

Adv Intro to Genetics: Honors

Meet Times: T/Th 12:30pm-2:00pm

Room: BUR 112

Uniques: 48580-48595

What are the required materials?

The textbooks: We will use the two required textbooks for both BIO315H and BIO325H: **Hartwell Genetics, 5th ed.** and **Brooker, Biology, 4th ed.**

How to get them:



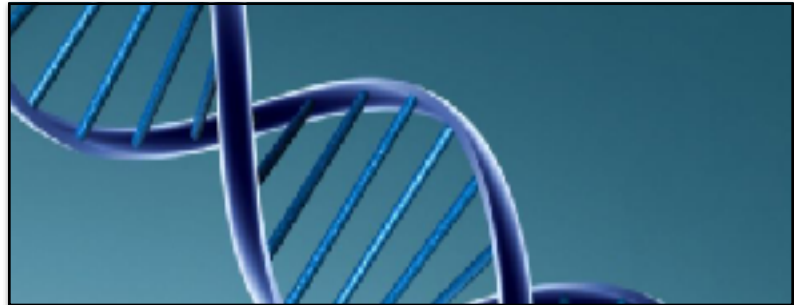
A convenient and less expensive way to get the correct editions of both textbooks is to purchase them through **McGraw-Hill's Connect**, which comes with a year's access to both eBooks as well as online resources. This option also allows you to order a looseleaf copy of the text for a reduced price, if you wish. The links to our Connect access

Brooker Text:

<http://connect.mheducation.com/class/jmoonfall17brooker>

Hartwell Text:

<http://connect.mheducation.com/class/jmoonfall17hartwell>

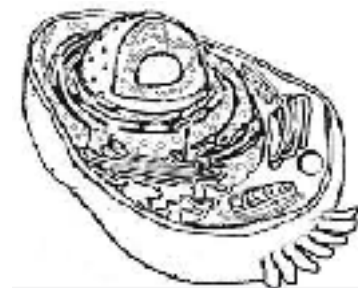


What is this course about?

To prepare you for upper division courses, BIO 315H will begin your journey with a survey of introductory concepts in Molecular and Cell Biology, served with a healthy dash of Genetics.

Genetics not only examines the transmission of traits, but the impact of inheritance mechanisms on populations and beyond!

Moreover, many topics debated in society today have their basis in Genetics: genetically modified organisms, stem cell research, genetic testing, cancer biology, gene therapy - just to name a few.



Therefore, a background in Genetics and Introductory Biology will support your career in Biology, if you decide to pursue that major, but will be applicable to your day to day life.

What are the required materials? (continued)

The cost: The Brooker and the Hartwell texts cost \$85 each (\$170 total) for one year of online access. The loose-leaf upgrade is available within Connect for \$25/ea book. Compare to the national price for both texts: \$445 before markup!]

Note: There is a two-week free "Courtesy Access" option available during registration if you are waiting on financial aid or aren't sure you are going to stay enrolled. Simply purchase when the courtesy access expires.

In-Class Response System

SquareCap: We will be using SquareCap in class, which allows you to respond to instructor questions, ask anonymous questions using the "Ask and Vote" feature, and get immediate feedback. The cost for the semester is \$8. Like the textbook access, you may use Squarecap free for the first two weeks. Log in and create an account at www.squarecap.com



Prerequisites

Biology 315H is the first course in a two-semester sequence (BIO 315H and BIO 325H) that integrates important concepts in general biology with a rigorous analysis of upper-division genetics. This course sequence is intended for students who entered UT with a score of 5 on the Advancement Placement Biology exam, but is also open to students of the College of Natural Sciences Dean's Scholars, Health Science Scholars or Polymathic Scholars program who completed one year or more of biology in high school.

What is expected of me in this class?

- Complete the reading assignments and quizzes
- **Attend** class and participate!
 - Look over the **Learning Objectives** for each class
 - Practice the **assigned and extra Homework Problems**. You have the answers and explanations in the Solutions Manual.
 - Attend **Discussion Sections** and work on assigned problems - these are your examples of exam questions!
 - **Review** the material covered in Lecture (see Lecture slides)

What happens in Lecture?

