

GENETICS – SUMMER 2018  
BIOL 310-[REMOVED]  
[REMOVED]

**INSTRUCTOR:** Fernando Tenjo, Ph.D.

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Office: [Removed]

Hours: [Removed]

**PRECEPTOR:** [REMOVED]

**TEXTBOOK**

Pierce, B. Genetics Essentials 4th Edition (2018). W.H. Freeman & Company (**Required**).

The book can be accessed by buying the Just Sapling Learning (which includes a full ebook): ISBN 1319108490 The bookstore should have this available or you can buy it at this website: [Removed]

**You need an access code to Sapling for homework and class assignments**

Gonick L. and Wheels M. The Cartoon Guide to Genetics (**updated edition, recommended**)

**PREREQUISITES:**

BIOL and [BIOZ 151](#) and BIOL and [BIOZ 152](#), each with a minimum grade of C;

and [BIOL 200](#), [MATH 200](#), [MATH 201](#), [STAT 210](#), [STAT 212](#), [STAT 314](#) or satisfactory score on the VCU Mathematics Placement Test

**OBJECTIVE**

**Welcome to Genetics, the science of heredity!!** Genetics is less than 160 years old, but its fast pace of accomplishments has been astonishing. Genetics is a science that studies biological information and how all living organisms pass this information on to their progeny and how they use it in their life time. The development of genetic concepts and technologies and their applications have a profound impact on agriculture, medicine and the society in general. Thus, the study of Genetics, from the Mendel's laws of transmission of the genetic material to the detailed study of gene function and genomes, are key and essential for any student in the Biological Sciences.

We will explore Mendel's work, evolution and population genetics. We also touch a bit of molecular genetics. I hope I can accomplish most of this broad objective through the semester.

Enjoy the class!!

**SPECIFIC OBJECTIVES:**

At the end of the class I expect that you will

1. Correlate meiosis and Mitosis with Mendel principles.
2. Make predictions of results for genetics crosses using Mendel principles and probability concepts.
3. Use Mendel principles to explain different forms of inheritance: codominance, epistasis, quantitative traits.
4. Describe the structure and function of nucleic acids.
5. Understand control of gene expression and its role in different biological processes.
6. Explain the inheritance of traits using classical and molecular genetic concepts.
7. Describe the role of genes in the evolution of organisms.
8. Understand the importance of genetics in today's society and be a critical reader of genetic research news.

## GRADING

The final course grading will be determined using a ten-point scale and will depend on your overall performance in all the tests, quizzes, and class work (includes class participation and attendance). Letter grades will be assigned at the end of the course. Please be aware that I do not curve any exam or final grades. Also, I do not “round” grades. Only changes due to mathematical error will be granted.

The grade will be computed using the following criteria:

3 Exams	75% (Exam 1, 20%; Exam 2, 20%; Final Exam 35%)
Quiz Average	15%
Homework	5%
Class work	5%

### Final Grade Scale

90-100%=A	70-79% =C	Below 60% =F
80-89% =B	60-69% =D	

Grades will be posted in Blackboard and you have one week to check them and get back to me with any question or concern about them. **No grades will be changed after the one-week period.**

*There will be homework assignments posted in Sapling.*

### CLASS PARTICIPATION AND ATTENDANCE:

Attendance is expected at all classes. Your class participation grade is determined by your class-work and participation in class discussions. There will be several class assignments and you will earn points depending in the accuracy of your answers. Attendance is expected at all classes. ***You must be present for the entire class period to receive your Classwork points.*** Students can miss two classes without losing points.

If you miss class, it is your responsibility to obtain notes and material covered in class from another student. If you are late and have a valid excuse please come and see me in case you miss points for participation.

If you know that you will be late, or that you need to leave early, please inform me of the circumstances in advance.

### BLACKBOARD – [HTTP://BLACKBOARD.VCU.EDU](http://blackboard.vcu.edu)

You can find information for our course on blackboard. I will post announcements, the syllabus, handouts, exam keys, grades, etc. Please check periodically for your grades and assignments

### EMAIL AND COMMUNICATION

I will use your **vcu.edu** account to send messages related to material or announcements of the class. I will not answer emails that do not come from your vcu.edu account. In the email, **please include your class in the Subject area, please be courteous and concise.** I will reply email during my office hours, messages sent over the weekends will be reply on Monday. Please do not expect reply to messages posted after my office hours.

