

Genetics—01:447:380, Fall 2023
Dr. Mai Soliman

Contact Information and Schedule

My Email: solimanm@rutgers.edu

My Office: Nelson Biological Labs, Room B426, Busch Campus

Lecture Schedule:

Section 16, 17, and 18	Wednesday	12:10 PM – 1:30 PM
Section 19, 20, and 21	Friday	12:10 PM – 1:30 PM

Lecture location: College Ave, AB 4400 (Sections 16, 17, 18)
College Ave, AB 4400 (Sections 19, 20, 21)

Office Hours: Monday and Wednesday 1:00 pm – 2:00 pm on Zoom. I will also be in my office during that time so in-person if that works best for you.

Recitation: Meeting times depending on section (**In-Person and required**)

II) Important Note--This course is not for Genetics majors. Genetics majors must take Genetic Analysis I and II. This class will not count toward the credits you need to accumulate for the degree in Genetics.

III) Your Responsibilities

Your responsibility this semester is to be self-reliant enough to use the resources you have available to you, rather than just reflexively email me with questions like “What’s covered on the next exam?” Please note that I do not do this in an effort to keep students from asking me questions. I do this because experience has taught me that some students still need help developing their attention to resources and self-reliance. Some students have still not developed the understanding that, in order to be a successful member of any professional workgroup, you must be able to receive a set of instructions once and understand what actions are expected of you. This rule is intended to help those who need help to be more thoughtful, attentive to instructions, and self-reliant—all important qualities for success in any professional environment.

This also extends to the emails I send the class. I will send out both individual and group emails regularly. Therefore, it is your responsibility to either maintain your campus email account active, arrange for campus emails to be forwarded to an email address you check regularly or have someone in the class who is aware that, when I send a group email, he/she needs to share it with you.

I consider these sorts of performance items indications of how mature you are, how well you organize yourself professionally, and how much attention you paid to your responsibility while

you were a student in my class. This will strongly influence whether I feel you gave the class your best effort and whether you are someone I could recommend for a job or admission to a higher education program. I will keep a record of incidents in which people ask me questions that have already been answered in the syllabus or in an email I sent out. If at the end of the semester, I see you have asked me one or more questions over the course of the semester that I have already answered in the syllabus or in one of my emails, this will reduce the probability that I will be willing to give you any special consideration at the end of the semester if you are close to the next grade level, or agree to write you a letter of recommendation if you ask me for one later on.

Weekly Agenda: I will be posting a weekly agenda with all the assignments that are required for that week and the day that they are due. The agenda will serve as the home screen on Canvas when you first log into your genetics class on Canvas. I will update the agenda weekly. This will be a big help in keeping you organized. It will also post the location of where to find folders, files, and quizzes. Please refer to this agenda often in order to stay on top of your assignments.

IV) Recitation Information

A. Recitation Instructors

Jonathan Phan jon.phan@rutgers.edu
Jingyun Qiu jp118@gsbs.rutgers.edu

B. Recitation Schedule Sec Room Day/Time

Section 16: TA:
Wednesday 5:55 PM – 6:50 PM College Ave, AB-4450
Section 17: TA:
Friday 12:25 pM – 1:20 pM College Ave, AB-4450
Section 18: TA:
Thursday 7:45 PM – 8:40 pM College Ave, AB-4400
Section 19: TA:

	Friday 2:15 PM – 3:10 PM College Ave, AB-4400
Section 20: TA:	
	Monday 5:55 PM – 6:50 PM College Ave, AB-4400
Section 21: TA:	
	Friday 4:05 PM – 5:00 PM College Ave, AB-4400

C. Recitation *TENTATIVE* Schedule

Recitation 1	Nucleic Acids, Chromosomes And Genome
Recitation 2	The Process Whereby Genes Make Proteins
Recitation 3	Gene Regulation In Prokaryotes And Eukaryotes DNA Mutation And Repair; Cytogenetics
Recitation 4	Chromatin and Chromosomes Mitosis and Meiosis
Recitation 5	Principles Of Heredity; Pedigree Analysis For Single-Gene Disorders
Recitation 6	Sex Determination And Sex- Linked Traits

Recitation 7	Linkage Part 1 Multifactorial Disorders/ Quantitative Genetics
Recitation 8	Nonmendelian Inheritance Biotechnology

V) Course Description and Learning Objectives

This course is intended to provide you with a thorough review of Genetics. This includes the terms, concepts, theories, and technologies that are pertinent to Genetics, as well as some of the ways in which we use genetic principles in research and medicine. Our level of analysis will range from molecular biology to population genetics, touching on many points in between. We will discuss genetics as it pertains to all life forms, but we will focus primarily on eukaryotic organisms.

