BIOSC 0350 GENETICS
Spring 2017 Syllabus

Faculty
Dr. Lesley Ashmore
A353 Langley Hall
412-648-7867, lja7@pitt.edu

Student Hours: Tues & Thurs 11:00 AM – 12:00 PM, or by appointment.
   Tuesday location: Clapp 102 conference room
   Thursday location: Clapp 315 conference room

I have an open door policy: if my door is open outside of set student hours, I am happy
to talk even without appointments. I also encourage you to take advantage of the TAs
and UTAs who will each have student hours of their own. My office is located in the
hallway between Clapp and Langley, on the third floor (the “bridge”). It’s one floor
above the biology advising office.

Teaching Assistant
Office hours TBD

Lecture Time
Tuesday/Thursday, 9:30 AM - 10:45 AM, 169 Crawford Hall

Recitation Times
Tuesday 11-11:50 AM in A214 Langley Hall
Wednesday 9-9:50 AM in 241 Crawford Hall
Wednesday 10-10:50 AM in 241 Crawford Hall
Wednesday 2-2:50 PM in A214 Langley Hall

You must be registered for the lecture and for one recitation section.

Course Objectives
The goal of this course is to provide students with an overview of genetics from the
work of Mendel to the current understanding of the gene at the molecular level.
Lectures will introduce basic concepts and terminology, as well as emphasize the
importance of experimental approaches used to understand genetics. We will use
problems to illustrate concepts and show practical application of genetics to current
situations. Additional use of textbook problems and graded problem sets will help
students develop critical thinking and problem solving skills.

Prerequisites
You must have passed Foundations of Biology 2 (BIOSC 0160 or equivalent) and
General Chemistry 2 (CHEM 0120 or equivalent) with a C or better before taking BIOSC
0350.

Textbook
Required: The textbook for this course is Genetics: From Genes to Genomes, 5th Ed

Recommended: Study Guide/Solutions Manual to accompany Genetics: From Genes
to Genomes, 5th Ed by Nero.

Reserve Materials
The textbook and study guide/solutions manual are on reserve in Langley Library.
Other genetics textbooks and problem books are also available there. You are
encouraged to use these as resources for additional practice problems.

CourseWeb and other course-associated websites
We will be using CourseWeb to post a portion of the course materials. The syllabus
and schedule, lecture images, chapter reading assignments, additional practice
problems, answer keys, and announcements will be available at
http://courseweb.pitt.edu. Log in on the main page. You will then have access to
your “My CourseWeb” page, which has links to all of the courses for which you have
registered that are using CourseWeb. If you need help, contact the computer help
desk at 412-624-HELP.

There is a Facebook page associated with this class, intended to be a place for
questions, clarifications, collaboration, and course announcements. Participation is
encouraged but not mandatory. The group can be accessed by joining groups at Pitt
(https://www.facebook.com/groups/groupsuopitt/) using your Pitt ID, then
searching for “Genetics 0350, Spring 2017, Dr. Ashmore.”

E-mail Communication
Policy

Although e-mail will not be used routinely in this class for communication, occasionally
we may send out an e-mail notice using the University e-mail addresses available
through CourseWeb. Such notices are also posted as Announcements on CourseWeb.

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 serviced 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, including those associated with this course. To forward e-
mail sent to your University account, go to 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.)

Lecture and Exam
Schedule

The schedule for this course is attached. Please note the dates of the mid-term and
final examinations to avoid any future scheduling conflicts. Each of the three mid-term
exams will be given during the regular class meetings. The final exam will be held
Tuesday, April 25, 12:00-1:50 AM in 169 Crawford. Please note that the final exam
time is set and cannot be moved—make your travel plans accordingly.

Three mid-term exams are scheduled, worth 100 points each. If you take all three
mid-term exams, the lowest score will be dropped. If you miss one of the mid-term
exams for any reason, this will be designated as the dropped exam. There will be no
make-up mid-term exams. Each mid-term exam will build on problem-solving
methods and basic genetics skills you acquired for previous exams. All students are
required to take the final exam, which will include comprehensive problems.

Recitation

The recitation for BIOSC 0350 is an important component of this course. The teaching
assistant will review lecture topics and answer questions. Every week sample
problems will be solved in a collaborative environment. Some of these problems are
from past exams so that you can become familiar with exam question format. You
should attend recitation each week. Some recitations will count toward your class
participation grade; these will not be announced ahead of time.

Problem Sets

There are six graded problem sets during the term, and each is worth 10 points. Your
total points earned will be calculated from your best five scores. The maximum
number of points that you can earn on the problem sets is, therefore, 50. Problem
sets are due by the beginning of lecture at 9:30 AM as indicated on the course
schedule. Late problem sets will not be accepted. The only exception to this policy
will be for students who have a class that ends at 9:20 am across campus, in which
case that student must notify the professor of their conflict at the beginning of the semester.

**Participation Points**

There will be eleven opportunities during the course to earn participation points in recitation and in lecture. Each opportunity is worth 5 points. Your total points earned will be calculated from ten scores (that is, you can miss one without an effect on your score). The maximum number of points that you can earn by participation is, therefore, 50. These opportunities will not be advertised ahead of the class period.