### EXAMS

You will have three examinations given during scheduled class period. The first two exams will be administered during the first hour of the class at the dates announced in the class schedule. The final exam will take all the class time on June 20<sup>th</sup>. If you miss one exam and have a valid excuse, you have 24 hours to take it, however this is under my consideration and depending of the circumstances. Be aware that the exam can be harder than the exam given in class. If you have a medical excuse, you have 48 hours to take the exam, original documentation needs to be provided. **Tentative** dates for exams are **posted in the Class Schedule.**

**Exams have different weight value for the final grade. Exams 2 and 3 are cumulative.**

Please make sure that you know exactly when the tests are. I will not give any test before or after the date posted in the Course Schedule under any circumstance.

## QUIZZES

We will have 4 quizzes during lectures. The best three quizzes will be used for your final grade. Each counted quiz will worth 5% each of your final grade. The dates for these quizzes are in the class schedule. Quizzes are intended to make you aware of what you do not know, therefore they will help you to prepare the tests. **Unannounced quizzes through the session may be administered and they will count as part of the class participation grade.**

## SYLLABUS STATEMENTS PROVOST OFFICE

The required syllabus statements originally included here are maintained by the Office of the Provost and are regularly updated. To prevent the dissemination of information which may no longer be accurate or complete, the full text of the required syllabus statements have been removed from this document.

Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

## IMPORTANT DATES

DATE	EVENT
Week 1 [Removed]	QUIZ 1, [Removed] [Removed] Last day Add/drop [Removed]Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 5-week and 8-week sessions Memorial Day, [Removed] University closed
Week 2 [Removed]	QUIZ 2 [Removed]
Week 3 [Removed]	EXAM 1 [Removed] LAST DAY TO WITHDRAW [Removed]
Week 4 [Removed]	QUIZ 3 [Removed] EXAM 2, [Removed]
Week 5 [Removed]	Quiz 4, [Removed] Final Exam[Removed]

**TENTATIVE SCHEDULE OF LECTURES**

Date	Topic	Chapters
<b>Week 1</b>		
	Introduction (on your own)	<b>1</b>
	Chromosomes and Cellular Reproduction	<b>2</b>
	Mendelian Genetics: Segregation and independent assortment	<b>3.1-3.3</b>
[Removed]	Testing Hypothesis -Pedigree Analysis	<b>3.4-3.5</b>
	Sex determination and Sex linked Characteristics	<b>4.1-4.3</b>
	<b>QUIZ 1 [Removed]</b>	
	<b>[Removed] Last day for add/drop</b>	
	<b>NO CLASS Memorial Day</b>	<b>4.4-4.6</b>
[Removed]	<b>QUIZ 2 [Removed]</b>	<b>5.1-5.2</b>
<b>Week 2</b>	Extensions and Modifications of Basic Principles	
[Removed]	Gene Interaction	
	Linkage	
	<b>TEST 1 [Removed] (material covered until [Removed])</b>	<b>5.3</b>
<b>Week 3</b>	Genetic Linkage : Three Point Testcross	<b>6</b>
[Removed]	Chromosomal Variation	
	<b>LAST DAY TO WITHDRAW [Removed]</b>	
	DNA structure and Replication	<b>8, 9</b>
<b>Week 4</b>	<b>QUIZ 3 [Removed]</b>	<b>10</b>
[Removed]	Transcription –Translation	<b>12</b>
	Control of Gene Expression	
	<b>TEST 2 [Removed] (cumulative, material covered until [Removed])</b>	
<b>Week 5</b>	Mutations and DNA repair	<b>13</b>
[Removed]	<b>QUIZ 4 [Removed]</b>	
	Population Genetics and Evolution	<b>18</b>
[Removed]	<b>FINAL EXAM (in class)</b>	<b>Cumulative</b>

**Disclaimer: The schedule, the dates and content of tests and other aspects of this syllabus could change as a result of unplanned closings, inclement weather, and other uncontrollable factors. Therefore the dates in this Syllabus are tentative. Material for quizzes and exams will be announced in class and will be posted in Blackboard.**

Please consult <https://summer.vcu.edu/dates/> for further information