- You will **prepare** for every Tuesday and Thursday by doing the assigned reading and practice problems, as needed.
- Every class meeting has specific Learning Objectives associated with it. We will focus on these **Learning Objectives** during Lecture Class time.
- During class, I will talk about key aspects of the Learning Objectives, and you will solve problems and answer questions using **Squarecap**.
- You will have the opportunity to **ask** your peers, your TA, and me questions about the material.
- Note that while web-enabled devices are required for the course (to use Squarecap), I expect you to stay focused on the class content. If you use the device for unapproved activity (texting, surfing, shopping!) will receive a warning. A second violation will result in the loss of remaining Squarecap points for the semester since you will no longer be allowed to use your device to class.

Food for thought: there is strong evidence that *writing* (not typing) your notes is a much more effective way to retain new information.

Where can I find...?

Canvas will have the following:



1. Lecture slides
2. A list of Learning Objectives
3. Discussion work assignments and/or other homework assignments
4. Weekly Homework Quiz
5. Study Guide/Solutions Manual
6. Mid-semester exam keys
7. Important announcements
8. Gradebook
9. For convenience, you can get to Hartwell Connect page through our Class Canvas page. After you enter into BIO 315H, click on the "McGraw Hill Connect" link found on the left side navigation and select "Go to my section." (For Brooker, you will need to use the class link:
<http://connect.mheducation.com/class/jmoonfall17brooker>)

Connect can be used for:

1. Adaptive learning practice (called LearnSmart)
2. Access to the ebook

What happens in Discussion Section (DS)?

• Each week, you will work on a set of Discussion Section homework questions **on your own**. You'll turn this in at the start of DS.



• During DS you will work in small teams to complete the DS homework again, and ask questions if you had trouble. Your **TA can also answer any questions** you might have about the extra homework, reading, or the lecture class material.

• Each week, you will also have an individual homework assignment, which is not graded but supplements the DS work. The Weekly Homework Quiz (on Canvas) will be a problem(s) adapted from the DS and individual homework set of questions.

How can I contact my professor or TA?

Professor: Dr. Jen Moon

Office: NMS 2.104

Office Phone: (512) 232-4011

Email: jen.moon@austin.utexas.edu (but use Canvas for course related-email)

Office Hours*: Mon 10am-11am in RLM 6.112

Thurs 2pm-4pm in NMS 1.106

or by appointment (just email me!)



*My office hours are 'group-style' office hours. Please be welcome, even if you're not sure of what to ask or how to ask it! If you have a grade or personal concern, it's better to email me for an individual appointment.

Teaching Assistant: X [Redacted]

X

Teaching Assistant: X [Redacted]

X

Please use Canvas for course-related email communication!

Discussion Sections

48580	W	9a-10a	GDC 5.304
48585	W	8a-9a	GDC 6.202
48590	T	3 ³⁰ p-4 ³⁰ p	PHR 2.114
48595	T	2p-3p	RLM 5.112

What is the grading scale?

90-100	A
80-89	B
65-79	C
55-64	D
<55	F



May I attend any discussion section I want to each week?

No. You must attend the discussion section for which you are registered. **Exception:** if you want to permanently change the discussion section you attend (to accommodate work schedules, e.g.), you may do so provided we have the space. See your TA for details.

How is my performance in this class assessed?

There will be **4 exams** in the course: **3 Midterms** (Exams 1, 2, 3) and a **Comprehensive Final Exam**. The three midterms will consist of short answer problems and will be given during class time (see schedule). The higher two midterm exam score will be 46% of your final course grade. The lowest midterm exam score will only be 10% of your final course grade. We will also have weekly homework and quizzes, concept maps, and Squarecap questions to provide feedback on your progress between exams.

Your **final course grade** will be determined as follows:

- 46%** - Average of two highest midterm grades
- 8%** - Lowest midterm exam grade
- 32%** - Final exam grade
- 6%** - Weekly Homework Quizzes and Concept Maps (drop 2 of 15)
- 5%** - Discussion Work (11 2-part assignments) (drop 2 of 22)
- 3%** - Squarecap/in class participation (drop 2 days)

What is the make-up policy on exams and assignments?

