

BIOSC 0815 GENES & DISEASES

Spring 2022 Syllabus

*Changes to the syllabus will be announced on Canvas as needed.
This course will be online for the first five lectures, but otherwise meets in person.*

Faculty

Dr. Lesley Ashmore

A353 Langley Hall

412-648-7867, lja7@pitt.edu

Office Hours: can be accessed using this link:

(to be determined)

Class Times

Mondays and Wednesdays 3:25-4:40 pm

After the first five lectures, classes will meet in person when allowed. Zoom will be used as a backup option if a student is too ill to attend class (or quarantining).

Zoom: To access the scheduled class meeting remotely, click on “Zoom” in the Canvas navigation menu.

All Zoom sessions are recorded. To view recordings, click on “Panopto Video” in the Canvas navigation menu.

Course Objectives

This course is designed to give students not majoring in biology the essential background in genetics and evolution to understand human disease. The material covered includes basic cellular biology, fundamental principles of genetics, the role of genes and environment in various diseases, genomics, and evolution. An essential part of the course is the discussion of current controversial issues, such as genetic screening, reproductive cloning, gene therapy, the genetic basis of cancer, and diseases.

The recent breakthroughs in our knowledge of human genetics will impact the lives of yourself and your families. You, as voters, consumers, policy makers, and elected officials will be required to make difficult but informed decisions regarding ethical questions raised by rapid scientific progress. A basic working knowledge of genetics is vital to understanding the limitations, the ethical issues, and the astounding potential of this knowledge for our society.

Textbook

Textbook: Lewis, *Human Genetics*, 13th edition. Publisher: McGraw-Hill

Course Delivery and Associated websites

In this course we will be using **Canvas** as the Learning Management System.

- Midterms and lectures be delivered via **Canvas**.
- You will need **Tophat** for in-class participation and homework. TopHat is free to all students and can be accessed via the TopHat link in Canvas.
- Even when meeting in person, all classes are also accessible by **Zoom**, and will be recorded (available in the **Panopto** folder within a few hours after class).
- Office hours will be held via **Zoom** until indicated.

You will be able to access all of these programs through the Canvas page for this class.

This course is not a hybrid course. Students are expected to attend in person when possible. The Zoom option is reserved for students who are too ill to attend class, or are following quarantine procedures as required by the University.

Abuse of the Zoom policy may result in penalties to your participation grade.

Weekly Lectures and Reading Assignments

All course materials will be posted on the “modules” page of Canvas. There will also be a list of links to help you quickly find all of the assignments and documents related to the material for that module.

You are asked to do the reading assignments before coming to class. In depth reading assignments can be found in the documents at the top of the module. There will be direct links to the ebook chapters that are assigned, which you can access from Canvas or Connect.

Homework

TopHat Homework problem sets will be short assignments to help prepare you to answer exam questions. You may work together to answer homework questions. If a question asks for a short answer, you must **use your own words**.

Late assignments: You will have at least a week to finish homework assignments. All assignments are reopened at the end of the semester for study purposes, and so students can make up missed assignments.

Attendance

Synchronous attendance of lectures is required for your participation grade. Each class has some TopHat problems that will be solved during the class. Top Hat questions **can** be completed during synchronous Zoom lectures, but they **cannot** be made up after class is over. You can miss **up to three classes** and still collect full points for attendance.

Midterms and Final Exam

There are three midterm exams that coincide with the three units. Midterms are synchronous; they will be held during the scheduled class time. Missed midterms may be made up at the end of the semester.

All the midterms are open book and open note, meaning you may use your own class notes or the textbook as resources during the exam. You may not discuss questions with others in the class when the exam is open. Posting questions to internet websites or consulting the internet for solutions is a violation of academic integrity.

You may take midterms in person or you may take them over Zoom. If Zooming, you are required to leave your camera on during the exam (sound muted) so that the Zoom session is recorded. These recordings will NOT be posted to Panopto and will not be available to anyone except myself. I will not be using internet restricting proctoring software because I do want you to have access to your ebook.

A synchronous final exam will be held during the week of April 26th. All students must take and pass the final to pass the class. **The final exam schedule has not yet been posted by the registrar.** The final exam is a cumulative review of the concepts. If possible, the final exam will be held exclusively in person.

