HUMAN GENETICS (Online Through Canvas) Website = 2023FA-01:119:155:90 HUMAN GENETICS

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 Big Blue Button 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 Big Blue Button meeting.

II) First, Some Potentially Helpful Resources

A) If You Need Help Acquiring Resources Needed For Online Classes

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 <u>deanofstudents@echo.rutgers.edu</u> 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/.

B) To Help You Adjust To Online Courses

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.

C) For Your General Wellness

There is a list of Student Wellness Resources on the Modules Page of the Canvas website, in the section entitled Syllabus And Other Helpful Resources

D) Continuously Updated List Of Medical Genetic Tests

I put the URL for a website that provides a comprehensive, continuously updated list of medical genetic tests that are available on the Modules Page, in the section entitled Syllabus And Other Helpful Resources. This could help you with your presentation, or allow you to privately research the tests that are available for a disease you have a personal interest in.

III) 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 11:59:00 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 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.

IV) 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

V) 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 Modules page of the Canvas site constitute all the required readings for this class. There is also a set of podcasts on the Modules page, 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 Modules 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 Modules page of the Canvas site, and the readings and podcasts are listed on the Modules 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 Modules, 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.

VI) The Means By Which You Will Access And Discuss The Course Material A) Accessing The Course Material

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

- **1. Syllabus**—Note that the Syllabus page of the Canvas site gives you your schedule of deadlines for your assignments, but the Syllabus itself, and the Syllabus Review Podcast, will be posted on the Modules page of the Canvas site.
- 2. Readings--For each lecture unit there will be a file that contains my lecture notes for that lecture unit (file name will contain "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.
- **3. 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 Modules 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. Note that some of the PCAST files are big, and will take a few minutes to download. Also note that not all lecture units have podcasts. If a lecture unit does not have a podcast, this will be noted in the Modules page, so you know not to look for one.

B) Discussing The Material And Asking Questions—Emails, Conversations Through The Big Blue Button Tool And Discussion/Review Sessions Through The Big Blue Button Tool

You have three options for asking me questions and/or discussing the course material: You can email me with your questions, you can email me to set up a conversation through the Big Blue Button tool, or you can ask your question during the Discussion/Review sessions I will hold before each exam.

- **1. Email**--You are always welcome to email me with questions. I monitor my email twice daily when class is in session.
- **2.** Conversations Through The Big Blue Button Tool—If you prefer to ask me questions voice to voice, email me and we can set up a meeting through the big Blue Button tool. We can meet this way virtually any time of the day or night, and any day of the week, including weekends.
- **3. Exam Review Sessions Through The Big Blue Button Tool**—Notice in the Course Schedule below that we will have a Discussion/Review session before each exam. For these Discussion/Review sessions, I will use the Big Blue Button tool on the Canvas website to conduct voice-to-voice chat sessions, 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 Big Blue Button 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 Big Blue Button Tool

Click on the Big Blue Button page on the Canvas site. You will see a list of New Big Blue Button that are available.

Click on the conference you want. On the next page, click on Join Meeting.

Choose whether you want to participate as listen-only, or you want to be able to use your microphone to speak (you will be texting your questions into a text box, so it may not be necessary for you to 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 your questions into the chat window.

To Access The Recording

Click on the Big Blue Button tool on the Canvas site. You will see a list of the Big Blue Button that are available.

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

When you view the recording, you won't see anything in the central part of the screen. You will see the text window, and the questions people have submitted, and you will hear my voice, and the voices of others who speak during the session.

VII) The Means By Which You Will Demonstrate Your Understanding Of The Material (The Course Schedule below gives you the official deadlines for all homework assignments, exams and presentation-related assignments.)

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 11:59:00 pm on the day that is listed in the Course Schedule below. 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. If you miss a deadline, please submit your assignment as soon as possible. I may apply a penalty for lateness (I will decide this on a case-by-case basis), but at least you'll get partial credit, and perhaps more importantly, feedback to help prepare you for the next exam. If something extraordinary happens and you are going to have significant trouble meeting your upcoming assignment deadlines, contact me as soon as possible and I can try to make an accommodation for you.

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 Quizzes tool of the Canvas website.

All exams are "open-book" exams. The exams will be posted in the Quizzes tool approximately 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.

Note there will not be an exam given during the Final Exam period. We will finish the lectures and exams shortly before the official end of classes, after which you will have until the end of the Final Exam period to finish your presentations.

***Please note that the university may have put an erroneous day and time for the final exam on WebReg. Please ignore anything that contradicts the Course Schedule below.

C) Group Presentation (Note—Only one member of each group needs to submit presentation-related assignments)

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 subject that is relevant to human genetics, including topics discussed in this course, but your presentation must include material that goes beyond the material I have already put in the syllabus. I have provided a document entitled "Sources For Presentation" on the Modules page of the Canvas website, in the section entitled "Syllabus And Other Helpful Resources." 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.

Submit your presentation by saving it as a PowerPoint file and sending it to me by email. If it is too big to send as an attachment, break it up into portions and label them accordingly, so I know what order to view them in.

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.**

VIII) Course Schedule

Very Important—The Canvas website gives you a Course Summary, which lists the deadlines for all your homework assignments, on the Syllabus page. Canvas also gives you the same Course Summary, along with a To Do list, on the Home page to help you keep up with deadlines. Note, however, that this only lists the things I have posted in the Assignments section—it does NOT include the exams, which I will post later in the Quizzes section.

