

Biol 311: General Genetics

Spring 2015

Lecture Syllabus: Section 002 (TR, 9:00-10:15 am)

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Office: Rm 1208 Exploratory Hall
Office Hrs: TW 11:00 am - 1:00 pm, or by appointment
Texts: **Lecture-** B.A. Pierce, *Genetics: A Conceptual Approach*, 5th Edition, W.H. Freeman & Co.
Laboratory- L. Adamkewicz, P. Einhorn, and E. Otto, *Genetics Laboratory Manual*, 8th Edition, Hayden McNeil (*must purchase new*)
Also Required: iClicker (*i>Clicker-1 or i>Clicker-2 device; not phone app*)

Date	Lecture Topic	Reading	Recommended Homework
1/20	Introduction		
1/22	Mitosis/Meiosis	Chapter 2: 17-39	2: 6, 14, 16, 26, 28, 31
1/27	Mendelian Genetics- 1	Chapter 3: 45-58	3: 7, 9, 14, 18, 22, 24
1/29	Mendelian Genetics- 2	Chapter 3: 59-67	3: 27, 31, 33, 34, 36
2/3	Sex Determination/Pedigrees	Chapter 4: 77-95 6: 139-146	4: 9, 15, 23, 24, 26, 28, 32, 41, 42 6: 1, 19, 23, 24
2/5	Allelic Interactions	Chapter 5: 103-110	5: 5, 13, 14, 15
2/10	Gene Interactions	Chapter 5: 110-128	5: 17, 24, 25, 29
2/12	Population Genetics	Chapter 25: 715-725, 731-734	25: 3, 16, 24, 27, 28, 39
2/17	FIRST EXAM (20%)		
2/19	Linkage/Recombination	Chapter 7: 165-178	7: 2, 5, 16, 18, 19
2/20	**Last day to drop course**		
2/24	Mapping-1 (Recombination)	Chapter 7: 178-191	7: 8, 24, 27, 30
2/26	Mapping-2 (Physical)	Chapter 7: 192-196 8: 209-216	7: 32, 33, 39 8: 2, 5, 19, 20
3/3	Chromosome Variation	Chapter 8: 216-234	8: 23, 32, 36
3/5	DNA Structure	Chapter 10: 277-293 11: 299-309	10: 1, 7, 10, 31, 32, 35 11: 3, 8, 23, 26
3/10 3/12	NO CLASS- SPRING BREAK		
3/17	DNA Replication-1	Chapter 12: 325-334	12: 7, 11, 21
3/19	DNA Replication-2	Chapter 12: 334-346	12: 25, 27, 38
3/24	DNA Cloning	Chapter 19: 535-546	19: 7, 9, 12, 27, 29, 30
3/26	PCR/Applications	Chapter 19: 546-563	19: 10, 18
3/31	SECOND EXAM (20%)		
4/2	Transcription	Chapter 13: 357-375	13: 4, 7, 9, 15, 25, 28, 30
4/7	RNA Processing	Chapter 14: 383-404	14: 1, 4, 6, 24, 27, 30
4/9	Genetic Code	Chapter 15: 411-422	15: 2, 5, 20, 22, 24
4/14	Translation	Chapter 15: 422-434	15: 10, 32, 34, 35
4/16	Control of Euk. Gene Expression	Chapter 16: 444-447 Chapter 17: 473-489	17: 4, 12, 13
4/21	Gene Mutations	Chapter 18: 493-511	18: 1, 2, 3, 17, 18, 20, 22
4/23	DNA Repair	Chapter 18: 520-527	18: 15
4/28	Cancer Genetics	Chapter 23: 661-680	23: 5, 13, 17, 20, 31
4/30	TBA		
5/7	FINAL EXAM (30%) 7:30 – 10:15 AM	COMPREHENSIVE	

PowerPoint lecture slides will be available on Blackboard. **The only effective method for mastering genetics is to understand and solve problems!**

Note: I will use class e-mail lists to notify the entire class of something, so you **MUST** check your GMU e-mail regularly.

OBJECTIVES: Knowledge of genetics is important for professionals in all areas of the life sciences. This course aims to survey general principles of transmission, population, and molecular genetics so that students are prepared for the various graduate examinations (GRE, MCAT, DAT, etc.) and have a foundation for more specialized courses.