- **Midterm Exams** According to UT policy, make-up exams may be given only if there is proper documentation of a UT-sanctioned reason (serious illness, death in the family, but **not** planned vacations, weddings, over-slept, etc). Please email Jen to discuss.
- **Discussion section work** You are allowed to miss two assignments without penalty. There are no make-up assignments.
- **Weekly Quiz and Concept Maps** You are allowed to miss two assignments without penalty. Late assignments will not be accepted.
- **Lecture class participation** You are allowed to miss two classes (and associated Squarecap points) without penalty. There are no opportunities for make-ups.

I really want to do well in this course. Any tips?

1. Do the assigned reading before coming to class.
2. Make sure you know the basics by using the adaptive LearnSmart modules. Remediate as necessary.
3. Do the assigned homework problems every week and make sure you understand them (not just 'look them over').
4. Do not fall behind!
5. Expect to spend at least 6 hours per week outside of class for review and study.
6. Ask questions, ask questions, ask questions. **Also**, ask questions.

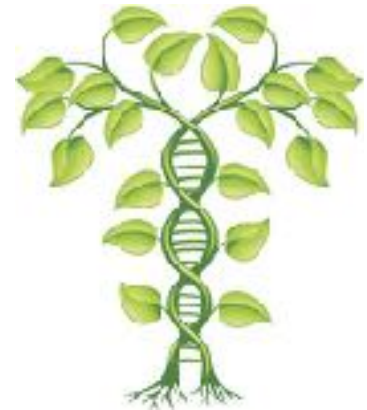


What is the exam regrade policy?

We do our best to grade fairly and accurately, but recommend you exercise some due diligence to ensure that the points on Canvas reflect those on your exam paper, and that the points on your exam have been tallied correctly. We will be using an online program called Gradescope (gradescope.com) for exam grading and for re-grade requests. It is a free service (and fully FERPA and ISO compliant), but you need to create an account. I will give you more information in class. If you have a question about an exam and simply want an explanation, please see your TA. If you discover a mathematical error or you take issue with how your answer was graded please submit a regrade request on Gradescope next to the question you are contesting, and include a full explanation of why you believe your answer is correct. This must be done **within ONE WEEK** after the exam has been returned to you. The TAs and I will assess the merit of your re-grade request.

Who is my instructor, anyway?

Hi there! Very nice to meet you. I'm Jen (yes, you can call me that), your instructor. It's been my privilege to teach several courses at UT such as Molecular Biology, Intro Biology I and II, Plant Physiology, Genetics, both semesters of Honors Genetics, as well as two upper division lab courses: Cell Biology Lab and Developmental Biology Lab. Unlike you guys, I went to a small, liberal arts school for college (Grinnell College in Iowa), where I got my B.A. in Biology. After taking two years off to work at a plant biotechnology company (DuPont/Pioneer), I headed to graduate school at Indiana University-Bloomington and earned my Ph.D. in Molecular, Cellular, and Developmental Biology (MCDB) with an emphasis on Plant Biology. I then went on to do a Postdoctoral Fellowship here at UT-Austin and fell in love with the university and Austin, TX. My research interest is the effect of light and gravity on plant gene expression and plant development. I'm looking forward to meeting all of you in class and in office hours, so please don't hesitate to drop by.



Warmly, *Jen*

University Policies and Non-academic Resources

More information about each of the following subjects is available on the associated UT website.

Academic Integrity: Ethical conduct is expected at all times. Unethical conduct (cheating on exams, quizzes, etc) may result in an automatic failing grade in the course and/or academic probation. If you have a question about whether a particular activity is considered unethical, ASK FIRST. See the UT Academic Policy.



Administrative Deadlines: It is your responsibility to keep track of the deadlines for dropping the course, changing to Pass/Fail, etc.

Behavior Concerns Advice Line (BCAL), Counseling, and the Mental Health Center Crisis (MHCC) line: College can be pretty stressful and sometimes we need a little help. Luckily, we have a wealth of resources and dedicated people ready to assist you.

