

HUMAN GENETICS (Online Through Canvas)

First, Two Special Resources To Help You Adjust To All-Online Courses

1. Please visit the Rutgers Student Tech Guide page for resources available to all students. If you do not have the appropriate technology for financial reasons, please email Dean of Students deanofstudents@echo.rutgers.edu or complete the contact form for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid at <https://financialaid.rutgers.edu/>.
2. The Learning Centers Have produced a short course entitled How To Succeed In Online Courses. You can access it through the Canvas learning management system at this URL: <https://rutgers.instructure.com/enroll/GBPG7G>. You are not required to do this, but you may find it helpful, especially if this is your first online class.

I) Contact Information—Even though I am never on campus, I am still completely accessible to you. We can converse any time, either by email, or voice to voice. It is possible for me to meet with you almost any time of the day or night, any day of the week, including weekends. One advantage of the online format is that I can schedule meetings to suit individual students' convenience, rather than have a few blocks of office hours per week at times that some students may not be able to attend.

My Email: michaelis@dls.rutgers.edu

Chat Sessions Through The Meetings Tool: Email me and we can find a time to meet for a voice-to-voice chat. See the instructions below on how to get into a meeting.

II) Important Notes About Your Responsibilities

Please read this entire document carefully. Because we will not spend several class periods per week face-to-face, when I could repeat instructions and remind people of the important deadlines, you often have only one chance to get the instructions I send out to you. In an online course like this one, the student bears more responsibility for making sure that the important information has not slipped through the cracks than in the traditional classroom setting. Each student is expected to understand all the details that are communicated below, and to follow the procedures outlined.

Please keep in mind that an online course is not a self-paced course. In fact, it requires an extra measure of discipline to keep up with the schedule when you aren't assigned to be in a classroom at a particular time. The Course Schedule below illustrates the topics we will cover and the timeframe in which we will cover them. You can get ahead of the requirements and submit assignments early if you wish, but **no late homework or exam submissions will be accepted except under extraordinary circumstances beyond the student's control.** I will judge each situation on a case-by-case basis, and will only accept the most extraordinary circumstances as excuses for late submissions.

Your first assignment (Due by the end of the second day of class) is to submit a statement asserting that you have read this syllabus, that you understand all the points in it, and that you agree to abide by the terms specified herein. All you need to do is read this syllabus and listen to the syllabus review podcast, go to the Assignments page of the course's website, click on the Syllabus Assignment, write "Syllabus OK" in the submission box, and submit the assignment. Please note that I will not actually read your submission; I will just check to see who has

submitted anything and who has not. So if there is anything you need to communicate with me about, do not put it in with your syllabus assignment submission. Send me an email instead. **Please note that, as with all assignments, the submission window closes at 11:55:00 pm on the day the assignment is due (see Course Schedule below for due dates).** Also please note that, although the Syllabus Assignment is not graded, you will not be able to earn any points toward your grade through homework assignments or exams until you have submitted the Syllabus Assignment.

Your other important 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 their 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 send out both individual and group emails regularly, and I expect you to follow all the instructions in those emails. Therefore, it is your responsibility to either maintain your Canvas email account active, arrange for Canvas 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.

This also applies to any questions you have over the course of the semester regarding any of your graded assignments. If you have a question about a grade, you must address the issue with me within one week of the day the grade was put on the Canvas website.

There will be no consequences to your grade for failing to uphold these responsibilities, but 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 influence whether I am 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.

III) Course Description and Learning Objectives

Human Genetics (01:119:155) is intended to enable the student to understand the means by which the principles of genetics (and several other biological sciences) underlie our development and health, and how the principles of these biological sciences are applied to identify individuals, track human migrations in the past, personalize our health care, develop new cures for diseases, and assist couples who have difficulty having children. We will cover material ranging from molecular biology to political debates. All the biological and biotechnical material is presented in a manner that assumes the student has no background in biology.



This course meets the following Core Curriculum Learning Goals of the School of Arts and Sciences:

- To understand and develop an appreciation for research as the basis of scientific study
- To understand and to appreciate the process of science
- To acquire the ability to use scientific reasoning
- To understand biology as a framework of related concepts

IV) Required Course Materials

A) For Course Content

There is no book necessary for this class. The lecture notes and any other readings I post on the Course Materials page of the Canvas site constitute all the required readings for this class. There is also a set of podcasts, each of which is a narrated PowerPoint presentation, just like I would use if we were in a face-to-face lecture.

