BIOL 3060: Principles of Genetics, Spring 2017

Course Description

This course provides an introduction to the basic principles of transmission, population, and molecular aspects of modern genetics, and is intended for those pursuing further study in biology and related fields. This course prepares students for upper-division biology courses as well as professional programs. Students will understand molecular mechanisms of inheritance, and how both genetic and environmental factors influence traits in organisms. We will also explore recent advances in biomedical research and their applications to human disease.

Course Objectives

In this course, you will:

- gain **factual knowledge** (terminology, classifications, methods, trends)
- learn **fundamental principles, generalizations, or theories**
- learn to **apply course material** (to improve rational thinking, problem solving, and decisions)

Course Instructor: Dr. Jessica Habashi

Contact information: Use the Canvas inbox (allow 24 h for a response; expect delays on weekends/holidays).

Office location/office hours:

- Room 171B, Milton P. Miller Bldg. (195 W. 1100 S., Brigham City); Tuesdays, 7:00–7:45 PM and by appointment

Class meetings

Sections	Lecture
Brigham	T/R, 8:00-9:30 PM (Miller Bldg. Room 165)

Required materials*

1. Genetics Essentials: Concepts and Connections, 3rd edition, by Benjamin A. Pierce (2016, W. H. Freeman and Company). ISBN: 978-1-4641-9075-9
2. Additional reading materials will be posted on Canvas.

***The text can be purchased from the USU Campus Store. Go to "http://campusstore.usu.edu/" or call 800-662-3950.

General Course Requirements

You are required to attend and actively participate in all lectures, and to complete all assigned readings before coming to each class meeting. This is a challenging course with a lot of interesting material to cover; **1–2 hours of study per day outside of class time is suggested.** Read the syllabus carefully and discuss any questions with your instructor. Adjustments may be made to the class schedule during the semester; however, exam dates will not change. Adjustments will be posted on Canvas.

Grading

Grades will be based on the following assessments. All scores in the grade book (except the final exam) will be considered finalized on Friday, 4/28/17, at 5:00 PM. No special projects will be offered to improve your grade.

Evaluation method	# of points possible
Lecture Assignments and Participation	50
Lecture Exams	400
Final Exam	200
TOTAL	**650**

Lecture Assignments and Participation

Regular attendance and participation are an essential part of this course. To promote this, in-class assignments based on the day's assigned readings/lecture material will be administered at random points during the semester. These assignments are due when called for; therefore, it is vital to arrive to class on time and not to leave early. No late assignments will be accepted, and there are no makeups, so it is important that you attend every class meeting.

Lecture Exams

There will be 5 lecture exams, each composed of 50 questions and worth 100 points each, given on the dates listed in the schedule. You will take each exam at a USU testing center. It is your responsibility to make your own testing center appointments, and picture ID will be required for each exam. **No make-up exams will be given for any reason**; however, the lowest of your 5 scores will be dropped. Exam questions will be formulated based on the assigned readings, lectures, handouts, videos, articles, class discussions, demonstrations, assignments, and other materials distributed in class or posted on Canvas. You may bring a pen/pencil and basic calculator to each exam.

- You will have 1 full week from the date of each lecture exam to contest your score. **Submit all questions via the Canvas inbox to Dr. Habashi.** After the week is up, no score adjustments will be considered.
- **You are invited to meet with Dr. Habashi any time before 5:00 PM on 4/26/17 to view your exams.**

Final Exam

A comprehensive final exam worth 200 points will be given from Monday, 5/1/17, to Tuesday, 5/2/17. You will take the final at a USU testing center. You will need to make your own testing center appointment, and photo ID will be required. **There is no make-up for the final. The exam may not be taken early, except in exceptional circumstances and with prior approval from Dr. Habashi.**

Grading scale (grades are not rounded):

Percentage	Grade
93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
60-66%	D
59% and below	F

Classroom Policies and USU Student Information

Unacceptable Classroom Behavior:

Behavior that disrupts the learning/teaching environment will be discouraged. If you engage in disruptive behavior, I will ask you to stop. If it happens again, you may be asked to leave the room (and possibly the course) so that other students can benefit from the limited amount of class time available. Course facilitators will report disruptive behavior to the instructor.

1. Once class has started, **all cell phones must be put away (not on your desk, in your hand, or on your lap)**. No outside conversations are permitted. Use of laptop computers is permitted only for purposes related to the class.
2. Only students registered for the course are allowed to attend class sessions. Children, spouses, friends, etc. of students will not be permitted in the classroom during class.

For a full description of USU's policy on classroom incivility, see *http://www.usu.edu/policies/pdf/Classroom-Incivility.pdf*.

Withdrawal Policy and "I" Grade Policy:

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of 2 weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Student Athletes:

Student athletes who will miss class due to team travel must make arrangements with Dr. Habashi through Canvas **at least 10 days prior to the date of travel**. Written documentation from USU is required before any accommodations will be considered.

Course Conflicts:

Students with a course conflict due to a University-sponsored event or another USU course must contact Dr. Habashi through the Canvas inbox **at least 10 days prior to the date of the conflict** to request accommodations; otherwise, no accommodations will be considered. Written documentation from USU staff/faculty will be required before any accommodations will be considered.