- If you are experiencing a **mental health** crisis (depression, anxiety, e.g.) call the MHCC line at **512-471-CALL (2255)**. Call even if you aren't sure you're in a full-blown crisis, but sincerely need help. Staff are there to help you.
 - Alternatively, you can talk to **Amy Trinh**, our LPC (licensed professional counselor) right here in CNS, by walking over to her office **WC Hogg 2.214**, or calling her at **512-471-7162**. She usually has daily office hours for drop-ins.
- If you have a **behavioral concern about someone else** and need some advice on what to do, you may call BCAL at **512-232-5050** to talk with someone about it. The call is confidential, and you decide how much information you'd like to share.
- Of course, if you feel the behavior requires **immediate attention**, (e.g. person is of harm to self or you feel threatened), call **911** directly.

General UT information: Recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety/>. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building. Link to information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency.

Personal or Family Emergencies: If you experience a personal or family emergency (death in the family, protracted sickness, serious mental health issues) that prevents you from attending an exam or forces you to miss multiple days of class, you should contact Student Emergency Services in the Office of the Dean of Students <http://deanofstudents.utexas.edu/emergency/index.php>. They will work with you to communicate with your professors and let them know of your situation.

Religious Observances: By UT Austin policy, you must notify me of your pending absence at least fourteen (14) days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Students with Disabilities: All procedures outlined at <http://www.utexas.edu/diversity/ddce/ssd/index.php> will be followed in this course. Please provide proper documentation from the SSD Office at the beginning of the semester.

Schedule of topics (subject to change)

Day/ Date	Class	Hartwell Genetics **	Brooker Biology	Topic	Optional LearnSmart Module
	**Hartwell is the primary text. Discussion Section (DS) Assignment due at your DS start time (print and turn-in); Weekly Homework Quiz due by Friday at 11:59pm (Canvas)				
	Unit 1: The Nature of Genetic Information				
Thurs Aug 31	1	Ch. 1 & 6.1-6.3	Ch. 11.1- 11.2	Introduction to Genetics, Nucleic Acid Structure (*Review Quiz on Connect by Mon Sept 4 11:59p*)	LS 1
	Discussion Section Work 1 due in DS, week of Sept 4 (print and turn in); Hmwk Quiz 1 due by Friday Sept 8 (on Canvas)				
Tues Sept 5	2	Ch. 6.4 & 10.2	Ch. 11.3- 11.4, 20.4	DNA replication and PCR	LS 2
Thurs Sept 7	3	Ch. 9.3	Ch. 20.2	DNA sequence determinations	LS 3
	Discussion Section Work 2 due in DS, week of Sept 11; Hmwk Quiz 2 due Friday Sept 15				
Tues Sept 12	4	Ch 4.1, 4.3-4.4	Ch. 15.1- 15.3	Chromosomes, meiosis and mitosis	LS 4
Thurs Sept 14	5	Ch. 7.1 - 7.2	Ch.14.1 - 14.3	Mutations and repair	LS 5
	Discussion Section Work 3 due in DS, week of Sept 18; Hmwk Quiz 3 due Friday Sept 22				
Tues Sept 19	6	Ch. 8.1- 8.3	Ch. 12.1, 12.2, 12.4, 12.6	Transcription, translation, and the genetic code	LS 6
Thurs Sept 21	7	Ch. 7.4	Ch. 3.6 & 6.1 - 6.2	Protein structure and function	LS 7
	Discussion Section Work 4 due in DS, week of Sept 25; (*no quiz this week*)				
Tues Sept 26	8	Ch. 2.1	Ch. 16.1	(Finish up Exam 1 material if needed); Mendelian genetics	LS 8
Thurs Sept 28	MIDTERM EXAM 1: Lectures 1- 7 Concept Map 1 due (Canvas)				