Lecture notes are entitled “LECNOTES...”, while podcasts are entitled “...PCAST.” There will be one set of lecture notes and one podcast for each lecture unit, except as otherwise noted on the Course Materials page (All units have lecture notes, most have podcasts, but some units do not have podcasts). There may be some other readings for some lecture units as well. The Course Schedule portion of the syllabus lists all the required readings and podcasts for each lecture unit. All the readings and podcasts for any given lecture unit are listed together in the Course Materials page of the Canvas site, and the readings and podcasts are listed on the Course Materials page in chronological order.

B) Hardware And Software Required

You’ll need speakers and microphone (you can use a headset or just your computer’s microphone and speakers) so you can participate in the Discussion/Review sessions. **When you attend a Discussion/Review session, you must be somewhere quiet, so we will not hear a lot of background noise from your environment if you want to speak to the group.**

You’ll need Adobe Acrobat Reader downloaded on your computer so you can read the lecture notes that are in PDF format. You can download this for free from the Adobe website, <http://www.adobe.com>.

You’ll need the Adobe Flash Player multimedia player—you can download this for free at <https://get.adobe.com/flashplayer/>

If you do not have them already, you may want to download either Google Chrome or the Mozilla Firefox web browser (optional but may be desirable). All online course management systems have odd quirks with certain browsers, and Internet Explorer has more quirks than Mozilla Firefox or Google Chrome. You can download these browsers free at their websites. Whatever browser you use, do a trial run to be sure you can do everything you need to do (ex. download course materials, upload assignments).

Please note that I do not know much about computers and computer systems. If you encounter problems with anything IT-related, contact the support group for the Canvas system at the number you see when you get into Canvas.

V) The Means By Which You Will Access And Discuss The Course Material

A) Accessing The Course Material

The Course Materials page of the course's Canvas website contains the following files, in the order in which you will need them:

1. Readings--For each lecture unit there will be a file that contains my lecture notes for that lecture unit (file name will begin with "LECNOTES"), and also possibly one or more other readings. The lecture notes cover the same material, but are usually more detailed than, their associated podcasts. **Please note that some readings are long and contain technical material that may take you a little time to digest.** Manage your time responsibly. Stay ahead of your assignments' due dates. **Do not plan to do all the reading, thinking and answering questions for a given lecture unit on the day that assignment is due.**

2. PowerPoint files--I will provide you with a set of podcasts (narrated PowerPoint presentations), which are intended to present the course content in a manner that is similar to the way I would present the course material if we were in a face-to-face lecture. Each "...PCAST" entry on the Course Materials page will either contain the podcast itself or an Internet URL that takes you to the recorded podcast. Students often find it useful to print the podcast slides, then have them in front of them while they listen to the podcast, so they can write down notes on the slides. This way, you have your words and pictures together in one place—makes a good study guide for exams.

B) Group Discussions—Forums And Discussion/Review Sessions

You have three options for asking me questions and/or discussing the content material: You can email me, you can post your questions and comments in the Forums, or you can ask your question during the Discussion/Review sessions I will hold before each exam. You are always welcome to email me with questions, but it is often beneficial to your classmates for you to post your questions on the Forum or ask them during the Discussion/Review sessions, because then everyone who has the same question can benefit from my answer.

1. There will be a set of **Forums** posted on the Canvas website. A Forum is a public discussion board, where anyone can post questions and answers. I will monitor the Forums daily, and respond to posts when someone needs help with something. There will be a separate Forum for each lecture unit, plus one for general administrative issues, one for each exam, and, when I assign you to groups for your group presentation, I will create a forum for your group, so you can discuss your plans for the presentation. The questions and answers that get posted in the Forums will be available to everyone. The Forums are there purely for your benefit; posting to the Forums is not required of any student. You can get a little extra credit, though, by being especially helpful answering your classmates' questions that get posted on the Forum (if you get to them before I do).

2. **Discussion/Review Sessions**—Notice in the Course Schedule below that we will have Discussion/Review sessions before each exam. I can schedule other sessions besides these, too, if

anyone wants me to; just send me an email and we'll set up a time. For these Discussion/Review sessions, I will use the Meetings tool on the Canvas website to conduct voice-to-voice meetings, during which we will discuss and review the course material, and you can ask questions just as if we were in a face-to-face class or office hours.

You are not required to attend these Discussion/Review sessions. I will record these sessions, and you can access the recordings through the Meetings tool. If you cannot attend the session, send me an email with any questions you want me to discuss during the review. Your grade will not be affected by whether or not you attend these Discussion/Review sessions, nor will it be affected by any questions you ask or answers you give during the sessions. These sessions are purely for your benefit; many students will find that these discussion sessions help them understand some of the more complex biological and biotechnological material.

At this time these sessions' times are TBA.

