

THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
Department of Biological Sciences

Course #: BIOL 3320 CRN# 13705
Course Title: Genetics
Credit Hrs: 3
Term: Fall 2018
Course Meetings & Location: PSCI #115, Mondays & Wednesdays 3:00–4:20 PM
Prerequisite Courses: BIOL 1305-1107; BIOL 1306-1108
Instructor: Eli Greenbaum, Ph.D.
Office Location: Biology 301 (between Classroom & Biosciences Buildings)
Contact Info: Phone # 747-5553; Fax # 747-5808
E-mail address: egreenbaum2@utep.edu
NOTE: **please do NOT email me on Blackboard**
Emergency Contact: (Cell) 785-393-3583 *emergencies only please*
Office Hrs: Tuesdays 1:00–3:00 PM, Wednesdays 9:30 AM–11:30 AM; email for other
appointment times
Textbook(s), Materials: Required: Pierce, Benjamin. 2016. *Genetics: A Conceptual Approach*. 6th
Edition. W. H. Freeman, ISBN: 1319050964. Recommend purchase
of eBook and required Sapling Plus homework website for \$90 at:
<http://www.saplinglearning.com/login>

Sapling Learning Homework:
<http://www.saplinglearning.com/login>
NOTE: No Key Code required

Greenbaum, E. 2017. *Emerald Labyrinth: A Scientist's Adventures
in the Jungles of the Congo*. ForeEdge (imprint of University Press
of New England), ISBN 1512600970.

Course Objectives (Learning Outcomes): At the end of this course, students will understand the nature and functions of hereditary material, with emphasis on the experimental procedures and data that have led to the current concepts in genetics.

Course Activities/Assignments: We will occasionally work on problems during classtime in groups (maximum 4 students per group) for about 10–15 minutes. Students are expected to read assigned chapters **before** class, and to practice with problems at the end of the chapters and Sapling Learning on their own, or in study groups outside of class to ensure adequate understanding of the material. Students are expected to bring a calculator to every class, including exams, and for calculation-based problems, work must be shown for full credit. Time constraints will not allow for all scheduled topics to be covered during classtime, and in these cases, students are still responsible for material that is posted in Powerpoints on Blackboard and in assigned readings. Some scheduled topics may not be covered at all. Because some questions on the final exam are used every semester, students may request to review the final exam with the professor, but it will not be returned to the student.

Assessment of Course Objectives: Students will be assessed on the course objectives from four exams, attendance/punctuality, participation in group problems during classtime, and Sapling Learning online homework problems. Dates of exams are provided in advance (see course schedule below), but are subject to change because of canceled classes, etc. Classtime group problems will occur without prior warning, and for this reason, Powerpoints will not be posted in advance. **Note that once a group problem or exam is turned in, the student cannot request to modify it—students should not turn in these problems/exams until they are sure their answers are complete.**

Grading Policy: Each of 4 exams will include multiple choice questions. All four exams will: (1) include one bonus question such that it will be possible to receive a grade of 103%; (2) not be cumulative; and (3) not be curved. Note that the 1 point for writing one's name on the hard copy of the exam and the SCANTRON is not a bonus point—failure to do this will result in the loss of one point from the exam grade. **The lowest of the first THREE exams will be dropped; note that the final cannot be dropped, and failure to take the final exam will result in a grade of F.** Each of the three counted exams will be worth 30% of the final grade; failure to bring an undamaged, unfolded green SCANTRON to class on the day of exams will result in a penalty of 5 points to the exam grade. Be sure to mark your SCANTRON after you have determined your final answer for a question—poorly erased bubbles in the SCANTRON will be marked wrong and no credit will be given. With the exception of the final, exam grades are not normally posted on Blackboard, and students will be informed of their grade when they are handed back in class. **Ten percent** of the final grade will be assessed from group problems during classtime, attendance/punctuality, participation in Sapling Learning online homework problems, and adherence to the civility and academic integrity statements below. To receive full credit for group problems, **students must show all work.** Final grades for the course will be as follows: 90–103: A; 80–89: B; 70–79: C; 60–69: D; < 60: F. **Please note that I do not provide grades of any kind via email OR phone; students must come to office hours to receive grades if they are not present to get them in class.** At the discretion of the professor, students who are within 0.5 point of the next-highest letter grade (e.g., 89.5) may be assigned a better grade, depending on their overall performance in the course, class attendance, homework, and other considerations explained below.

