

# **Human Genetics (01:119:155)**

## **Online Course Delivered Through Canvas**

September 2, 2025 – December 22, 2025

### **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.

**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. Helpful Resources**

#### **A. Help Acquiring Technology 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 the Dean of Students at 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:

[Rutgers Office of Financial Aid](#)

#### **B. Help Adjusting 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 the link below. You are not required to complete this course, but you may find it helpful, especially if this is your first online class.

[How To Succeed In Online Courses \(Canvas Enrollment Link\)](#)

#### **C. General Wellness Resources**

A list of Student Wellness Resources is available on the Modules page of the Canvas website, in the section entitled "Syllabus And Other Helpful Resources."

#### **D. Medical Genetic Tests Reference**

A URL for a comprehensive, continuously updated list of available medical genetic tests is posted on the Modules page of Canvas, in the section entitled “Syllabus And Other Helpful Resources.” This resource may help you with your group presentation or allow you to privately research tests available for a disease of personal interest.

### **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 you of important deadlines, you often have only one chance to receive the instructions I send out. In an online course, students bear more responsibility for ensuring that important information has not been overlooked. Each student is expected to understand all the details communicated below and to follow the procedures outlined.

#### **A. 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 are not assigned to be in a classroom at a particular time. The Course Schedule in Section VIII gives you the deadlines for all graded assignments. If you miss a deadline, please submit your assignment as soon as possible. I may apply a late penalty on a case-by-case basis, but you will at least receive partial credit and, more importantly, feedback to help prepare you for the next exam.

Important note: Any issues pertaining to any graded assignments must be raised in a timely manner.

#### **B. First Assignment: Due by End of the Second Day of Class**

Your first assignment is to submit a statement confirming 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. To complete this assignment:

1. Read this syllabus and listen to the Syllabus Review podcast.
2. Go to the Assignments page of the course website.
3. Click on the Syllabus Assignment.
4. Type “Syllabus OK” in the submission box and submit.

Please note: I will not read your submission; I will only check who has submitted. If you need to communicate something, send me an email instead.

All assignments close at 11:59:00 p.m. on the day the assignment is due (see Course Schedule in Section VIII for due dates).

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 it.

#### **C. Online Classes Often Test Your Self-Reliance**

In order to be a successful professional, you need to understand how to use the resources available to you to solve problems and answer questions. This syllabus contains answers to almost all questions I have received from students over the years. If you have a question, you can often get an immediate answer from the syllabus.

Please ensure that Canvas has your correct email address so you receive announcements sent to the class.

There will be no direct grade consequences for failing to meet these expectations, but I consider these performance items indicators of your professional maturity and organization. They will influence whether I am willing to give special consideration at the end of the semester if you are close to the next grade level, or whether I agree to write a letter of recommendation.

## **IV. Course Description and Learning Objectives**

Human Genetics (01:119:155) is intended to enable students to understand the means by which the principles of genetics (and several other biological sciences) underlie our development and health, and how these principles are applied to identify individuals, track human migrations, personalize 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 biological and biotechnical material is presented assuming no prior background in biology.

### **Core Curriculum Learning Goals (School of Arts and Sciences)**

- To understand and develop an appreciation for research as the basis of scientific study
- To understand and 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. Course Content Materials**

There is no textbook required for this class. The lecture notes and any other readings posted on the Modules page of the Canvas site constitute all required readings. There is also a set of podcasts (narrated PowerPoint presentations) on the Modules page, which present course content in the same manner as a face-to-face lecture.

Lecture notes are labeled "LECNOTES..." and podcasts are labeled "...PCAST." There will be one set of lecture notes and one podcast for each lecture unit, except where otherwise noted on the Modules page. The Course Schedule in Section VIII lists all required readings and podcasts for each unit.

### **B. Required Hardware and Software**

You will need the following equipment and software:

- Speakers and a microphone (headset or built-in) to participate in Discussion/Review sessions. When attending a Discussion/Review session, you must be in a quiet environment.
- Adobe Acrobat Reader (free download) to read lecture notes in PDF format.

[Download Adobe Acrobat Reader \(free\)](#)

- Microsoft PowerPoint to open narrated PowerPoint files. If working on a mobile device, download the PowerPoint app.
- A supported web browser such as Google Chrome or Mozilla Firefox is recommended. Internet Explorer may have compatibility issues with Canvas.

Note: For IT-related problems with Canvas, please contact the Canvas support group directly through the support information provided when you log in to Canvas.