To Get Into The Online Meeting Using The Meetings Tool

Click on the Meetings tool on the Canvas site. You will see a list of the meetings that are available.

Click on the meeting you want. On the next page, where it says Status, click on Join Meeting. If you are asked to choose between having a microphone versus listen only, choose listen only (otherwise your microphone will put feedback into our audio). If you need to speak, I can activate your microphone.

When you first get into the meeting, run whatever audio tests the program offers, to be sure your speakers and microphone are working properly.

Once you are in the meeting, text questions into the chat window at bottom right.

To Access The Recording

Click on the Meetings tool on the Canvas site. You will see a list of the meetings that are available.

Click on the meeting you want. On the next page, where it says Recordings, click on the recording.

Alternatively, click on the Meetings tool on the Canvas site. You will see a Meetings tab and a Recordings tab at the top.

Click on the Recordings tab, which will give you a list of the recordings that are available. Click on the desired one.

C) Private Conversations

Use the email address at the beginning of the syllabus for any private communications. While you are welcome to email me, if you have a question about the course material or administrative issues related to the class in general, it is better to post your question in the appropriate Forum.

Very often others have the same question you do, and other students will benefit from the exchange. I get email alerts whenever anyone posts something on the Forum, so I respond to Forum posts as quickly as I respond to regular emails.

VI) The Means By Which You Will Demonstrate Your Understanding Of The Material (The Course Schedule below gives you the official deadlines for all assignments, including exams.)

A) Homework Assignments

Each set of lecture notes contains a set of homework questions at the end. Your homework assignments involve answering the homework questions from each set of lecture notes. All your homework assignments will be posted in the Assignments tool on the course's Canvas website. When I ask a question that requires an essay-type answer, please give me a complete, well-thought-out answer, written in complete sentences, like an essay question from an exam. Remember, though, a good answer does not just dump everything you know about the subject onto the page. The best answers are ones that answer the specific question I ask, and include only the relevant background and details.

Assignments are due by 11:55:00 pm on the day that is listed in the Course Schedule below. Please note that no late submissions will be accepted except under extraordinary circumstances. If you try to submit anything after the deadline, you will find that the link has disappeared. You will have to submit it to me by email.

Important Procedural Note-- Please submit your homework assignments by writing, or cutting and pasting, your submission into the assignment window's submission box. Please do not attach your answers as a separate file. In addition, please **do not submit your answers as a formatted, numbered list**. Number each answer, but do it yourself, rather than use the formatting tools to make a numbered list for you. If you use a formatting tool to make a numbered list, it interferes with my effort to give you feedback on your answers.

Please note that the Canvas website tells you when you have successfully submitted an assignment. It is the responsibility of the students to be sure that their assignments are received by the Canvas website.

B) Exams Are "Open-Book" Exams

The exams will be posted in the Tests And Quizzes tool of the Canvas website.

Both exams are "open-book" exams. The exams will be posted in the Tests And Quizzes tool approximately 12-24 hours before your answers are due. You can take the exam any time you want to before the submission deadline, but note that you can only open the exam once, and once you open the exam, you will have a specified amount of time in which to submit your answers.

I strongly advise you to be well prepared for the open-book exams, just as you would be for an in-class exam, because the time limit will not allow an unprepared student to look up all the answers necessary to perform well on the exam, plus write a completely detailed answer(s) to the essay question(s) that will be on the exam.

*****Please note that the university may have put an erroneous day and time for the final exam on WebReg. The day and time that you see in the Course Schedule below is the official day and time your answers for the final exam are due.*****

C) Group Presentation

You will work together in groups of three people to create a 10-15 minute narrated PowerPoint presentation (similar to one of my PCASTs, but shorter and less boring). The topic you choose

can relate to any ethical, legal or social/societal issue that is relevant to any area of Genetics, including topics discussed in this course, but it must be approved by me. I have provided a document entitled “Sources For Presentation” in the Course Materials section of the Canvas website. It contains suggestions for websites where you can find ideas and articles for your presentation. You must use at least five resources for your presentation.

I will assign you to groups during the third week of class (after the drop/add period ends). The Course Schedule below gives you the deadlines for the various phases of the presentation (i.e. choosing the topic, submitting an outline).

If any individual student or any group wants to meet with me to get advice on any phase of the project, just email me and we will set up a time when we can meet.