Makeup Work

Due to the extraordinary circumstances this semester, I will strive to be as flexible as I can with students having various health, life or technical issues. **Please contact me as soon as possible if you are having difficulty keeping up with the material.**

Homework: Missed homework can be made up at the end of the semester.

Attendance: Top Hat questions cannot be made up after class. You can miss three classes and still get an A+ for attendance. You can answer Top Hat questions by attending synchronous Zoom classes if you cannot be in class.

Makeup midterms: Students may make up midterm one or two at the end of the semester.

Final Grade

The final grade is determined on a percentage of points earned.

Three midterms (100 points each).....	300
Final exam (150 points).....	120
Homework (~3 pts/lecture).....	60
Participation (~1 pt/lecture).....	20

Grades are assigned according to a standard grading scale: 98+ is an A+, 93%+ is an A, 90%+ is an A-, etc.

“Effort” is already taken into account—homework and participation are 16% of the grade.

Extra credit MAY be offered over the course of the semester. No extra credit assignments will be offered to *individual students* to make up for poor performance.

G Grades

G grades, according to SAS guidelines, are to be given only when students who have been attending a course and have been making regular progress are prevented by circumstances beyond their control from completing the course after it is too late to withdraw.

If your life circumstances require you to miss multiple weeks of class, then a G grade would be appropriate as long as you have been engaging with the class and completing assignments up to that point.

A G grade is **not** appropriate for a student who can no longer reasonably pass the class by completing the remaining material.

Please contact the professor if you wish to petition for a G grade. We’ll set a deadline for you to finish the remainder of the material, and work out alternative methods of assessment if necessary.

Academic Integrity Policy

Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed. View the complete policy at www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

You are encouraged to collaborate with others in this class EXCEPT during midterms and final exam. You may NOT work with others on the midterms or final exam, or use ANY resources outside of your notes and textbook.

Examples of cheating include, but are not limited to:

- Posting ANY class material to online homework sites. This includes any assignment, recitation, problem set, or midterm question. **Doing so is not only an academic integrity violation, it is also a violation of copyright.**
- Discussing and sharing quiz questions during the midterms.
- Using a chat app like Groupme or Discord for discussion of material during the midterms.
- Using any resources **other than your book and your notes** to answer midterm questions (ex: Google, Wikipedia, Reddit, homework “help” sites) is cheating. **Permitted resources for completing midterm exams are your lecture notes, textbook and the recordings of the lectures.**

If a student is suspected of cheating, this is the procedure:

- We will meet over zoom to discuss the infraction and the sanction. The sanction is a zero for the midterm that cannot be made up. This will automatically take away the chance of earning an A or B in the course. In addition, I will send an academic integrity violation report to the Dean.
- The student may choose to appeal, in which case we will follow the procedures outlined here: www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

Disability Resources and Services

If you have a disability for which you are, or may be, requesting an accommodation, you are encouraged to contact both the instructor for this course and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

Because midterms are online, students do not have to take them via DRS testing services. That service is available if you want to take the midterm in the testing center instead of in the classroom. You may also take your final exam in the testing center. **Please remember that you must schedule your DRS tests five business days in advance.**

For students who require additional time on midterms, I have to set this for every midterm. **Please let me know if I forgot to do it before you open the test.** Once you open it I cannot adjust the time.

E-mail Communication Policy

Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on **Edit Forwarding Addresses**, and follow the instructions on the page. Be sure to log out of your account when you have finished. For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)

Zoom technical issues should be directed to Pitt's technical support.

TopHat issues should be directed to TopHat technical support.

Canvas: please take the time to have Canvas notifications forwarded to your email address.

Content-related questions should be posted to the class discussion board so everyone can benefit from the answer.

Please allow at least 24 hours for a reply to an email and longer over weekends. Also, please understand that I have many emails to respond to, so my email style tends to be very direct and to the point. **Some may interpret this to mean I am impatient or irritated at them. I promise this is not true;** I just have a minimalist email style.

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, see: : <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>.