**Reading Assignments**

In preparation for each lecture there will be a required reading assignment from the textbook. In lecture we focus on problem solving, covering the topics with the most misconceptions and hardest applications. As in other upper-level courses, you will be expected to learn many of the less difficult details on your own. It is definitely to your advantage to at least skim the chapters prior to the lectures in which they are covered, and to that end there will be focus questions with each assignment to guide your reading. These are posted on Courseweb.

**Missed Exams**

There are no make-up mid-term exams or extra credit opportunities in this course. If you miss more than one mid-term exam you should discuss the options available to you with your advisor or the SAS Dean’s Office. Students who miss the final exam due to an emergency should pursue the G grade option as detailed below. Please note that you are expected to show up to each exam on time. Late arrivals will be given the exam during the time that remains for the designated examination period. Transportation problems and weather issues are not considered an adequate excuse. If you have to travel to reach campus, please allow sufficient time for traffic and parking to ensure that you arrive by the time the exam begins.

**Exam Regrades**

You may request a regrade of any portion of an exam by submitting your request in writing and explaining why you think the grading was in error. This request must be submitted to Dr. Ashmore within one week after the date that the graded exams are returned to the class. Please consult the answer key and your textbook prior to submitting your request. Unless the regrade request is simply due to an addition error, please be aware that your entire exam may be evaluated and any question that was graded incorrectly (in your favor) may also be regraded resulting in points deducted from your total.

**Final Grade**

Your final grade is based on your total numerical points for the semester. Depending upon the final class average, there may or may not be a curve. The curve will never penalize you compared to the following straight grading scale: at a minimum 90% and above will be an A- or better, 80% and above will be a B- or better, and 72% and above will be a C (not a C-) or better. A total of 450 points are possible using the following criteria:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Total Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top two mid-term exam scores</td>
<td>200 points</td>
</tr>
<tr>
<td>Top five problem set scores</td>
<td>50 points</td>
</tr>
<tr>
<td>Participation points</td>
<td>50 points</td>
</tr>
<tr>
<td>Cumulative final exam</td>
<td>150 points</td>
</tr>
<tr>
<td>Total</td>
<td>450 points</td>
</tr>
</tbody>
</table>
**G Grades**

If you wish to petition for a G grade, you must submit a request for this grade in writing to Dr. Ashmore, and you must document your reason(s). You will be required to make arrangements for the specific tasks that you must complete to remove the G grade. Remember that 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 you miss the final exam due to illness or a death in the family, you may receive a G grade if the above conditions are met.

**Academic Integrity Policy**

Students in this course are expected to comply with the University of Pittsburgh’s “Academic Integrity Policy Guidelines: Student Obligations”. Cheating/plagiarism will not be tolerated. This includes inappropriate use of REEF/i>clickers, plagiarism on homework assignments, or cheating on exams. 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, exam or paper will be imposed. View the complete policy at [www.cfo.pitt.edu/policies/policy/02/02-03-02.html](http://www.cfo.pitt.edu/policies/policy/02/02-03-02.html).

You may not use unauthorized materials during an exam, including notes, books, calculators, telephones, and any device that can connect to the internet.

You must submit for grading only material that is written exclusively in your own words and written or drawn in your own handwriting.

Violation of the Academic Integrity Code requires the instructor to submit an Academic Integrity Violation Report to the Dean’s Office.

**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 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. For more information, visit [www.studentaffairs.pitt.edu/drsabout](http://www.studentaffairs.pitt.edu/drsabout).

Please note that the problems in this course are more reading intensive than in many other biology courses. Students requiring extra time or other accommodations on exams will take their exams in the University Exam Testing Center, located in G-33, Cathedral of Learning. Please note that it is the student’s responsibility to schedule their exams 72 hours in advance with Disability Resources and Services.

**Additional considerations and classroom etiquette**

Please note the date and time of each of the examinations, including the final exam, and arrange your schedule and travel plans so that you can attend and take each examination on the date and time listed on the course schedule. The final exam cannot be moved to accommodate visiting relatives or early vacation travel plans.

Because screens are a distraction to students around and behind you, **if you wish to take notes on any electronic device, you must sit in the back rows of the class**. Also, I respectfully request that you do not text or take calls while in class. Let’s try to maintain a lively, collaborative environment by only discussing course material during the appropriate times, and keeping non course-related conversation to a minimum. **Students who text excessively or otherwise distract the class will be asked to leave.**
Course Calendar, Genetics 0350, Spring 2017 (Ashmore)

Course schedule subject to modification throughout the semester at professor’s discretion.

Refer to Courseweb lecture sections for detailed reading assignments (with page numbers, suggested problems, and focus questions to guide reading). Associated reading assignments are to be completed prior to lectures that cover that particular topic.