D) Very Important—Read This Carefully

Please note that, in a situation like this, where you are allowed to take "open book" exams and I have provided you with my lecture notes, you must make an extra effort to **use your own words when you write the answers to homework questions and the exams' essay questions.**

Copying from my lecture notes, the PowerPoints or any other source as an answer to a study question or exam question, **even if you quote the source**, is unacceptable. **You must find your own way to word things.** Failure to do so is plagiarism--a very serious violation of academic integrity. **The potential consequences include failing the course.**

VII) Course Schedule (Note—This may change as needs arise)

Date*	Lecture Topic And Assignment Title	Relevant Readings, Podcasts, etc
TBA	Confirm Syllabus SYLLABUS ASSIGNMENT	Syllabus And Syllabus Review Podcast
FIRST SOME BASIC PRINCIPLES		
TBA	DNA, Genes And Chromosomes DNA GENES CHROMOSOMES ASSIGNMENT	DNA, Genes And Chromosomes
TBA	Sexual Reproduction And The Inheritance Of Parental Gene Alleles REPRODUCTION AND INHERITANCE ASSIGNMENT	Sexual Reproduction And Inheritance
TBA	Receive Group Assignments For Presentations—Submit Topic ASAP—Must Be Approved By Oct 12th	
TBA	The Process Whereby Your Genes Make Your Proteins GENES TO PROTEINS ASSIGNMENT	From Genes To Proteins
GENES, DEVELOPMENT AND HEALTH		
TBA	Genetic And Epigenetic Mutations	Genetic And Epigenetic Mutations

GENETIC EPIGENETIC MUTATIONS
ASSIGNMENT

TBA	Genes And Development GENES AND DEVELOPMENT ASSIGNMENT	Genes And Development
TBA	Sex Determination And Sexual Development SEXUAL DEVELOPMENT ASSIGNMENT	Sexual Development
TBA	Deadline For Getting Presentation Topic Approved PRESENTATION TOPIC APPROVED ASSIGNMENT	
TBA	Genes, Intelligence And Behavior GENES INTELLIGENCE AND BEHAVIOR ASSIGNMENT	Genes, Intelligence And Behavior
TBA	Discussion/Review Session	Prepare To Discuss Lecture Material From Previous Units
TBA	MIDTERM EXAM (Open-Book, Through The Tests And Quizzes Tool On The Canvas Website, Includes All Units Covered So Far)	
TBA	Submit Outline And List Of Resources For Presentation PRESENTATION OUTLINE AND RESOURCES ASSIGNMENT	
TBA	Single-Gene Disorders And Patterns Of Inheritance In Families SINGLE GENE DISORDERS ASSIGNMENT	Single-Gene Disorders
TBA	Variability In The Human DNA Sequence, Multifactorial Diseases And Personalized Medicine MULTIFACTORIAL DISEASES ASSIGNMENT	Primer On DNA Testing, pg 15-16; Human Variability And Personalized Medicine
TBA	Ethical, Legal And Social Issues In Medical And Personal Genetic Testing ELSI MEDICAL AND PERSONAL TESTING ASSIGNMENT	Primer On Genetic Testing, pg 9-10, 13-14, 18, 21-23; ELSI Issues Medical And Personal Genetic Testing; Privacy Issues In Genetic Testing; Family Physicians Concerned About Direct To Consumer Testing
TBA	Assisted Reproductive Technologies ASSISTED REPRODUCTIVE TECHNOLOGIES ASSIGNMENT	Assisted Reproductive Technologies

TBA	Ethical, Legal And Social Issues In Assisted Reproductive Technologies ELSI STEM CELLS GENE THERAPY ARTs ASSIGNMENT	ELSI Issues ARTs
TBA	Discussion/Review Session	Prepare To Discuss Lecture Material From Previous Units
TBA	FINAL EXAM (Open-book, through the Tests And Quizzes tool on the Canvas Website, includes all units covered after EXAM 2)	
TBA	Submit PowerPoint Presentation POWERPOINT PRESENTATION ASSIGNMENT	
TBA	Receive Your Assignment To Review Two Other Groups' Presentations— Presentations Will Be Posted In The Course Materials Page Of The Canvas Site	
TBA	Submit Your Reviews Of Others' Presentations <u>REVIEW OF OTHERS' PRESENTATIONS ASSIGNMENT</u>	

*All homework assignments are due by 11:55:00 pm on the day indicated. The submission window will close as soon as the clock turns 11:55:00 pm.

VIII) Grading Plan

Exams (Two exams, 100 points each)	200 points
Homework Questions (12 sets, 10 points each)	120 points
<u>Group Presentation</u>	<u>100 points</u>
Total	420 points

Grading Scale

A	90-100%	378-420 points
B+	85-89%	357-377 points
B	80-84%	336-356 points
C+	75-79%	315-335 points
C	70-74%	294-314 points
D	60-69%	252-293 points
F	< 60%	< 252 points

Exams will be administered through the Tests And Quizzes tool on the Canvas website. Exams will include a variable combination of multiple-choice, true-false, matching, short answer, analytical or numerical problems and essay questions.