Sapling Homework: The online Sapling homework is meant to provide extra practice for genetics problems, to reinforce concepts discussed in class, and to provide additional enrichment and breadth of knowledge. Sapling access costs \$90, but includes an ebook version of the textbook—it is not possible to pay less if students do not wish to have access to the ebook (this is the policy of Sapling, not the professor!). A grace period of 2 weeks is allowed for students at the beginning of the semester to pay for this access, but any missed assignments after the grace period (due to non-payment) will receive a grade of zero, and thus students who take this course must plan their finances accordingly. With few exceptions (e.g., population genetics, evolutionary genetics, epigenetics), homework assignments will be due within 7 days—it is the student's responsibility to check deadlines for all assignments at the beginning of the semester and mark their calendars to ensure no deadlines are missed. Extensions for homework assignments will not be granted unless written documentation is provided for medical illness, death in the family, or university-sponsored activity. Sapling reading quizzes and homework assignments are included in the class participation portion of the grade along with group problems, attendance/punctuality, and adherence to the civility and academic integrity statements (10%). Note that learning curve and animation activities on Sapling are provided at the discretion of the professor for additional enrichment, but they are optional and are not included in the course grade calculations. Credit will be given for assignments for which most of the questions are answered correctly (i.e. > 50% score). For each reading quiz or homework that is not completed, or for which the score is < 50%, the student will be penalized 0.5% for the class participation portion of the final grade. See example below to understand how the homework affects the final grade calculation.

Review Sessions: Because the class meets only twice a week, it is not possible to hold review sessions for exams. However, the majority of the exams are based on the Powerpoints, in-class group problems and lectures, and students should focus on them for the majority of their studying. A small portion of exam questions will be based on the Sapling Homework and textbook.

- Example Grade Calculation: This final course grade example is provided to ensure clear understanding for students taking the course. Let's say a student receives the following exam grades: EXAM 1: 85; EXAM 2: 75; EXAM 3: 55; FINAL EXAM: 70. The lowest exam that is NOT the final is dropped, and so the failing grade from Exam 3 goes away. The average of the remaining three exams is: $85 + 75 + 70 = 230/3 = 76.67$. Because 90% of the final grade is based on these exams, we then multiply $76.67 \times 0.90 = 69$. Now let us consider the 10% of the final grade which is based on the group problems (most important), Sapling homework, and class participation. If there are 7 group problems over the course of the semester, let's say the student has the following grades: 75, 60, 50, 100, 50, 100, 0. The average of these group problems is: 62.14. If the student has attended every class on time, and did not have any problems with adherence to the civility/academic integrity rules (see below), then we consider Sapling. If the student received a grade of at least 50% for all the completed Sapling reading quizzes and homework assignment problems, then we multiply the group problem average by 10% or 0.10. But for our example, let's say the student missed two assignments, for a penalty of 0.5% for each one. So we would then multiply the group problem average of $62.14 \times 0.09 = 5.59$. For the final grade, we then add $5.59 + 69$ for a final score of 74.59, which is a C.
- Make-up Policy: Makeup exams will be offered to students who miss a scheduled exam because of illness, death in the family or university-sponsored activity, **but written documentation must be provided within 2 weeks of the missed exam.** Makeup exams will not necessarily conform to the scheduled exam format, and often consist of several essays worth 10–25 points each. There will be no makeup group problems, but with excused absences, missed group problems will be dropped from the final grade calculation. **NOTE: Final grades will be submitted within 24 hours after the final exam;** thus, final exam makeups must be completed within 24 hours of the scheduled final exam.
- Extra Credit: Note that with the exception of one bonus question on each exam, no extra credit will be given for any assignment at any time during the entire duration of this course. Requests for extra credit assignments will be denied—no exceptions.
- Attendance Policy: **Attendance and punctuality are a significant portion of your grade in this course.** Valid excuses for tardiness/missing class include illness, vehicle breakdown, death in the family, or university-sponsored activity, but **all valid excuses must be accompanied by written documentation**, including illness/death in the family, to receive credit. Students who miss group problems or exams without written documentation will receive a grade of zero. If a student is not present in class when exams/group problems are being handed back, they will be noted as late/absent and have to pick up their work during office hours, even if they arrive to class late. I will monitor attendance/punctuality on a regular basis throughout the semester.