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>Th 1/5</td>
<td>Course overview: the molecular basis of phenotype</td>
<td>1</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>Tu 1/10</td>
<td>Structure, function, and replication of DNA</td>
<td>6</td>
</tr>
<tr>
<td>Lecture 3</td>
<td>Th 1/12</td>
<td>Gene expression: gene to protein part 1</td>
<td>8</td>
</tr>
<tr>
<td>Lecture 4</td>
<td>Tu 1/17</td>
<td>Gene expression: gene to protein part 2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Wed 1/18</td>
<td>Spring term add/drop period ends</td>
<td></td>
</tr>
<tr>
<td>Lecture 5 **</td>
<td>Th 1/19</td>
<td>Organization of the genome into chromosomes</td>
<td>9,11,13</td>
</tr>
<tr>
<td>Lecture 6</td>
<td>Tu 1/24</td>
<td>Molecular inheritance: passing genes on to the next generation</td>
<td>4</td>
</tr>
<tr>
<td>Lecture 7</td>
<td>Th 1/26</td>
<td>Connecting Mendel’s laws with molecular genetics</td>
<td>2, 4</td>
</tr>
<tr>
<td>Lecture 8</td>
<td>Tu 1/31</td>
<td>Molecular Bases of Phenotype and Extensions to Mendel, part 1</td>
<td>3, 8</td>
</tr>
<tr>
<td>Lecture 9 **</td>
<td>Th 2/2</td>
<td>Molecular Bases of Phenotype and Extensions to Mendel, part 2</td>
<td>3</td>
</tr>
<tr>
<td>Exam 1</td>
<td>Tu 2/7</td>
<td>Exam 1, covering lectures 1-9</td>
<td></td>
</tr>
<tr>
<td>Lecture 10</td>
<td>Th 2/9</td>
<td>Gene transfer and mapping in prokaryotes</td>
<td>13</td>
</tr>
<tr>
<td>Lecture 11</td>
<td>Tu 2/14</td>
<td>Gene Mapping in Eukaryotes, part 1</td>
<td>4, 5</td>
</tr>
<tr>
<td>Lecture 12</td>
<td>Th 2/16</td>
<td>Gene Mapping in Eukaryotes, part 2</td>
<td>5</td>
</tr>
<tr>
<td>Lecture 13 **</td>
<td>Tu 2/21</td>
<td>Mutations as tools of Genetic Analysis, part 1</td>
<td>7</td>
</tr>
<tr>
<td>Lecture 14</td>
<td>Th 2/23</td>
<td>Mutations as tools of Genetic Analysis, part 2</td>
<td>7</td>
</tr>
<tr>
<td>Lecture 15 **</td>
<td>Tu 2/28</td>
<td>Eukaryotic Chromosome mutations</td>
<td>12</td>
</tr>
<tr>
<td>Exam 2</td>
<td>Th 3/2</td>
<td>Exam 2 covering lectures 9-15</td>
<td></td>
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<tr>
<td></td>
<td>Tu 3/7</td>
<td>No class or recitations; spring break</td>
<td></td>
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<tr>
<td></td>
<td>Th 3/9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture 16</td>
<td>Tu 3/14</td>
<td>Prokaryotic gene regulation 1</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>W 3/15</td>
<td>Last day for monitored withdrawal</td>
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</tr>
<tr>
<td>Lecture 17</td>
<td>Th 3/16</td>
<td>Prokaryotic gene regulation 2</td>
<td>15</td>
</tr>
<tr>
<td>Lecture 18 **</td>
<td>Tu 3/21</td>
<td>Gene regulation in eukaryotes 1</td>
<td>11, 16</td>
</tr>
<tr>
<td>Lecture 19</td>
<td>Th 3/23</td>
<td>Gene regulation in eukaryotes 2</td>
<td>16</td>
</tr>
<tr>
<td>Lecture 20</td>
<td>Tu 3/28</td>
<td>DNA manipulation and analysis</td>
<td>9</td>
</tr>
<tr>
<td>Lecture 21 **</td>
<td>Th 3/30</td>
<td>Genomics</td>
<td>9</td>
</tr>
<tr>
<td>Lecture 22</td>
<td>Tu 4/4</td>
<td>The Human Genome: annotation and analysis of variation</td>
<td>9, 10</td>
</tr>
<tr>
<td>Lecture 23</td>
<td>Th 4/6</td>
<td>Gene identification in monogenic disorders</td>
<td>10</td>
</tr>
<tr>
<td>Exam 3</td>
<td>Tu 4/11</td>
<td>Exam 3: covering lectures 16-23</td>
<td></td>
</tr>
<tr>
<td>Lecture 24</td>
<td>Th 4/14</td>
<td>Mitochondrial inheritance, disorders, and replacement therapy</td>
<td>14</td>
</tr>
<tr>
<td>Lecture 25</td>
<td>Tu 4/19</td>
<td>Current issues in genetics (TBA)</td>
<td>None</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Lecture 26</th>
<th>Th</th>
<th>4/21</th>
<th>Current issues in genetics (TBA)</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Final Exam</strong></td>
<td>Tues</td>
<td>4/25</td>
<td>Final exam: covering lectures 24-26 and cumulative material Tuesday, 4/25/17, from 12:00-1:50 PM, in Crawford 169</td>
<td>None</td>
</tr>
</tbody>
</table>

** Problem sets are due on these dates by the start of class at 9:30 am sharp.
Late assignments will be not be accepted.