VI) Course Materials

1) Textbook

- a. Macmillans Publisher
Genetics: A Conceptual Approach, 7th Edition
ISBN 9781319401351

2) Instructions for online textbook

- a. Find the Achieve content section on your Canvas course page. This is listed under Macmillan learning.
- b. Click on any Achieve assignment link to launch the assignment.
- c. Enter your first name, last name and email address associated with your LMS.
- d. You are now enrolled in the course and can access future assignments through the links on your instructor's course page.

3) Electronic Device

- a. While in class, you will be working on problems posted online. Please have an electric device ready and charged before arriving to class.

VII) TENTATIVE Lecture Schedule (Subject to change)

Date	Week	Topic	Reading (From the 6 th edition, the 7 th edition is an e-book without pages)

September 5 th – September 9 th	1	Syllabus Review Structure and function of Nucleic Acids DNA Replication	Ch 10 Ch 13 pgs 373-376 Ch 11 pgs 326-331 Ch 12 pgs 339-361
September 11 th – September 15 th	2	The Process Whereby Genes Make Proteins. (Transcription and translation RNA Processing)	Ch 13 pgs 376-391 Ch 14 Ch 15
September 18 th – September 22 nd	3	Gene regulation in Prokaryotes	Ch 16
September 25 th – September 29 th	4	Gene Regulation in Eukaryotes	Ch 17 Ch 21 Ch 14 pgs 418-422
October 2 nd – October 6 th	5	DNA mutation and Repair	Ch 18
Exam 1 Sections 16, 17, and 18 – Oct 11 th Section 19, 20, and 21 – Oct 13 th			
October 16 th – October 20 th	6	Chromatin and Chromosomes Cytogenetics	Ch 11 pgs 311-322 Ch 8

October 23 rd – October 27 th	7	Cell Cycle, Mitosis, Meiosis Mendel's Laws and the Principles of Heredity	Ch 2 (Except plant meiosis) Ch 12 pgs 360-363 Ch 3
October 30 th – November 3 rd	8	Pedigree Analysis For Single-Gene (Mendelian) Disorders and Traits Sex Determination And Sex-Linked Traits And Disorders	Ch 6 Ch 4
November 6 th - November 10 th	9	Linkage Produces Non-Mendelian Phenotype Ratios and Is Used To Map Genes	Ch 7
Exam 2 Sections 16, 17, and 18 – Nov 15th Section 19, 20, and 21 – Nov 17th			
November 20 th – November 24 th <ul style="list-style-type: none"> • Nov 21st = Switched to Thursday Schedule. • Nov 22nd = switched to Friday schedule. • Thanksgiving break = Nov 23rd – 26th. 	10	Multifactorial Traits And Disorders, Interaction Between Genetic And Nongenetic Factors, and Quantitative Genetics	Ch 24

November 27 th – December 1 st	11	Other Mechanisms For Nonmendelian Inheritance Population Genetics	Ch 5; Ch 11 pgs 311-314 Ch 25
December 4 th – December 8 th	12	Population Genetics	Ch 25
December 11 th – December 13 th (Last day of class)	14	Molecular Genetics and Biotechnology 1	Ch 19
FINAL EXAM Sections 16, 17, 18 – 12/20/2023 – 8 AM – 11 AM Sections 19, 20, and 21 – 12/22/2023 – 12 PM – 3 AM			

VII) Grading Plan

Exams: Exams will include multiple-choice questions of varying degrees of difficulty as well as short answers and analytical problems. Each exam will be worth 100 points and will last approximately 80 minutes. Exams will be administrated online using the quiz feature on Canvas. You will need to report to class at 12:05 pm on the day of the exam. If an emergency prevents you from making it to the exam, you need to notify me before the exam session begins. This means you need to contact me **BEFORE** the exam to determine whether you can take the exam at a later date. Exams are worth 60% of your grade. ***Absences from the exam will result in a grade of zero unless I have been contacted before the exam with a valid excuse. Then and only then will you be allowed to make up the exam.***

Recitation: For each recitation session, a set of questions/problems will be posted on the course website. You will be required to complete the recitation problem set and hand in your responses during your scheduled recitation. At the end of each recitation, you will complete a short 5 question quiz. Each recitation will be worth 10 points (5 points for each recitation assignment and 5 points for the quiz). Recitation is worth 15% of your grade. If you are unable to attend recitation, please reach out to your TA with a valid reason. Recitation attendance is **REQUIRED**. Please make sure that your work has been submitted in a timely fashion. If you miss the recitation but submit the assignment, it will **NOT** be graded. Late assigned will be accepted at a 50% reduction in credit with a 1-week late submission cut-off. Two minutes past the assignment due date is late.

In lecture quiz/problem sets: Throughout the pre-recorded lectures, I will have questions embedded in your lecture recordings. These questions can be answered directly in the recording using your electronic device. These questions are there to help you stay on track of the lectures and the reading if needed. We have a lot of material to cover in a short period of time and I need

to make sure you guys are on task. These questions are also there to make sure that you are reviewing the material daily instead of studying all the material a day before the exam. When we come together for the in-person lecture, I will be posting a problem set that we will work through in class. You will work in groups to answer each question and then we will review each of these problems. This is work 15% of your grade.

