

Genetics—01:447:380, Fall 2020
Canvas site = 01:447:380
Dr. Mai Soliman

Contact Information and Schedule

My Email: solimanm@rutgers.edu

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

Lecture Schedule: Monday/Thursday 8:10 – 9:30 PM

Lecture location: Remote

Office Hours: Monday and Thursday 8:30 PM – 9:30 PM on Canvas Conferences (**Not Required**)

Recitation: Meeting times depending on section (**Strongly Encouraged**)

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 the summer genetics class. 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

Igor Ivanovski igorivanovski711@gmail.com

B. Recitation Schedule Sec Room Day/Time

<i>Section 16: Tuesday</i>	<i>6:25 PM – 7:20 PM</i>
<i>Section 17: Wednesday</i>	<i>6:25 PM – 7:20 PM</i>
<i>Section 18: Tuesday</i>	<i>4:45 PM – 5:40 PM</i>
<i>Section 19: Wednesday</i>	<i>11:45 AM – 12:40 PM</i>
<i>Section 20: Tuesday</i>	<i>3:05 PM – 4:00 PM</i>
<i>Section 21: Wednesday</i>	<i>3:05 PM – 4:00 PM</i>

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
Recitation 4	DNA Mutation And Repair; Cytogenetics Chromatin and Chromosomes
Recitation 5	Mitosis and Meiosis 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

Required Textbook: Genetics: A Conceptual Approach, 7th ed., by Benjamin A. Pierce Sapling Plus. The instructions for getting Sapling (and e-book access) are below. This is directly from the Publisher.

STUDENT INSTRUCTIONS

1. Find the Sapling Learning content section on your Canvas page. This can be found in the MacMillan tab on the left side of the screen in your Genetics Canvas course. When you click here, it should take you to a page where you can purchase the Sapling and e-book for Genetics. It should cost \$99.
2. Once you've enrolled in the course, you can then gain access to the Sapling assignments in your Canvas Assignments page.
3. To access your ebook, click on the image of the cover on the right sidebar of your course site. Create an account or log in with an existing Macmillan Learning eBook account.
4. Need Help? Answers to many common questions are found in our Student Support Community. If you need direct assistance you can also contact technical support: <https://macmillan.force.com/macmillanlearning/s/>.

The Sapling Plus comes with the e-book so you don't need to purchase a physical textbook.

The PowerPoint files I use for my lectures and the problem sets for recitations will be posted on the Resources page of the course's Canvas website. Many students find it useful to print the slides before the lecture or have them, open on a laptop, so they can take notes on them, and have pictures and notes together in one place.

VII) TENTATIVE Lecture Schedule (Subject to change)

Date	Lecture	Topic	Reading (From the 6th edition, the 7th edition is an e-book without pages)
September 3	1	Syllabus Review Structure and function of Nucleic Acids	Ch 10 Ch 13 pgs 373-376 Ch 11 pgs 326-331
September 8	2	DNA Replication	Ch 12 pgs 339-361
September 10	3	The Process Whereby Genes Make Proteins. (Transcription and translation RNA Processing)	Ch 13 pgs 376-391 Ch 14 Ch 15
September 14	4	Cont: The Process Whereby Genes Make Proteins. (Transcription and translation RNA Processing)	Ch 13 pgs 360-375 Ch 14 pgs 379-401 Ch 15
September 17	5	Gene regulation in Prokaryotes	Ch 16
September 21	6	Cont: Gene Regulation in Prokaryotes	Ch 16
September 24	7	Gene Regulation in Eukaryotes	Ch 17 Ch 21 Ch 14 pgs 418-422
September 28	8	Cont: Gene Regulation in Eukaryotes	Ch 17 Ch 21 Ch 14 pgs 418-422
October 1	9	DNA mutation and Repair	Ch 18
October 5	10	Exam 1	Material from Sept 3 rd - Oct 1

October 8	11	Chromatin and Chromosomes	Ch 11 pgs 311-322
October 12	12	Cytogenetics	Ch 8
October 15	13	Cell Cycle, Mitosis, Meiosis	Ch 2 (Except plant meiosis) Ch 12 pgs 360-363
October 19	14	Mendel's Laws and The Principles of Heredity	Ch 3
October 22	15	Pedigree Analysis For Single-Gene (Mendelian) Disorders and Traits	Ch 6
October 26	16	Cont: Pedigree Analysis For Single-Gene (Mendelian) Disorders and Traits	Ch 6
October 29	17	Sex Determination And Sex-Linked Traits And Disorders	Ch 4
November 2	18	Linkage Produces Non-Mendelian Phenotype Ratios and Is Used To Map Genes	Ch 7
November 5	19	Linkage Produces Non-Mendelian Phenotype Ratios And Is Used To Map Genes	Ch 7
November 9	20	Exam 2	Material from Oct 8 th - Nov 5 th
November 12	21	Multifactorial Traits And Disorders, Interaction Between	Ch 24 Ch 3 pg 56

		Genetic And Nongenetic Factors, and Quantitative Genetics	
November 16	22	Cont: Multifactorial Traits And Disorders, Interaction Between Genetic And Nongenetic Factors, and Quantitative Genetics	Ch 24 Ch 3 pg 56
November 19	23	Other Mechanisms For Nonmendelian Inheritance	Ch 5; Ch 11 pgs 311-314
November 23	24	Cont: Other Mechanisms For Nonmendelian Inheritance	Ch 5; Ch 11 pgs 324-326
November 30	25	Population Genetics	Ch 25
December 3	26	Thanksgiving Break No class	
December 7	27	Cont: Population Genetics	Ch 25
December 10	28	Molecular Genetics and Biotechnology 1	Ch 19
		Final	Material from Nov 12 th - Dec 10 th

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 as well as LockDown Browser. You will be expected to start the exam at the scheduled time. If this can't be done, you need to reach out in advance with a valid excuse. Exams are worth 60% of your grade. ***Absences from the exam will result in a grade of zero unless valid documentation is received from the Dean's office. The dean will contact me with notice that***

you have presented valid documentation to be excused from the exam. 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 post to the appropriate recitation folder on the day the recitation meets. It's a good idea to establish a discussion group in Canvas in order to post questions you might have about the recitation. This will allow you to correspond with other students in your class about the material. You will have approximately 10 recitations this semester. This can change based on the speed at which we cover the material. If I assign an additional recitation it will be an opportunity for you to receive additional practice. It will never hurt your grade. If we lose a recitation, I will scale the grade to 100 points (20% of your grade). Each recitation will be worth 10 points. Recitation is worth 20% of your grade.

In lecture quiz and Sapling assignments: Throughout the 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. I will also assign Sapling questions for you to work through during the week. These questions will correspond to the material I cover in the lecture and will offer you additional opportunities for practice. Some questions are interactive and offer a great opportunity to learn the material in a different format. The lecture quizzes and Sapling assignments are worth 20% of your grade.

Appealing Grades: You will have 1 week to appeal any grades, including recitation, quiz, and exams. I personally don't like the idea of students lining up to beg for points, so your appeal needs to be something significant.

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.

Grading overview

Exams	100 x 3 = 300 points (60% of your grade)
Recitation	20% of your grade
In lecture quiz and Sapling assignments	20% 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

Because this is a remote class, I will not be requiring you to attend any meetings. I strongly encourage you to attend recitation since this will be where you can freely ask all your questions. If you send any questions to me or your TA, they will be addressed during our in-person session. We will record those sessions and you can listen to them at a later time.

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.