COURSE POLICIES:

- To enroll in BIOL 311, Biology majors must have completed BIOL 213 with a grade of C or better, **OR** you must have the transferred equivalent course, OR you must have permission of the instructor. If you do not have either the prerequisite or the instructor's permission, you will be dropped from the course.
- **Late work is not accepted** in this course, neither in lecture nor in laboratory.
- **Make-up work and make-up examinations are not given** in this course. If a student misses a scheduled examination without prior permission, s/he will receive a grade of zero. If, for any reason, the class does not meet on a scheduled exam day, the test will be given the next time the class does meet. These rules apply to the laboratory as well as the lecture.

Requests to miss examinations must be made personally, not by note, voice mail or e-mail.

> Exams written in pencil will not be regraded.

> Calculators, but **not** cell phones, are allowed at exams. Calculators cannot be shared.

- If a student arrives late to any exam or the final exam, they will not be able to take the exam if another student has already finished the exam and left the room. Any person late to the exam will have to turn in the exam at the same time as originally scheduled.

EXAMS:

The format of the exams will be problem solving and short answer. You will not be able to pass the course simply by memorizing facts. You should work as many of the recommended problems as you can, but your work will not be collected or graded. If you have difficulties with the problems, seek help from your lecturer, your laboratory instructor, and/or your fellow students. I do not recommend that you work non-assigned problems. These may involve principles that the course does not cover and can cause confusion.

GRADING: The course will have two examinations during the semester and a comprehensive final examination. In addition, you will be graded on ten unannounced iClicker quizzes in lecture.

Exams 1 & 2	40%	320 pts	(160 pts x 2 exams)
10 iClicker quizzes	5 %	40 pts	(4 pts x 10 quizzes)
Final Exam	30 %	240 pts	
Lab grade	25 %	<u>200 pts</u>	
		800 pts	TOTAL

FINAL GRADES: 93-100% =A 85-89 = B+ 75-79 = C+ 60-69 = D
90-92 = A- 80-84 = B 70-74 = C <60 = F

The laboratory has additional policies set out in its own syllabus. Students be aware that the laboratory requires work outside regularly scheduled classes and that failure to complete laboratory assignments will impact their overall course grade. Only students who have satisfactorily completed the laboratory will pass and, if you miss lab exercises without permission or fail to complete a major exercise, your overall course grade will become an IN or an F according to the rules set out in the laboratory syllabus.

If you require any accommodations due to a learning disability, you must provide information from the Mason office before accommodations can be provided.

HONOR CODE:

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit to those people in the proper, accepted form. When doing homework, the work must be yours. It is totally unacceptable to copy the work of another student in this course in any form.

Supplemental Information for Syllabus

This course will be using i>Clicker for the unannounced quizzes. i>Clicker is a response system that allows you to respond electronically to questions posed during class, and you will be graded on your answers and participation.

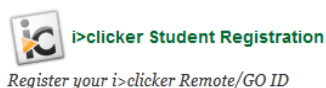
SET-UP:

To be eligible to receive credit on all quizzes, you will need to purchase & register an i>Clicker device **before the second week of classes.**

Purchase: The i>clicker is available at the GMU bookstore. If you have an i>clicker from another class you may use it in this class.

Register: You need to register your i>clicker on Blackboard. Here's how:

1. Open Blackboard course
2. Select <Tools>
3. Select <iClicker Student Registration>



4. Enter device serial number.

The screenshot shows the "i>clicker Student Registration" form. At the top, there is a header with the title "i>clicker Student Registration" and a subtitle "Use this form to register your i>clicker remote/GO ID. Once registered, your i>clicker ID is registered for all your classes. More Help". Below the header, there is a "Cancel" button and a "Submit" button. A red asterisk indicates a required field. The form has a label "i>CLICKER ID" followed by a text input field. Below this, there is a note: "Enter your 8-character i>clicker Remote ID or 12-character i>clicker GO ID below. You may register multiple remotes/i>clicker GO accounts or remove a registration entry at any time." Another red asterisk indicates a required field for "i>clicker Remote/GO ID:" followed by a text input field. Below the input fields, there is a note: "Click Submit to proceed. Click Cancel to go back." At the bottom, there is a table with columns "i>clicker ID", "Registration Date", and "Action". The table contains two rows: "i>clicker 1" and "i>clicker 2".

i>clicker ID	Registration Date	Action
i>clicker 1		
i>clicker 2		

5. Press <Submit>

USE:

The i>clicker will be used for the unannounced quizzes.

We will have 12 quizzes throughout the semester. The 2 quizzes with the lowest score will be dropped.

YOU ARE RESPONSIBLE FOR BRINGING YOUR i>CLICKER TO EVERY CLASS. If you fail to bring your i>Clicker, you will be unable to answer the question and will not receive any credit (paper answers will not be accepted).