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

I also strive to keep class topics and my own language up to date. I fall short of this sometimes without realizing it. I appreciate respectful conversations to help me improve my communication of ideas. My office is a safe space for everyone and I am LGBTQIA+ friendly.

COVID-19 Safety

In the midst of this pandemic, it is extremely important that you abide by public health regulations and University of Pittsburgh health standards and guidelines. These rules have been developed to protect the health and safety of all community members. Failure to comply with these requirements could result in a Student Conduct violation. For the most up-to-date information and guidance, please visit coronavirus.pitt.edu and check your Pitt email for updates.

If you decide not to wear your mask in class, I'll ask you to mask up or leave. We all hate wearing the masks; please don't make a big deal out of noncompliance.

Take Time for Self-Care

Everyone is operating at a high level of stress this semester. Remember to be kind, not only to others, but to yourself. *Please don't do this class alone*—take the time to fight the isolation by connecting with the professor, the UTAs, and your fellow students.

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep, and taking time to relax. Despite what you might hear, using your time to take care of yourself will actually help you achieve your academic goals better than spending too much time studying and missing sleep.

All of us benefit from support and guidance during times of struggle. **There are many helpful resources available at Pitt.** An important part of the college experience is learning how to ask for help. Take the time to learn about all that's available and take advantage of it. Ask for support sooner rather than later – this always helps. If you or anyone you know experiences any academic stress, difficult life events, or difficult feelings like anxiety or depression, we strongly encourage you to seek support. Consider reaching out to a friend, faculty or family member you trust for assistance connecting to the support that can help.

The University Counseling Center is here for you: call 412-648-7930 and visit their website.

If you or someone you know is feeling suicidal, call someone immediately, day or night:
University Counseling Center (UCC): 412 648-7930

University Counseling Center Mental Health Crisis Response: 412-648-7930 x1 Resolve
Crisis Network: 888-796-8226 (888-7-YOU-CAN)

If the situation is life threatening, call the Police: On-campus: Pitt Police: 412-268-2121;
Off-campus: 911

Please let me know if there is anything going on that is preventing you from doing your best in this class. I can't help you if I don't know what's going on. Don't wait until the end of the semester, after all the points are earned. Contact me as soon as possible with your difficulties and I'll do my best to help you catch up.

Genes & Diseases, Spring 2022 Schedule

All changes to the schedule will be posted via Canvas announcements

All assignments are to be completed in Canvas.

Lecture	Dates	Topics & Chapter order
1	1/10 M	Overview: Why learn about genetics and evolution?
2	1/15 W	Science: generation and dissemination of data Reading "The Literature"
	1/17 M	<i>No class</i>
3	1/19 W	Unit 1: What Causes Genetic Disease? The Cellular Basis of Life, and the role of proteins
4	1/24 M	Life's instructions: DNA and RNA
5	1/26 W	Gene regulation and expression: making a protein
6	1/31 M	Changing the message can cause new phenotypes
7	2/2 W	Treating Single-gene disorders
8	2/7 M	(continued)
9	2/9 W	Where do mutations come from?
	2/14 M	MIDTERM 1
10	2/16 W	Unit 2: Inheritance, Complex traits, and Cancer Cellular reproduction and gamete production
11	2/21 M	Cytogenetics, meiosis and nondisjunction
12	2/23 W	Pedigree analysis: human inheritance patterns
13	2/28 M	(continued)
14	3/2 W	Inheritance of Complex Traits
15	3/7 M	Genes and Cancer
16	3/9 W	Case study: BRCA1 and 2
	3/14-3/18	Spring break!
17	3/21 M	Unit Three: Evolution, Emerging Diseases, and Biotechnology The immune system: overview and inflammatory response
	3/23 W	MIDTERM 2
18	3/28 M	The immune system: adaptive immunity
19	3/30 W	Evolution, antibiotics, and bacterial resistance
20	4/4 M	How malaria shaped human evolution
21	4/6 W	The battle against malaria and other mosquito-borne illnesses
22	4/11 M	DNA and crime: forensic DNA analysis
23	4/13 W	To be determined
	4/18 M	MIDTERM ONE AND TWO MAKEUPS
	4/20 W	MIDTERM 3
4/25-4/30	?	Final exam (not yet scheduled; will be synchronous and in person)