

**School of Public Health  
Department of Human Genetics  
HUGEN 2090 Genetics of Complex Diseases I  
Tuesday and Thursday, 2:30PM - 3:45PM  
226 Benedum Hall  
Spring Term 2023**

*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
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- 3133 Public Health
- Office Telephone: (412) 383-7193
- Office Hours: By Appointment (Email)

**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.

**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 focus only on class activities (and avoid other/distracting activities) during class sessions. Class lectures may be recorded by the instructor. Any other recording(s) will require special permission of the instructor.

**Statement on Classroom Recording:**

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, 17 USC section 101, et seq., 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:**

<b><u>Date</u></b>	<b><u>Topic/Focus</u></b>
1/10	Genetic Basis of Common Diseases - Part 1
1/12	Genetic Basis of Common Diseases - Part 2
1/17	Epigenetics / Epigenetic Regulation - Part 1
1/19	Epigenetics / Epigenetic Regulation - Part 2
1/24	Introduction to the Immune System
1/26	Innate Immune Response
1/31	Adaptive Immune Response
2/2	Immunogenetics
2/7	Review and Catch-up / Take-home <b>Exam 1</b>
2/9	Eye Structure/Function & Ocular Genetics
2/14	Common Complex Eye Diseases - Part 1
2/16	Common Complex Eye Diseases - Part 2
2/21	Immunological Tolerance
2/23	Mechanisms of Autoimmunity
2/28	Autoimmune Diseases - Part 1
3/2	Autoimmune Diseases - Part 2
3/7 & 3/9	<b>Spring Recess</b>
3/14	Microbiota / Microbiome
3/16	Psychiatric / Behavioral Health Disorders - Part 1
3/21	Psychiatric / Behavioral Health Disorders - Part 2
3/23	Review and Catch-up / Take-home <b>Exam 2</b>

## **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:**

All students are expected to adhere to the school's standards of academic honesty. Cheating/plagiarism will not be tolerated. Pitt Public Health's policy on academic integrity, which is based on the University policy, is available online in the Pitt Public Health Academic Handbook (<https://publichealth.pitt.edu/academic-handbook>). The policy includes

obligations for faculty and students, procedures for adjudicating violations, and other critical information. Please take the time to read this policy.

### **Diversity and Inclusion:**

The University of Pittsburgh 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>

### **Sexual Misconduct, Required Reporting and Title IX:**

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.