

Course Information and Syllabus

Bi122: Introduction to Human Genetics Summer 2018

Instructors

Professor: Dr. Amy Connolly

TA: TJ Ekstrom

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, and sex development, 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:

Grading

Daily Modules	75% (15 modules at 5% each)
Exam 1	10%
Final exam (Cumulative)	15%

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

Modules: Almost every day you will need to complete a module. Module due dates can be found on Canvas or in the syllabus. 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.

Time management and module completion

Each module is designed to take approximately 2 hours, the length of time you would spend in a classroom. However, you may prefer to spend longer than 2 hours to make sure you have answered all the problems correctly, which I encourage you to do! You can think of this additional time as study time because the problems in the quizzes will help prepare you for the exam.

You may work ahead if the next module is published and available.

Late Policy: You will have by 11:59 of the due date to complete the modules. For the first day late (starting at 12:00am) there will be a 25% deduction off the total points. Each additional day it is late you will be deducted another 5%. So a module that is completed 4 days late will be marked 40% off.

Exams

There will be two proctored exams. You will need to activate your account at <https://distanceeducation.uoregon.edu>. **Whether you will be near the University of Oregon this summer or off campus, you will need to make arrangements with this service and schedule a time for you to take a test.** For those of you staying around Eugene you can take the exams at the UO. For those of you leaving you will need to make other arrangements with another university or testing center. If you run into problems when setting up a remote proctor for your exam, please email cas-de@ithelp.uoregon.edu or submit a ticket on our site (<https://distanceeducation.uoregon.edu/information/contact>).

Point Requests:

I rarely award requests from students for more points for a couple of reasons. First, usually students simply need to rethink the question and answer and understand where the mistake was made. Second, all students are graded using the same rubric, and changing one person's grade would affect another person's grade.

If you have a request or believe there was a mistake, your concern *must be addressed within one week* of the assignment or exam. The last day to make requests is Wednesday July 18th at 11:59 pm.

Textbook:

You will need a copy of the text *Human Heredity* (2015 version) for this class. *If you have the 2013 version shoot me (Amy) an email.* Preferably, you will choose option 1 below, but I understand that you may be on a budget, so I have given you a second option.

Option #1 (Preferred; Human Heredity-Mind Tap): \$85

MindTap is an educational package that includes an online text book plus movies and practice problems. This term, in your Canvas modules, you will find links to book readings and movies taken from MindTap. If you purchase this, you will have a direct link to those book readings and movies through Canvas, and you can also enter MindTap directly to find even more movies, readings and practice problems not linked in Canvas. Often students like having additional resources to turn to.

To purchase go here:

<http://services.cengagebrain.com/course/site.html?id=3108102>

To link MindTap to Canvas, check out the instructions either in this

pdf http://assets.cengage.com/pdf/gui_mt-canvas-stu-quick-guide.pdf or in this video <https://www.cengage.com/services/resource/7348>

You may be asked for a course key or course link, you should not need one. Go back to Canvas and try opening a “Book Reading.” All the texts and videos from MindTap that are relevant to the module you can access here.

Option #2 (Text Only, Human Heredity 2015): \$20-40

If you would not like to spend that much you can purchase an online or physical copy of the *Human Heredity* book. If you do not purchase MindTap, you will not have direct access to the readings, but you can still find the readings in your copy. In each module I will include those reading assignments. You can be successful in class if you choose this option. The drawbacks are that you won't have the convenient links in canvas, access to MindTap videos, or additional MindTap practice problems.

You can find a physical copy of the text in the Duck Store or on Amazon. You can also purchase an online copy here:

<http://services.cengagebrain.com/course/site.html?id=3108102>

Getting Help:**Online Conference Hours:**

Join a conference on Canvas for verbal exchange with one of the instructors at the times below. You can simply go to “conference” on Canvas during the times below and join. Please turn off your microphone before entering. You may use it once you have entered. Also, you will need to have Adobe Flash downloaded.

TJ: Tuesdays at 3-4 pm, Wednesdays at 3-4, and Thursday 3-4

Amy: Monday and Wednesday 10:00-10:30

Email

You may also email the instructors with questions. Because we get a number of questions from students through emails, and because we want to avoid duplicated questions to both of us please follow the instructions below.

For **content-related** questions **please email TJ** at taelore@uoregon.edu

Examples below of some email questions for TJ:

Could you please:

- help me understand why I got this question wrong?
- help explain [meiosis] to me?
- set up a time to talk to me; I can't make any of the conference hours.

For **business-related** questions **please email Amy** at amyc@uoregon.edu

Examples:

- Mistakes, problems or other confusions with canvas
- Textbook questions
- Grading questions
- Any other business or complications that arise

For **proctor or technical questions** related to **Midterm 1 and Final**:

- If you run into problems when setting up a remote proctor for your exam or any other technical questions related to the exam, please email cas-de@ithelp.uoregon.edu or submit a ticket on our site (<https://distanceeducation.uoregon.edu/information/contact>).

For all emails please include "**Bi122**" in the subject line. This helps ensure that we will not overlook your email by accident.

When communicating with us, please be respectful and courteous. We both do our best to make this a good course for everyone involved.

Canvas Discussion Boards:

I encourage you to initiate discussions with one another and myself through the discussion boards on Canvas. If you have a question post it here. It is possible others have the same question too. Feel free to answer your fellow students' questions. TJ and I will monitor the boards and confirm answers or correct misconceptions.

Note, it is NOT okay to simply give answers to the quiz questions on discussion boards. You must use it to help further your understanding of concepts or how to solve problems.

Also, it goes without saying to please be courteous when using these boards. Any inappropriate usage will be taken down immediately.

Discussion of Controversial Issues:

In this class, we will be discussing information that may be sensitive to people from all walks of life. As a genetics instructor I feel it is my job to inform you of facts relating to sex, race, disability, and all of the variation that encompasses a wide spectrum of human genetics. The information we discuss is not intended to convince people of any one particular viewpoint. It is your job to discuss these complex topics in a respectful manner.

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 can not 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 Complete all modules by 11:59 pm of the date due
<i>Week 1</i>	
Module 1: Introduction to Genetics and Cell Biology	Monday, June 25, Extended until Tuesday June 26 at 11:59 pm (first day of class)
Module 2: Mendelian Inheritance	Tuesday, June 26
Module 3: Lactose Intolerance	Wednesday, June 27
Module 4: Cell Division	Thursday, June 28
Module 5: Non-Mendelian Inheritance	Friday, June 29
<i>Week 2</i>	
Module 6: Non-Mendelian Inheritance Part 2	Monday, July 2
Module 7: Transcription/Translation	Tuesday, July 3
Independence Day	Wednesday, July 4
Module 8: Mutations	Thursday, July 5
<i>No Module- Day to Review</i>	Friday, July 6
<i>Week 3</i>	
Exam 1	Monday, July 9
Module 9: Genetics Disorders	Tuesday, July 10
Module 10: Cancer	Wednesday, July 11
Module 11: Genetic Testing	Thursday, July 12
Module 12: Sex Development	Friday, July 13
<i>Week 4</i>	
Module 13: Human Evolution and Ancestry	Monday July 16
Module 14: Epigenetics	Tuesday July 17
Module 15: Gene Therapy	Wednesday, July 18
<i>No Module- Day to Review</i>	Thursday, July 19
Final Exam (Comprehensive)	Friday, July 20