psychiatric / Behavioral Health Disorders - Part 1
3/22	Psychiatric / Behavioral Health Disorders - Part 2
3/24	Exam 2

Accommodation for Students with 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 Statement:

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.

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:

<https://www.diversity.pitt.edu/civil-rights-title-ix/make-report/report-form>

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: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/make-report>

Diversity and Inclusion Statement:

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 and promote social justice. 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 director or course instructor;
- the Pitt Public Health Associate Dean responsible for diversity and inclusion;
- the University's Office of Diversity and Inclusion at 412-648-7860 or <https://www.diversity.pitt.edu/civil-rights-title-ix/make-report/report-form> (anonymous reporting form)