Honor Code Policy:
As stated in The Student Code, "Each student has the right and duty to pursue his or her academic experience free of dishonesty. The Honor System is designed to reinforce the higher level of conduct expected and required of all Utah State University students." Upon admission to the university, you agreed to abide by this Honor Code by signing the Honor Pledge, which reads: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity." Complete academic honesty is expected in this course. Cheating on exams or plagiarism on written assignments will result in a failing grade and may result in further action according to University policy.

Accommodation for Disabilities:
Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. Brigham City/BATC students should contact Jill Rasmussen, Director of Students, Room D102, (435) 919-1246. At other USU campuses, contact your advisor. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn on the Logan Campus, (435)797-2444 voice, (435)797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible to ensure that your request can be considered. Alternate format materials (Braille, large print, or digital) are available with advance notice.

Grievance Process:
Students who feel they have been unfairly treated...may file a grievance through the channels and procedures described in the Student Code: *http://www.usu.edu/studentservices/pdf/StudentCode.pdf#page=3* (Article VII. Grievances, pp. 27-36).

Course communications:
Email is an official form of communication at USU. Any communication to you about this course will be sent to the email address you have listed in Canvas as your preferred address. You are responsible for any information conveyed to you at that email address.

To ensure that Canvas is using the email account you prefer, do the following:

- Log in to Canvas and click on the link "Profile" at the top right of the page.
- Click on "Notifications" at the left side of the screen.
- Verify your email address.
- You may also opt to receive course notifications via text on your cell phone. Click the downward arrowhead to the right of "Email me at" on the "Notifications Preferences" page to bring up the option "Text my Cell at."

It is your responsibility to check your Canvas account at least once a day so that you do not miss out on announcements or emails to the class. All questions regarding academic progress or grades must be sent via Canvas.

To log in to Canvas, go to: canvas.usu.edu (no "www"). Your username is your Banner username (your "A" number) and your password is your BANNER password. BIOL 2060 should appear under the heading "Courses."

- **For help with Canvas**, contact the IT service desk: **435-797-HELP (4357)** or 1-877-878-8325.

Diversity Statement:
Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact one of the following: at USU Brigham City, contact Jill Rasmussen, Room D102, (435) 919-1246; at other regional campuses, contact your advisor, or; Moises Diaz, Director of Multicultural Student Services (435) 797-1733, moises.diaz@usu.edu; James Morales, Vice President of Student Services (435) 797-1712, james.morales@usu.edu; Ann Austin, Vice Provost for Faculty Development and Diversity, ann.austin@usu.edu; Maure Smith, GLBTA Services, maure.smith@usu.edu; Steven Russell, Student Advocate (435) 797-1720, s.r.@aggiemail.usu.edu. You can learn about your student rights by visiting: *www.usu.edu/studentservices/studentcode*.

Anticipated Weekly Schedule

Week	Date	Topic (Lecture #)	Chapter (Text pages)
1	1/10	Course intro / Introduction to genetics / DNA	1, 8.1-8.3 (pp. 1-15, 207-219)
1	1/12	Genes are segments of DNA that carry information for making RNAs & proteins: Transcription & RNA processing	10 (pp. 259-288)

2	1/17	Genes are segments of DNA that carry information for making RNAs & proteins: Transcription & RNA processing	10 (pp. 259-288)
2	1/19	From DNA to proteins: Translation	11 (pp. 289-306)
3	1/24	****LECTURE TEST 1**** during testing center open hours	
3	1/26	DNA replication and recombination	7.1, 9 (pp. 177-182, 233-257)
4	1/31	Chromosomes and reproduction	8.4-8.6, 2 (pp. 220-232, 17-41)
4	2/2	Basic principles of inheritance	3 (pp. 43-73)
5	2/7	Extensions and modifications of basic concepts	4 (pp. 75-114)
5	2/9	Linkage	5.1, 5.2, 5.4 (115-129, 138-148)
6	2/14	****LECTURE TEST 2**** during testing center open hours	
6	2/16	Chromosomal variation	6 (pp. 149-176)
7	2/21	☺***No Class*: Go to your Monday classes instead!**	
7	2/23	Inheritance in bacteria and viruses	7 (pp. 177-206)
8	2/28	Regulation of gene expression	12 (pp. 307-343)
8	3/2	Regulation of gene expression	12 (pp. 307-343)
9	3/7	☺***No Class*: Spring Break**	
9	3/9	☺***No Class*: Spring Break**	
10	3/14	****LECTURE TEST 3**** during testing center open hours	
10	3/16	Gene mutations and repair	13 (pp. 345-370)
11	3/21	Population genetics	18 (pp. 469-500)
11	3/23	Biotechnology and molecular genetics	14 (pp. 371-401)
12	3/28	Biotechnology and molecular genetics	14 (pp. 371-401)
12	3/30	****LECTURE TEST 4**** during testing center open hours	
13	4/4	Genomics and proteomics	15 (pp. 403-425)
13	4/6	Cancer genetics	16 (pp. 427-443)
14	4/11	Cancer genetics	16 (pp. 427-443)
14	4/13	Quantitative genetics	17 (pp. 445-467)
15	4/18	****LECTURE TEST 5**** during testing center open hours	
15	4/20	Quantitative genetics	17 (pp. 445-467)
16	4/25	Epigenetics	TBA
16	4/27	Epigenetics	TBA
17	5/1 and 5/2	****COMPREHENSIVE FINAL EXAM**** during testing center open hours	