

Biol 270 – Fall 2016 Syllabus – St. Mary's College of Maryland



Genetics - BIOL 270 – Fall 2018 Syllabus

Instructors	Rose Keith SB 258 Ext 4372 rakeith@smcm.edu	Rachel Myerowitz SB 260 Ext 4373 rmyerowitz@smcm.edu
Office Hours	M 4:00-5:00PM WF 12:30-1 PM	MW4:00-5:00PM
Class Meetings	MWF 9:20-10:30 MWF 10:40-12:00	Section 01 SB109 Section 02 SB109
Prerequisites	Pre-requisite: Biol105; Biol105L (with C or better) Co-requisite: Chem103	

Course Description

The fundamental principles underlying heredity and variation will be examined. This course will begin with a study of the structure, function and replication of the hereditary material, DNA and examine the mechanisms of genetic inheritance and change. We will then proceed with a discussion of Mendelian phenotypic and genotypic analysis. Finally, we will discuss applications of genetic manipulations in a wide variety of organisms.

Student Learning Outcomes

At the completion of Biol270, students will be able to:

1. apply concepts of heredity and the genotype-phenotype map.
2. demonstrate analysis of scientific literature
3. show proficiency in the oral communication of scientific topics

Student Goals

1. To become versed in the language of genetics.
2. To learn the concepts of classical Mendelian genetics and modern molecular genetics and become familiar with the seminal experiments leading to our current understanding of these concepts.
3. To develop analytical approaches for solving genetics problems in order to apply these approaches to other disciplines or situations.
4. To learn how to search the research literature for primary sources germane to a specific topic of interest.

Evaluation

Grades will be assigned on the basis of the student's performance in each of the following:

Lecture Exams (2 exams @ 175 pts each)	350 pts
Final Exam	250 pts
Reading Quizzes	100 pt
Problem Solving Experiences (7PSEs @15 pts each)	105 pts
Library Assignment	100 pts
<u>Paper Discussion and Questions</u>	<u>95 pts</u>
Total	1000 pts

Required Textbook

Essentials of Genetics, Klug, Cummings, 9th edition, Spencer and Palladino, Pearson Education, 2016

Reading Assignments

Reading assignments from Klug et al are listed in the syllabus. Modifications to the reading list will be mentioned in class and listed on blackboard. **All assigned readings for a particular day should be read**

prior to that day's class. Frequent reading quizzes will be administered on line at www.saplinglearning.com/login.

All readings are "fair game" for the exams unless otherwise noted. Extra readings may be distributed in class or made available on Blackboard throughout the semester.

Problem Solving Experiences

Problems Solving Experiences (PSEs) pertaining to a topic under study will be placed on Blackboard in advance of their due dates. On the day that the assignment is due (indicated by a **YES** in the class schedule under the column called **Problem Solving Experience**), students must bring their **typed** solutions to class. During class, students may be called on to discuss their solutions to the problems. During the discussion, students can correct their work or make comments on their assignment papers in **pen**. At the end of class, students must hand in their assignments for assessment. Grading will be as follows: 15 points for a good attempt at solving the problems; 5 points for a half-hearted attempt at solving the problems; 0 points for failing to hand in solutions to the problems or turning in less than a half-hearted attempt. In addition, **one must attend class** to receive any credit for this assignment. **No solutions to the problems will be accepted after the class is over.** Only 7 of the 8 assigned PSEs will contribute to the grade – there are no make-up assignments. If the assignment is not turned in on time or you are not present in lecture, the assignment will be considered a zero. Though we encourage working on the PSEs in small groups, your individual solution **must reflect your own work** – see honor code section below for more details.

Library Assignment

During the last third of the course, we will begin learning about genetic applications in various model and non-model organisms. In this segment of the course, you will be assigned a special topic for study. These topics in general focus on ways in which model organisms have advanced the field of genetics. You will work in teams of two on this assignment. You must search the literature to find reference(s) relevant to your topic. **On Nov 9, you must hand in the printout of one page of your search results that includes one reference that you think suitable to complete the assignment. Please circle that reference and then on another sheet of paper reflect on why you chose this particular article from among the results.** Consider the article title (do you understand it?), the year of publication, the journal title, and any other analysis that has driven your choice. Then cite this article using the style described in the St. Mary's Biology Style Manual, which is available on the department webpage. **This part of the library assignment will be worth 10 points.** In the interim between turning in this reference and handing in your paper, you may decide to change articles, or you may choose to use more than one! After researching your topic, you must **individually** write up a short (2 pages maximum) paper that addresses the questions associated with your topic that are included in the library assignment sheet. **The assignment is due at the beginning of class on Nov 30.** You should be prepared as a **team** to present and discuss your findings in class on **Dec. 3 or 5.**

For help with this assignment make use of your library! The Research Help web address is: <http://www.smcm.edu/library/research-help/index.html>

Discussions

There will be two paper discussion days. Students will be provided with a paper to read and are expected to write a critical evaluation of the paper – details will be given in class as to what should be included in the assignment. We will discuss the paper as a group. Papers will cover topics interesting topics often related to those recently covered in lecture.

Quizzes

Short (<5 min) quizzes will frequently be given in class and will consist of one or two questions from topics discussed in **that or the previous day's** lecture. Each quiz will be worth from 1 to 3 points. The points from each quiz will be added directly to your exam grade (For example: say you garnered 124 pts on your first exam and earned 4 quiz points, then your exam grade would be 128). **No make-up or early quizzes will be given** and there is **no** guarantee that a quiz will be given to both sections on any given day. **If a quiz is given at the beginning of class, anyone arriving after all of the quizzes have been collected will not be able to take the quiz.**

Exams

There will be **two in class exams and a final**. Two of the exams will be given during the class period indicated on your syllabus. The **final exam** will be given during the **final exam period**. Questions for exams may be drawn from your readings, lecture material, or class discussions. Exams 1 and 2 will **not** be cumulative. The final exam will mainly focus on that which has been discussed since the second exam but approximately 30% of the exam will be cumulative in nature. In general, no makeup exams will be given. If extenuating circumstances arise, a makeup exam will be given at the discretion of the instructor and only if approval is given prior to the exam. The type of exam given in such cases may vary in form and content from that which was given at the regularly scheduled exam time. Take 48 hours to review your exam answers and the correct answer prior to contacting Dr. Keith or Dr. Myerowitz with questions about your exam. Any requests for an exam grade review, above arithmetic errors in grade calculation, will require the student to submit a written justification that should include citations to relevant sources. **We will not respond to any exam related questions within the 48 hours after return of the exam.**

Contacts

Each student must regularly check his/her SMCM e-mail address. We may make announcements via email. In addition, all students are required to **Check Blackboard** regularly, as this is where we will post class related material including readings from outside of the required textbook.

Student Accommodations

Services are provided for students with disabilities through the Office of Academic Services. All requests for academic accommodations should be directed to Dr. Katy Arnett for a confidential review of requested accommodations. Upon approval, please bring your documentation to Dr. Myerowitz to discuss accommodations for this class.

Honor Code

Students are expected to abide by the policies on academic dishonesty as stated in the College Catalog and the Code of Student Rights and Responsibilities. As is true for all researchers, academic misconduct at all levels **WILL NOT BE TOLERATED** and will be prosecuted to the full extent through official College processes. If you are unsure about what constitutes academic dishonesty we encourage you to carefully read the SMCM academic honesty policy or speak with us specifically. **Plagiarism and cheating are grounds for immediate failure of this course.**