Date*	Lecture Topic And Assignment Title	Relevant Readings, Podcasts, etc
Sep 6	Confirm Syllabus	Syllabus And Syllabus Review
	SYLLABUS ASSIGNMENT	Podcast

FIRST SOM	E BASIC PRINCIPLES	
Sep 12	DNA, Genes And Chromosomes DNA GENES AND CHROMOSOMES AS	DNA, Genes And Chromosomes SIGNMENT
Sep 18	The Process Whereby Your Genes Make From Genes To Proteins Your Proteins FROM GENES TO PROTEINS ASSIGNMENT	
Sep 23	Receive Group Assignments For Presentations (Submit topic for approval by Oct 12)	
Sep 24	Sexual Reproduction And The Inheritance Of Parental Gene Alleles REPRODUCTION AND INHERITANCE ASSIGNMENT	Sexual Reproduction And Inheritance
GENETIC D	ISEASES AND PATTERNS OF INHERIT	TANCE IN FAMILIES
Sep 30	Genetic And Epigenetic Mutations GENETIC AND EPIGENETIC MUTATIO	Genetic And Epigenetic Mutations
Oct 6	Single-Gene Disorders And Patterns Of Inheritance In Families SINGLE GENE DISORDERS ASSIGNME	Single-Gene Disorders NT
Oct 12	Submit Detailed Description Of Your Presentation Topic And Plan For division Of Labor PRESENTATION TOPIC APPROVED ASSIGNMENT (Only one person per group needs to submit)	
Oct 16	Variability In The Human DNA Sequence, Multifactorial Diseases And Personalized Medicine MULTIFACTORIAL DISEASES ASSIGN	Personalized Medicine
TBA	Discussion/Review Session	Prepare To Discuss Lecture Material From Previous Units
Oct 22	MIDTERM EXAM (Open-Book, Through The Quizzes Tool On The Canvas Website, Includes All Units Covered So Far)	
Oct 28	Ethical, Legal And Social Issues In Medical And Personal Genetic Testing ELSI MEDICAL AND PERSONAL TESTING ASSIGNMENT	ELSI Issues Medical And Personal Genetic Testing
Nov 1	Submit Outline And List Of Resources For I	Presentation

PRESENTATION OUTLINE AND RESOURCES ASSIGNMENT

GENES AN	D DEVELOPMENT	
Nov 4	Genes And Development GENES AND DEVELOPMENT ASSIGN	Genes And Development MENT
Nov 10	Sex Determination And Sexual Development SEXUAL DEVELOPMENT ASSIGNMENT	Sexual Development NT
Nov 16	Genes, Intelligence And Behavior GENES INTELLIGENCE AND BEHAVI	
	GENETIC PRINCIPLES FOR MEDICA CTIVE TECHNOLOGIES	L THERAPIES AND ASSISTED
Nov 22	Stem Cell Therapy And Assisted Reproductive Technologies STEM CELLS ASSISTED REPRODUCT TECHNOLOGIES ASSIGNMENT	Stem Cell Therapy And Assisted Reproductive Technologies
Nov 23-26	THANKSGIVING BREAK	
Dec 1	Ethical, Legal And Social Issues In Stem Cell Therapy And Assisted Reproductive Technologies ELSI STEM CELLS AND ARTs ASSIGN	
TBA	Discussion/Review Session	Prepare To Discuss Lecture Material From Previous Units
Dec 7	FINAL EXAM (Open-book, through the Quizzes tool on the Canvas Website, includes all units covered after the Midterm Exam)	
Dec 17	Submit PowerPoint Presentation POWERPOINT PRESENTATION ASSIGNMENT	
*All graded	assignments are due by 11:59:00 pm on the d	ay indicated.

IX) Grading Plan

Exams (Two exams, 150 points each)	300 points
Homework Questions (12 sets, 10 points each)	120 points
Group Presentation	90 points
Total	510 points

Grading Scale

A	90-100%	459-510 points
B+	85-89%	433-458 points
В	80-84%	408-432 points
C+	75-79%	382-407 points
C	70-74%	357-381 points
D	60-69%	306-356 points
F	< 60%	< 306 points

Exams will be administered through the 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.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 proper answers to the essay questions.

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 end 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 (Note—Only one member of each group needs to submit presentation-related assignments)

Your presentation is worth 90 points, broken down 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)—You must submit your presentation topic, and include some detail about which subtopics or issues you plan to discuss. Also describe which aspects of the presentation the individual group members will be responsible for.

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 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 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, as well as how accurate, clear and well organized your presentation was.

Submit your presentation by saving it as a PowerPoint file and sending it to me by email. If it is too big to send as an attachment, break it up into portions and label them accordingly, so I know what order to view them in.

X) Other Administrative Issues

A) Academic Integrity Policy

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

Two Things To Note:

- 1. 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.**
- 2. Students often form study groups, meeting either face to face or through one social media platform or another. While it is OK for you to form a study group, make sure that when you go to write your answers to homework assignments or exam questions, you write your answers independently of your group members. If I receive homework or exam submissions from multiple students that are too similar, I will investigate the matter as a potential violation of the academic integrity policy.

B) Students Requiring Accommodations

Students with disabilities who are requesting accommodations must follow the procedures outlined at https://ods.rutgers.edu/students/getting-registered. The full disability policies and procedures can be accessed at https://ods.rutgers.edu/