## **VI. Accessing and Discussing Course Material**

### **A. Accessing Course Material**

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

5. Syllabus – The Syllabus page created by Canvas provides your schedule of assignment deadlines, but the complete Syllabus (including exam dates) and the Syllabus Review Podcast are posted on the Modules page. Note: The Canvas-generated Syllabus page is incomplete; it will not include exam dates until I create and post exams. Always use the Syllabus on the Modules page for complete deadline information.
6. Readings – Each lecture unit includes a file of my lecture notes (labeled LECNOTES) and possibly additional readings. Lecture notes are usually more detailed than their associated podcasts. Please plan ahead — some readings are long and contain technical material that requires time to digest. Do not attempt to complete all reading and assignments on the day they are due.
7. Podcast files – Narrated PowerPoint presentations (...PCAST entries on Modules page). Students often find it useful to print the podcast slides and write notes on them while listening. Some podcast files are large and may take a few minutes to download. Not all lecture units have podcasts; this will be noted on the Modules page.

### **B. Asking Questions and Discussing Course Material**

You have three options for asking questions and discussing course material:

- Email – You are always welcome to email me with questions. I monitor my email twice daily when class is in session.
- Voice-to-Voice Conversations via Big Blue Button – Email me to schedule a meeting. We can meet virtually any time of the day or night, including weekends.

- Discussion/Review Sessions via Big Blue Button – Before each exam, I will hold a Discussion/Review session where you can ask questions just as in a face-to-face class or office hours.

Attendance at Discussion/Review sessions is optional. I will record each session and post the recording for later access. Your grade is not affected by attendance, questions asked, or answers given during these sessions.

Session times are to be announced (TBA).

## **How to Join a Big Blue Button Meeting**

8. Click on the Big Blue Button page on the Canvas site.
9. Click on the conference you want to join.
10. On the next page, click “Join Meeting.”
11. Choose whether to participate as listen-only or with your microphone active.
12. Run the audio test when prompted to verify your speakers and microphone are working.
13. Once in the meeting, type your questions into the chat window.

## **How to Access a Recording**

14. Click on the Big Blue Button tool on the Canvas site.
15. Click on the conference you want.
16. On the next page, under “Recordings,” click the recording you want to view.

Note: When viewing a recording, you will not see video in the central area. You will see the text/chat window and hear voices from the session.

## **VII. How You Will Demonstrate Understanding of the Material**

The Course Schedule in Section VIII gives you the official deadlines for all homework assignments, exams, and presentation-related assignments.

### **A. Homework Assignments**

Each set of lecture notes contains homework questions at the end. Your homework involves answering these questions. All assignments are posted in the Assignments tool on the Canvas website.

When a question requires an essay-type answer, provide a complete, well-thought-out answer written in complete sentences. Good answers respond directly to the specific question asked and include only relevant information.

Assignments are due by 11:59:00 p.m. on the date listed in the Course Schedule. Please submit answers by typing or pasting them directly into the assignment submission box. Do not attach your answers as a separate file.

If you miss a deadline, please submit as soon as possible. Late penalties may apply on a case-by-case basis, but you will receive partial credit and feedback. If an extraordinary circumstance arises, contact me as soon as possible.

Canvas will notify you when your assignment has been successfully submitted. It is the student's responsibility to verify that submissions are received.

## **B. Important Notes About Homework Assignments**

### **1. No Need to Use Outside Sources**

All information needed to answer homework and exam questions is in the lecture notes. The readings for this class were written specifically for students without a biology background, and most outside internet sources on these topics are written for more advanced audiences.

Using outside sources has historically caused two types of problems:

- Answers that are clumsily written or contain directly copied text, which may appear to violate the academic integrity policy.
- Answers that contain general information about the topic but do not address the specific question asked. Including irrelevant material reduces your score. It also suggests the use of an AI program, which is not permitted.

If you can incorporate outside information that directly addresses the specific question, in your own words, that is acceptable. However, it is rarely necessary and may waste your time.

### **2. Important Notes About Formatting Homework Answers**

- Submit answers in the assignment submission box. Do not attach a separate file or submit a link to a cloud storage site.
- Number your answers manually — do not use your word processor's automatic numbered list formatting. Formatted numbered lists cause Canvas to renumber my comments, making it difficult to match feedback to your answers.
- Best practice: Write your answers directly into the Canvas submission box first, then copy and save them elsewhere. This avoids formatting issues when transferring from Google Docs or other applications.

## **C. Exams (Open-Book)**

Exams will be posted in the Quizzes tool on the Canvas website. Note: The Quizzes tool will not appear until I post the first exam.

All exams are open-book. Exams are posted approximately 24 hours before answers are due. You may take the exam any time before the deadline, but note:

- You may only open the exam once.
- Once you open the exam, you will have a specified time limit in which to submit your answers.

