

Course Information and Syllabus

Bi122: Introduction to Human Genetics Summer 2020

Professor: Dr. Amy Connolly

Course Overview

We will explore 1) the genetic and molecular basis of heredity and inherited traits, 2) how genetics & genomics reveal an understanding of the human condition, including genetic diseases, cancer, sex development, and ancestry 3) how basic and translational genetics research is leading to improvements to human health, and 4) current ethical discussions related to human genetics. All of the topics covered are likely to have a significant impact on our lives, as more and more of modern medicine and health decisions have a genetic basis.

Learning Outcomes

Consider, summarize, and debate the efficacy and ethics of modern genetic/genomic testing from the perspective of understanding what genes are, how they are inherited, how they result in traits or human disease, and how genomic analyses are performed & interpreted.

Comprehend a given current affairs article, news story, or documentary related to human genetics (e.g. genomics testing, human disease, personalized medicine); confidently summarize the major points to family, friends, and colleagues including conveying the issue's significance (including any ethical concerns) and explaining the underlying genetics and molecular biology.

Appreciate the origins of many fundamental biology and human health breakthroughs in genetic studies of model organisms. Apply the scientific method to design a hypothetical, straightforward genetics experiment to test an unresolved scientific question and/or to appraise/rebut a claim based on scientific results (or the lack thereof).

Determine the best medical approach to use given a patient's particular concern or disease. Be able to communicate how the treatment or test works, and why it would be the best medical approach for a given scenario.

Daily Class Structure, Grades and Related-Policies:

Course Overview: See last page for a day-to-day account of what we are doing.

Modules: There is a module due almost every day of the term (see Canvas or last page). Modules will consist of readings (some written by myself, others from your textbook or from other sources, etc.), videos, discussions, activities and quiz questions. The quiz questions associated with each module will be graded on accuracy; this is how you will receive points for the module. Answers will be revealed the following day. You are encouraged to work ahead if the modules are published.

Grading

Daily Modules: 90% (14 modules worth 4-7% each; see Assignment for details)
Final Exam: 10%

Late Policy: You will have by 11:59 pm of the due date to complete the modules. If a quiz is submitted late, there will be a 30% penalty. It's a harsh penalty because answers become available at 12:00 am the following day. Any essays that are submitted late will receive a 10% penalty. You have **4 days** to complete a late assignment and then it is marked 0. For the last week of class, **no late assignments will be accepted after 11:59 PM Wednesday, July 15.**

Final Exam: The final will be given through Canvas. It is 90 minutes and due at 3:00 PM Thursday July 16. You will have at least a 48-hour window to take the exam. (Tuesday July 14 at 3:00 PM – Thursday July 16 at 3:00 PM). It may be available sooner, but I cannot say at this time.

Rules for Remote Learning and Academic Honesty:

Modules: You may work together with peers, but do not submit somebody else's work or answers.

Final Exam: You must complete this by yourself. You are on the honor system here. Do not share test answers with others. Do not discuss the exam with anyone else as you take it. Do not screen shot exam images and share them, unless you are sharing them with your instructor to discuss.

Other information:

I rarely award requests from students for more points on an assignment, but if you do believe there was a mistake, your concern *must be addressed* within 4 days you received the grade.

Readings

1. *Human Heredity: Principles and Issues*, 11th Edition, Michael R Cummings
 - Online text can be rented through the bookstore or here for \$30 here: <http://www.cengagebrain.com/course/4553723>
 - Unless the site below has been updated, you will need to click "Buy or Rent from \$249," and then find the option to rent the book for 6 months for \$30.
 - You may also be able to find a hard copy used or new at the bookstore or on amazon if you wish.

Getting Help with Content:

1. Email

You are welcome to email me with questions about the daily modules. I won't give you answers to the questions you are submitting, but I will try get you oriented in the right direction.

2. Zoom Conference Time:

We can chat face to face if you want to. Please email me, **Professor Connolly**, at amyc@uoregon.edu if you want to find a time.

Discussion of Controversial Issues:

In this class, we will be discussing information that may at times be sensitive in nature. My goal is to create a safe space for people to discuss complex ideas in a respectful manner. Please consider how you can vocalize your viewpoint in a thoughtful and compassionate way that will not make someone else feel alienated.

I care deeply and believe it is my responsibility, as your instructor, to make sure information is not presented in a way that marginalizes any group of people. I therefore welcome you to have private conversations with me if you believe there I could improve in some fashion.

Discussion of Medical Issues:

In this class, we will be discussing information relating to disease treatment, medicine, genetic testing and gene therapy. As your instructor I can inform you of the various kinds of technology we are either developing or use, but I cannot advise you on your own personal choices. I am not a medical doctor. If you are interested in how the things we have talked about may influence you, I would suggest talking to your medical doctor about it.

Inclusiveness

The University of Oregon is working to create inclusive learning environments. Please notify the instructor if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact the Accessible Education Center in 164 Oregon Hall at 541.346.1155 or uoaec@uoregon.edu.

Plagiarism & Cheating

Plagiarism and cheating will not be tolerated. You are expected to do your own work on all homework, assignments, and exams. You are encouraged to discuss ideas with other students and study together, but do not copy anyone else's work, and don't allow anyone else to copy your work. All students are expected to conform to the student conduct code (see URL below) - students not in compliance will be brought to the attention of the University.

Student Conduct Code

http://www.uoregon.edu/~stl/programs/student_judi_affairs/conduct-code.htm

The Final Word:

You will find that your course instructors work hard to support your learning, and provide multiple opportunities for you to be successful. At the end of the term, when your grade has been calculated, please do not request any opportunities for extra credit, or your grade to be bumped up to the next grade level. No such request will be granted.

Overview of Course Agenda

	Due Dates Except for the final, complete all modules by 11:59 pm of the date due
<i>Week 1</i>	
No Module due, read syllabus, get your book.	Monday, June 22,
Module 1: Introduction to Genetics and Cell Biology	Tuesday, June 23
Module 2: Mendelian Inheritance	Wednesday, June 24
Module 3: Lactose Intolerance	Thursday, June 25
<i>Week 2</i>	
Module 4: Cell Division	Monday, June 29
Module 5: Non-Mendelian Inheritance	Tuesday, June 30
Module 6: Non-Mendelian Inheritance Part 2	Wednesday, July 1
Module 7: Transcription/Translation	Thursday, July 2
<i>Week 3</i>	
Module 8: Mutations	Monday, July 6
Module 9: Genetics Disorders	Tuesday, July 7
Module 10: Cancer	Wednesday, July 8
Module 11: Genetic Testing	Thursday, July 9
<i>Week 4</i>	
Module 12: Sex Development	Monday July 13
Module 13: Ancestry	Tuesday July 14
Module 14: Gene Therapy and Editing in Humans	Wednesday, July 15
Final Exam: Due: 3:00 PM on Thursday July 16 Availability window: at least a 48 hour window (Tuesday July 14 at 3:00 PM – Thursday July 16 at 3:00 PM) Timed: 90 minutes	Thursday, July 16
Final exam must be taken by yourself. Do not give or receive answers.	