Achieve assignments: I will also assign Achieve questions for you to work through during the week. These are interactive practice questions that can be accessed through the MacMillan tab in Canvas. These questions will correspond to the material I cover in the lecture and will offer you additional opportunities to practice the concepts using a different format. This work is worth 10% of your grade.

Appealing Grades: You will have 1 week to appeal any grades, including recitation, quiz, and exams. I will not accept appeals at the end of the semester on assignments from the beginning of the semester.

Curving or bumping grades: students often approach me after every exam asking if I curve class. Please understand that curving grades doesn't always mean an increase in your grade. For example, if the average for an exam is very high (for example 90) with many students in the A range, a curve would result in those students dropping to a lower grade in order to establish a standard curve with 68% within 1 standard deviation and 95% of the class within 2 standard deviations. It's not as simple as adding points to your grade. Also, my class policy is that I do not bump students to the next letter grade if they fall within a very close range. For example, if you get 89.95%, that's a B+. It is not required that I round your grade to the next letter grade. In fact, this can often lead to an inflation in class grades.

Request for assignment extension: If you are requesting an extension on a missed assignment, you need to make this request during office hours or at the end of class. I understand that your schedule may not permit you to come see me in-person during office hours, therefore, I will establish a Zoom a link during those hours to ensure you are able to join from any location. Please note that extensions will only be granted to students who have a serious and valid reason. Most of my work is posted on Sunday and due the following Saturday. This gives you the entire week to complete assignments. If you're emailing me on Saturday night, then you've waited too long to start your work. Email requests will not be honored and requests for assignments that are past 7 days overdue will not be honored.

Grading overview

Exams	100 x 3 = 300 points (60% of your grade)
Recitation	15% of your grade
In lecture quiz	15% of your grade
Achieve assignments	10% of your grade
Total	100 %

Grading Scale

A	90-100%
B+	85-89%
B	80-84%
C+	75-79%
C	70-74%
D	60-69%
F	<60%

VIII) Other Administrative Issues

A) Attendance

Attendance to lecture and recitation is required. If you are unable to attend lecture, please reach out and let me know. You will be responsible for the missed work and explanations provided during those sessions. Recitation is required and failure to attend recitation will result in a 0 for that recitation even if the work is submitted.

In all cases, all students are responsible for all material, assignments and announcements made in class, whether they were present in that class or not. It is the student's responsibility to keep abreast of any changes in exam dates, due dates for assignments, and changes in assigned course material implemented during his/her absence.

B) Academic Integrity Policy

Anything any student submits for a grade must reflect that student's own independent work.

The full Rutgers University Academic Integrity Policy can be found at http://academicintegrity.rutgers.edu/files/documents/AI_Policy_9_01_2011.pdf.

Violations include cheating, fabrication, plagiarism, denying others access to information or material, and facilitating violations of academic integrity. All suspected violations of the policy will be reported to the Office of Student Conduct. Due to the nature of the course, academic integrity now covers material being shared online, especially during exams. If it comes to my attention that exam material is shared online during or after the exam, I will report this to the Academic Integrity office. GroupMe is a great way to stay connected to students in your course, but it can also serve as a source of cheating if exam questions are posted. The exam questions are my property and not to be copied and pasted into any website.

C) COVID and Facemasks

In order to protect the health and well-being of all members of the University community, please follow the university guidelines with regards to COVID and COVID like symptoms. Use the website below for all University COVID information:

<https://coronavirus.rutgers.edu/>

STUDENTS SUPPORT AND MENTAL WELLNESS RESOURCES

- Success Essentials: <https://success.rutgers.edu>
- Student Support Services: <https://www.rutgers.edu/academics/student-support>
- The Learning Centers: <https://rlc.rutgers.edu/>
- The Writing Centers (including Tutoring and Writing Coaching): <https://writingctr.rutgers.edu>
- Rutgers Libraries: <https://www.libraries.rutgers.edu/>
- Office of Veteran and Military Programs and Services: <https://veterans.rutgers.edu>
- Student Health Services: <http://health.rutgers.edu/>
- Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS): <http://health.rutgers.edu/medical-counseling-services/counseling/>
- Office for Violence Prevention and Victim Assistance: www.vpva.rutgers.edu/

In the last few years, we have all been going through a lot, individually and together. It is important to acknowledge that events and circumstances outside of the classroom can impact our ability to be present and engaged at any given moment. At Rutgers, we are focused on the whole student. If, at any point, you experience anything impacting your performance or ability to participate in this class, please reach out to me. Please also see the academic, health, and mental wellness resources on the syllabus as well as others searchable at <https://success.rutgers.edu/> for further support.