Important: Although the exams are open-book, prepare as you would for an in-class exam. The time limit will not allow an unprepared student to look up all answers and also write complete, well-developed essay responses.

Note: The university may have listed an incorrect day and time for the final exam on WebReg. We will not hold an exam during the university's final exam period — only the exams listed in the Course Schedule apply. Please disregard any contradictory information.

## **D. Group Presentation**

Note: Only one member of each group needs to submit presentation-related assignments.

You will work in groups of three to create a 10–15 minute narrated PowerPoint presentation on a topic related to the ethical, legal, and/or social issues relevant to genetics. Your presentation must include material that goes beyond what is covered in the course materials, and you must use at least five resources.

A document entitled “Sources For Presentation” is available on the Modules page with suggestions for websites and articles. A document entitled “Instructions For Narrating A PowerPoint Presentation” is also available if needed.

Group assignments will be made during the third week of class (after the drop/add period ends). Deadlines for each phase of the presentation are listed in the Course Schedule.

To submit your presentation, save it as a PowerPoint file and send it to my email address listed in Section I. Do not submit a Google Docs link or other cloud-based link. If the file is too large to send as one attachment, break it into 2–3 parts and label them accordingly (e.g., Group 2 Part 1, Group 2 Part 2).

## **E. Academic Integrity – Use of Your Own Words**

In a course where open-book exams and lecture notes are available, you must make an extra effort to use your own words when writing answers to homework and exam questions.

Copying from lecture notes, PowerPoints, or any other source — even with citation — is unacceptable and constitutes plagiarism, a serious violation of academic integrity. The potential consequences include failing the course.

## **VIII. Course Schedule**

Important: The Canvas website provides a Course Summary listing all homework assignment deadlines on the Syllabus page. This summary does not include exams, which are posted later in the Quizzes section. All graded assignments are due by 11:59:00 p.m. on the date indicated.

## **First Some Basic Principles**

**Sep 3** – Confirm Syllabus – Syllabus Assignment Due | *Syllabus and Syllabus Review Podcast*

**Sep 9** – DNA, Genes, and Chromosomes – Assignment Due | *DNA, Genes and Chromosomes*

**Sep 15** – The Process Whereby Your Genes Make Your Proteins – Assignment Due | *From Genes to Proteins*

**Sep 19** – Receive Group Assignments for Presentations | *Submit topic for approval by Oct 11*

**Sep 21** – Sexual Reproduction and the Inheritance of Parental Gene Alleles – Assignment Due | *Sexual Reproduction and Inheritance*

## **Genetic Diseases and Patterns of Inheritance in Families**

**Sep 27** – Genetic and Epigenetic Mutations – Assignment Due | *Genetic and Epigenetic Mutations*

**Oct 3** – Single-Gene Disorders and Patterns of Inheritance in Families – Assignment Due | *Single-Gene Disorders*

**Oct 9** – Variability in the Human DNA Sequence, Multifactorial Diseases, and Personalized Medicine – Assignment Due | *Human Variability, Multifactorial Diseases and Personalized Medicine*

**Oct 12** – Submit Detailed Description of Your Presentation Topic and Plan for Division of Labor – Presentation Topic Approved Assignment Due (one submission per group)

**TBA** – Discussion/Review Session | *Prepare to discuss lecture material from previous units*

**Oct 17** – Midterm Exam (Open-Book, through Quizzes tool on Canvas) | *Includes all units covered to date*

## **Ethical, Legal, and Social Issues**

**Oct 23** – Ethical, Legal, and Social Issues in Medical and Personal Genetic Testing – Assignment Due | *ELSI Issues: Medical and Personal Genetic Testing*

## **Genes and Development**

**Oct 29** – Genes and Development – Assignment Due | *Genes and Development*

**Nov 4** – Sex Determination and Sexual Development – Assignment Due | *Sexual Development*

**Nov 8** – Submit Outline and List of Resources for Presentation – Presentation Outline and Resources Assignment Due

**Nov 10** – Genes, Intelligence, and Behavior – Assignment Due | *Genes, Intelligence and Behavior*

## **Applying Genetic Principles for Medical Therapies and Assisted Reproductive Technologies**

**Nov 16** – Stem Cell Therapy and Assisted Reproductive Technologies – Assignment Due | *Stem Cell Therapy and Assisted Reproductive Technologies*

**Nov 22** – Ethical, Legal, and Social Issues in Stem Cell Therapy and Assisted Reproductive Technologies – Assignment Due | *ELSI Issues: Stem Cells and ARTs*

**Nov 27–Nov 30** – Thanksgiving Break – No Assignments

**TBA** – Discussion/Review Session | *Prepare to discuss lecture material from previous units*

**Dec 9** – Final Exam (Open-Book, through Quizzes tool on Canvas) | *Includes all units covered after the Midterm Exam*

**Dec 19** – Submit PowerPoint Presentation by email. Grade and feedback provided through the PowerPoint Presentation Assignment page.