The exams are “open-book” exams; you can use the lecture notes and/or the PowerPoint slides to help you. Once I post the exam (approx. 12-24 hours before answers are due), you can take the exam any time you want to before the submission deadline, but you can only open the exam once, and once you open the exam, you will have a specified amount of time in which to submit your answers.

I advise you to get as well prepared for one of these exams as you would for an exam in a face-to-face class before you open the exam. The time limit will not allow an unprepared student to look up all the answers, as well as write a proper answer(s) to the essay question(s). The Final Exam will not be cumulative, but I will expect you to be able to apply the foundational biological principles we discuss in the earlier lecture units to the topics we discuss in the later lecture units.

Students are allowed make-up exams only in response to extremely unusual and unpreventable circumstances. You will be required to submit documentation to verify the reason for your absence. Cases will be judged on an individual basis.

Please note that, when you take an open-book test, it is very important that you make a special effort to **always use your own words when answering questions** on the exam. Copying from my lecture notes, the PowerPoints or any other source, **even if you cite the source**, is unacceptable. **You must find your own way to word things.** Failure to do so is plagiarism--a very serious violation of academic integrity. **The potential consequences include failing the course.**

Homework Questions: For each lecture unit your homework assignment will be to answer all the homework questions that are at the back of that set of lecture notes. When I ask a question that requires an essay-type answer, please give me a complete, well-thought-out answer, written in complete sentences, like an essay question from an exam. Make your writing concise and to the point. Don't try to write everything you know on that topic. Just completely answer the specific question I ask.

Please note that, in a situation like this where you have access to the PowerPoint slides and lecture notes to help prepare your homework submissions, it is very important that you make a special effort to **always use your own words when answering questions** on the homework assignments. Copying from my lecture notes, the PowerPoints or any other source as an answer to a homework question, **even if you quote the source**, is unacceptable. **You must find your own way to word things.** Failure to do so is plagiarism--a very serious violation of academic integrity. **The potential consequences include failing the course.**

Also, **please do not submit your answers as a formatted, numbered list.** Number the answers, but do it yourself, not by using the formatting tool. Submitting your answers as a numbered list makes it hard for me to give you feedback on your answers.

Group Presentation Your presentation is worth 100 points, to be graded as follows. Failure to complete any of the required tasks by the deadline given in the Course Schedule above will result in you losing 10% of the available points for that phase of the project.

Topic Approved (10 points)—I must approve the topic, and you must give me a description of how the work will be divided among your group members.

Outline And List Of Resources (20 points)—You must submit a complete outline of the presentation, plus a list of at least five resources you will use for the presentation. Your outline should begin with a list of learning objectives—what you plan to teach the class through your project. Your outline will be graded according to how completely your outline covers the topic you chose, and your references will be judged on the basis of their quality (papers from the legal or genetic blogs or journals are best, news stories are not as good).

Your PowerPoint Presentation (60 points)—I will grade your presentation according to how completely you addressed the topic you chose, how accurate, clear and well organized your information was, and also on how well your reviewers were able to learn the things your outline said you would be trying to teach them. The last slide of your presentation should be a list of your learning goals for that presentation.

Your Review Of Others' Presentations (10 points)--You will be assigned to review two of your classmates' projects. Your grade for this will reflect the level of effort you put into the review, and whether you focused on the aspects of the presentation that I told you I wanted you to focus on in the rubric.

IX) Other Administrative Issues

Academic Integrity Policy

Anything any student submits for a grade must reflect that student's own independent work; you will be required to include the Honor Pledge whenever you submit any kind of graded assignment. Violations include not only copying or otherwise unethically obtaining information for your own benefit, but also giving answers to others or allowing others to copy your work. All violations will be dealt with according to the Rutgers University Academic Integrity Policy, and those who are found violating the Policy can expect severe punishments. The full Rutgers University Academic Integrity Policy can be found at <https://nbprovost.rutgers.edu/academic-integrity-students>.

Keep in mind that in a situation like this, where you have open-book tests and access to the PowerPoint slides and lecture notes to help prepare your homework submissions, it is very important that you make a special effort to **always use your own words when answering questions** on the exams or the homework assignments. Copying from my lecture notes, the PowerPoints or any other source as an answer to a homework question or exam question, **even if you cite the source**, is unacceptable. **You must find your own way to word things**. Failure to do so is plagiarism--a very serious violation of academic integrity. **The potential consequences include failing the course.**