Day/ Date	Class	Hartwell Genetics **	Brooker Biology	Topic	Optional LearnSmart Module
		Unit 2: Genes, Alleles, and Chromosomes (oh my!)			
		No Discussion Sections, week of Oct 2; Hmwk Quiz 4 due Friday Oct 6			
Tues Oct 3	9	Ch. 2.2- 2.3	Ch. 16.6	Mendelian genetics, probability and transmission genetics	LS 9
Thurs Oct 5	10	Ch. 3.1	Ch. 16.5	Extensions to Mendel for single gene inheritance	LS 10
		Discussion Work 5 due in DS, week of Oct 9; Hmwk Quiz 5 due Friday Oct 13			
Tues Oct 10	11	Ch. 3.2	Ch. 17.1	Extensions to Mendel for multifactorial inheritance	LS 11
Thurs Oct 12	12	Ch. 4.2, 4.6, 4.7	Ch. 16.4	Breakin' the law: sex-linkage	LS 12
		Discussion Work 6 due in DS, week of Oct 16; Hmwk Quiz 6 due Friday Oct 20			
Tues Oct 17	13	Ch. 12.1 - 12.2 - 12.4	Ch. 15.4	Chromosome rearrangements, transposons, and aneuploidy	LS 13
Thurs Oct 19	14	Ch. 5.1 - 5.2	Ch. 17.2	Linkage and mapping I	LS 14
		Discussion Work 7 due in DS, week of Oct 23; (*no quiz this week*)			
Tues Oct 24	15	Ch. 5.3	Ch. 17.2	Linkage and mapping II	LS 15
Thurs Oct 26		MIDTERM EXAM 2: Lectures 8- 15 Concept Map 2 due (Canvas)			

Day/ Date	Class	Hartwell Genetics **	Brooker Biology	Topic	Optional LearnSmart Module
Unit 3: Gene Expression and Regulation					
No Discussion Sections, week of Oct 30; Hmwk Quiz 7 due Friday Nov 3					
Tues Oct 31	16	-	Ch. 4.1- 4.6	Eukaryotic cell compartments, cell traffic, and protein sorting	LS 16
Thurs Nov 2	17	-	Ch. 5.1- 5.3	Membranes, transport, and gradients	LS 17
Discussion Section Work 8 due in DS, week of Nov 6; Hmwk Quiz 8 due Friday Nov 10					
Tues Nov 7	18	Ch. 8.4, 13.1-13.3; 15.1-15.2	Ch. 18.4 -18.5	Bacterial genetics and gene regulation	LS 18
Thurs Nov 9	19	Ch. 16.1-16.3	Ch. 13	Gene regulation in eukaryotes I (Transcription initiation; epigenetics)	LS 19
Discussion Section Work 9 due in DS, week of Nov 13; Hmwk Quiz 9 due Friday Nov 17					
Tues Nov 14	20	Ch.16.4	Ch. 13	Gene regulation in eukaryotes II (Post-transcriptional control)	LS 20
Thurs Nov 16	21	-	Ch. 9.1 -9.3	Cell communication, receptors, and signal transduction	LS 21
No Discussion Sections, week of Nov 20; (*no quiz this week*)					
Tues Nov 21	MIDTERM EXAM 3: Lectures 16- 21 Concept Map 3 due (Canvas)				
Thurs Nov 23	Thanksgiving Holiday				

Day/ Date	Class	Hartwell Genetics **	Brooker Biology	Topic	Optional LearnSmart Module
		Unit 4: Cancer and Biotechnology			
		Discussion Section Work 10 due in DS, week of Nov 27; Hmwk Quiz 10 due Friday Dec 1			
Tues Nov 28	22	Ch. 9.1 -9.2; 9.5-9.8	Ch. 20	Digital analysis of genomes	LS 22
Thurs Nov 30	23	Ch.17.1 -17.4	-	Transgenic organisms (Special Topic: CRISPR/Cas9)	LS 23
		Discussion Section Work 11 due in DS, week of Dec 4; Hmwk Quiz 11 due Friday Dec 8			
Tues Dec 5	24	Ch. 19.1 -19.3	Ch. 14.4 & 9.5	Understanding cancer as a genetic disease I	LS 24
Thurs Dec 7	25	Ch.19.4 -19.5	-	Understanding cancer as a genetic disease II Concept Map 4 Due Mon, Dec 11	LS 25
Mon Dec 18		COMPREHENSIVE FINAL EXAM: 9:00AM-12:00PM The Final Exam is scheduled by UT during Final Exam week and this time and day is not negotiable. Location TBA			