- Powerpoints:** Powerpoints will be posted within a few hours after the completion of class. Powerpoints are not posted in advance because they contain the in-class group problems, which are not announced in advance. Occasionally I will assign videos for students to watch from websites including CBS News, BBC News, YouTube, New York Times, and other sites with stories relevant to class. If videos don't load for you on the first attempt, it is the student's responsibility to try different web browsers to view the videos. I will monitor these websites prior to class, but if for any reason the website is not working, it is the student's responsibility to bring this to my attention at least 2 days before a given exam so that I can omit any questions that are related to these videos.
- Office Hours:** Office hours are meant to discuss challenges that students are having in the course, and to receive advising about ways to improve performance. Students who have specific questions about the class materials are welcome to discuss them with the professor, but note that office hours are not meant for general tutoring of the course. Occasionally, office hours will be canceled or rescheduled, depending on demands on the professor for research, service, and departmental seminars. Students are always welcome to email the professor to request appointments if they cannot make regularly scheduled office hours, or if they are canceled/rescheduled.
- Honors Credit:** Students interested in Honors credit for the course must obtain an Honors Contract from the UTEP Honors Program and request a meeting with me **within 30 days of the start of the semester**. To receive this credit, students must receive a grade of A on EVERY exam AND complete TWO drafts of a 10-page research paper, which generally requires several weeks of additional work over the course of the semester. Students must carefully consider other time commitments to ensure success.
- Academic Integrity Policy:** Because of the opportunity for cheating, bathroom visits during exams are not permitted; students who must leave during the exam for any reason will have their exams graded whether completed or not. Students working in a group for in-class group problems must only include the name of the students who are present to work in the group—if the group includes the name of a student who is not present, all students in the group fail the course. **Sharing of calculators or use of calculator features of computers, cell phones, ipads, Apple watches, and other “smart devices” during exams/group problems will not be permitted.** The UTEP policy on academic honesty can be found at: <http://academics.utep.edu/Default.aspx?tabid=23785>. All students will be expected to adhere to this policy.
- Civility Statement:** Students are expected to be actively engaged in taking notes and class activities during the brief time we meet each week. This means that students should not: (1) converse with classmates during lectures; (2) use cell phones during class (including texting); (3) use laptop computers for any purpose other than note taking; or (4) otherwise disrupt your fellow students from learning and active participation. I do not have time to correct such behaviors during class, but violators will be noted and penalized heavily at the end of the semester.
- Disability Statement:** If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass. Requested accommodations must be made 3 working days before an examination. **All students requesting disability accommodations must request a meeting with me to discuss the details before they will be implemented, preferably at the beginning of the semester.**
- Military Statement:** If you are a military student with the potential of being called to military service and/or training during the course of the semester, please contact me within the first two weeks of class to arrange in advance for makeup exams, etc.

Dropping the Course: Students are cautioned to consider dropping the course if they are performing poorly **BEFORE** the drop deadline (see below for date). You must drop this class yourself – I will not automatically drop you if you just stop attending. However, I reserve the right to drop you if you register for the course and never show up to class. Also remember that courses may only be repeated a total of 3 times, and a “W” counts as one. **The College of Science will remain aligned with the University and not approve any drop requests after the drop date.** Note that if a student has an advisor submit a drop request after the drop deadline without permission from the dean, I will be asked to assign a grade by the registrar, and that grade will be F.

Incomplete Grades: All grades of Incomplete must be accompanied by an Incomplete Contract that has been signed by the instructor of record, student, departmental chair, and the dean. Although UTEP will allow a maximum of one year to complete this contract, the College of Science requests it be limited to one month based upon completion data. A grade of Incomplete is only used in extraordinary circumstances confined to a limited event such as a missed exam, project, or lab. If the student has missed a significant amount of work (e.g. multiple assignments or tasks), a grade of Incomplete is not appropriate or warranted.

Course Schedule:

<u>Lecture Schedule</u>	<u>Topic/Exam</u>	<u>Relevant Reading</u>
		P = Pierce, G = Greenbaum
M Aug 27	Objectives & Introduction	P Chapter 1
W Aug 29	DNA: basic genetic material	P Chapter 10
M Sep 3	*****LABOR DAY NO CLASS*****	
W Sep 5	DNA Replication	P Chapter 12
M Sep 10	Transcription	P Chapter 13
W Sep 12	RNA Molecules/Processing	P Chapter 14 & 15
M Sep 17	Translation	P Chapter 14 & 15
W Sep 19	EXAM 1	
M Sep 24	Mutation & Repair	P Chapter 18
W Sep 26	PCR & DNA Technology	P Chapter 19
M Oct 1	Pedigree & Genetic Testing	P Chapter 6
W Oct 3	Mendel and Genetics	P Chapter 3
M Oct 8	Chromosome/Sex-Linked Genetics	P Chapters 2 & 4
W Oct 10	Allelism, gene expression, etc.	P Chapter 5
M Oct 15	EXAM 2	
W Oct 17	Population Genetics I	P Chapter 25
M Oct 22	Population Genetics II	P Chapter 25
W Oct 24	Non-Mendelian Inheritance	P Chapters 5 & 11
M Oct 29	Evolutionary Genetics I	P Chapter 26
W Oct 31	<i>Emerald Labyrinth</i> reading day	G Chapter 11
Fri Nov 2	***** DROP DEADLINE *****	
M Nov 5	Congo Intro G Chapter 1, pp. 73–74, 77–83, 88–90, 177–180	
W Nov 7	Congo Research G pp. 105–113, 221–224	
M Nov 12	EXAM 3	
W Nov 14	Genomics/Proteomics	P Chapter 20
M Nov 19	Quantitative Genetics	P Chapter 24
W Nov 21	Break for Thanksgiving (no class)	
M Nov 26	Genetics of Development	P Chapter 22
W Nov 28	Cancer Genetics	P Chapter 23
M Dec 3	Eukaryote Gene Mapping	P Chapter 7
W Dec 5	Epigenetics	P Chapter 21
M Dec 10	FINAL EXAM 1-3:45 PM regular meeting place	