## **IX. Grading Plan**

### **Point Breakdown**

Exams (Two exams, 150 points each): 300 points

Homework Questions (12 sets, 10 points each): 120 points

Presentation Topic Approved: 10 points

Presentation Outline and Resources: 20 points

Presentation: 60 points

Total: 510 points

### **Grading Scale**

A: 90–100% (459–510 points)

B+: 85–89% (433–458 points)

B: 80–84% (408–432 points)

C+: 75–79% (382–407 points)

C: 70–74% (357–381 points)

D: 60–69% (306–356 points)

F: Below 60% (below 306 points)

### **Exams**

Exams are administered through the Quizzes tool on Canvas and may include a variable combination of multiple-choice, true/false, matching, short answer, analytical or numerical problems, and essay questions.

Exams are open-book; you may use lecture notes and/or PowerPoint slides. However, the time limit does not allow an unprepared student to look up all answers and write complete essay responses. Prepare thoroughly before opening the exam.

The Final Exam is not cumulative, but you will be expected to apply foundational biological principles from earlier units to topics covered in later units.

Make-up exams are granted only for extremely unusual and unpreventable circumstances. Documentation is required, and cases are judged individually.

When answering exam questions, always use your own words. Copying from lecture notes, PowerPoints, or any other source — even with citation — constitutes plagiarism and may result in failing the course.

## **Homework Questions**

For each lecture unit, your assignment is to answer all homework questions at the end of that set of lecture notes. Essay-type answers should be complete, well-thought-out, written in complete sentences, concise, and directly responsive to the specific question asked.

Always use your own words. Copying from any source is plagiarism and may result in failing the course.

Do not submit answers as a formatted numbered list; number the answers manually.

## **Group Presentation (90 Points Total)**

Only one group member needs to submit presentation-related assignments. Failure to complete any required task by the deadline results in a 10% deduction from the available points for that phase.

### **Topic Approved (10 points)**

Submit your presentation topic with detail about which subtopics or issues you plan to discuss. Describe which aspects each group member will be responsible for.

### **Outline and List of Resources (20 points)**

Submit a complete outline of the presentation and a list of at least five resources. Outlines are graded on how completely they cover the chosen topic. Resources are judged on quality (peer-reviewed papers or genetics journals are preferred over general news stories).

### **PowerPoint Presentation (60 points)**

Graded on how completely the chosen topic was addressed, and on the accuracy, clarity, and organization of the presentation.

Submit your presentation as a PowerPoint file attached to an email sent to my address in Section I. If the file is too large, break it into labeled parts.

## **X. Other Administrative Policies**

### **A. Academic Integrity**

All work submitted for a grade must reflect the student's own independent effort. Violations include copying or unethically obtaining information for your own benefit, as well as sharing answers with or allowing others to copy your work.

All violations will be addressed according to the Rutgers University Academic Integrity Policy. Students found in violation may face severe penalties.

[Rutgers University Academic Integrity Policy](#)

As noted in Rutgers Academic Integrity Policy section 10.2.13, students must ensure that coursework is "the student's own and created without the aid of impermissible

technologies, materials, or collaborations.” Artificial Intelligence (AI) programs are classified as impermissible technologies for this course.

Study groups are permitted, but all homework and exam answers must be written independently. Submissions from multiple students that are too similar will be investigated as potential academic integrity violations.

## **B. Accessibility Accommodations**

Students with disabilities requesting academic accommodations must follow the procedures outlined by the Office of Disability Services. Please contact the Office of Disability Services as early in the semester as possible.

[Getting Registered with Rutgers Office of Disability Services](#)

[Full Disability Policies and Procedures](#)

## **C. Accessibility Statement**

Rutgers University is committed to ensuring equal access to course materials and activities for all students in accordance with applicable law, including Title II of the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act. This course and its materials are designed to be accessible. If you encounter any accessibility barriers, please contact the Office of Disability Services or notify the instructor so that appropriate accommodations can be arranged in a timely manner.

[Rutgers Office of Disability Services](#)

Students requiring accommodations are encouraged to share their accommodation letters with the instructor as early as possible to ensure timely implementation.