

# BIOL861P: Human Genetics

## Fall 2021

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**Office:** Bruner Hall of Science Room 316  
**Office Hours:** M-F 9am-5pm Central Time (CT) by appointment

### COURSE DESCRIPTION

Human Genetics focuses on contemporary human genetics with emphases on genetic diseases. Some class topics may be upsetting in terms of ethics, human relationships, or religion. Contact the instructor in advance if you have any questions or concerns.

### COURSE OBJECTIVES

- 1) Understanding the role of genetics in human disease
  - 2) Understanding the genes, DNA, mutation, and control of gene expression
  - 3) Understanding the analysis of genetic transmission in families and populations
  - 4) Understanding genetic technologies and developing the writing skills through case studies
  - 5) Discussion the role of human genetics in medicine and society
- Students will achieve these objectives through lectures, online quizzes/exams, and discussion board.*

### COURSE MATERIALS

- Textbook: Human Genetics (13th edition) by Ricki Lewis (ISBN #9781260240894), McGraw Hill
- Announcements, assignments, exams, and quizzes will be available on Canvas. Students should check Canvas regularly.
- All students **MUST** use their UNK email account to communicate with the instructor. You should check your email at least once per day.
- Respondus Lockdown Browser is **REQUIRED/MANDATORY** for all quizzes and exams! Here is the link to download: <https://download.respondus.com/lockdown/download.php?id=477439341%20>. More information is on Canvas. This will NOT work on a Chromebook or Linux computer.

### EXPECTATIONS

Grades are based on participation and quality of discussion, quizzes, exams, and case study workbook answers. Students must participate online for all discussion topics. You are expected to post on Canvas weekly on the case study assigned. The quality of the discussion is exhibited by the contribution of original ideas, respect for differing opinions, and evidence of knowledge on the subject matter. Students are required to maintain a professional and cordial mannerism when communicating with the instructor and other students. When you are taking an online course, it is expected that you will read all of the materials and keep up with due dates on your own. I will not be reminding you of the due dates for the course. The calendar I created has all of the course due dates and you should be sure to download it and either transfer the dates to your calendar or keep a copy to make sure you don't miss any due dates. Students are encouraged to communicate with the instructor by email about their questions and concerns for the class contents, assignments, quizzes, and exams. I will check my email Mondays to Fridays between 9 am and 5 pm CT. I do not check email after 5 pm CT and rarely on weekends. I will respond to your emails within 24 hours.

### LECTURE TOPICS

All Lectures will be available on Canvas on Mondays at 8:00am CT. The PowerPoint slides materials are copyrighted by the book publisher and can't be distributed. Chapters 1, 2, 3, 9, and 10 are considered as the review of materials that you should have had in a basic biology course. You are solely responsible for this material. My PowerPoint slides will **not** cover Chapters 1, 2, 3, 9, and 10, but the outlines will be available on Canvas for your study. You will be given five 10-point overview quizzes (10 choice questions) over Chapters 1, 2, 3, 9, and 10. These overview quizzes can be taken at any time during the semester, but must be completed by September 5th at 11:00 pm CT. At this time, the quiz will be removed from Canvas.

## NOTICE ON USE OF COPYRIGHT MATERIAL

The materials on the course Canvas site and given in lecture are only for the use of students enrolled in this course for purposes associated with this course and may not be retained or further disseminated. The materials on the course Canvas site and in class may be protected by copyright, and any further use or dissemination of this material may be in violation of Federal copyright law and University sanctions including failure in the course.

## GRADE SCALE

Grades will be assigned using the standard grading scale for the Department of Biology, as follows: A+ (98.0-100%), A (92.0-97.9%), A- (90.0-91.9%), B+ (88.0-89.9%), B (82.0-87.9%), B- (80.0-81.9%), C+ (78.0-79.9%), C (72.0-77.9%), C- (70.0-71.9%), D+ (68.0-69.9%), D (62.0-67.9%), D- (60.0-61.9%), and F (below 60%). Grade assignments are final unless there is a calculation error.

## GRADING SCHEME

Changes may be made at the discretion of the instructor.

Activities	Points	Due date
Case Study Discussion Board (11 @ 20 pts each)	220	11:00 pm CT on the Sunday of the week when discussion board ends
Quizzes (17 @ 10 pts each, including 5 overview quizzes)	170	11:00 pm CT on the Sunday of the week; Overview quizzes due at 11pm CT on Sep 5th
Exam #1	100	October 3rd Sunday by 5:00 pm CT
Exam #2	100	October 31st Sunday by 5:00 pm CT
Exam #3	100	December 16th Thursday by 5:00 pm CT
<b>Total Points</b>	<b>690</b>	

**EXAMS:** Exams may be composed of multiple choice, true/false, application problems, case studies, and/or short essays. The material on the exam will cover lecture material only, not the Case Studies for Discussion Board. Respondus Lockdown Browser is required for online exams and quizzes. The amount of time allotted will be announced at the time of the test. If you run out of time while taking the test, you will not be given extra time. If you have a problem while taking your test, send me an email and I will deal with it as soon as possible. The computer displays a message to me that tells me what kind of problem you had, whether you took too much time or there was a computer problem. **You must take all three exams to receive full credit. If you miss an exam, you will automatically fail and receive a letter grade of an "F".** The dates for the exams are listed on the schedule. The exam will be made available at 8:00 am CT on Monday of the week listed and taken off at 5:00 pm CT on the dates listed in Grading Scheme. **THE DEADLINE IS FINAL! The tests will be removed at 5 pm CT on the due date.** Makeup exams will be given only under extreme or extenuating circumstances, which can be documented! In any and all cases, the final validity and acceptability of any excuse for absence are at the instructor's discretion. The grading will be finished within a week after the quizzes, exams, and assignments are closed.

**QUIZZES:** Throughout the semester, you will be given 17 timed quizzes worth 10 points each, which will be taken using the Respondus Lockdown Browser. Of these, five overview quizzes (over the review material for Chapters 1, 2, 3, 9, and 10) must be taken by 11pm CT on Sep 5th. The other 12 quizzes will cover the book/lecture materials (not including the case studies). The dates for the quizzes are listed on the schedule and will be open at 8:00 am CT on the Monday of the week and closed at 11:00 pm CT on Sunday of the week. For all quizzes, you will be answering 10 multiple choice or true/false questions. You will have only one chance to answer the question and will not be allowed to go back and change answers. Therefore, make sure to answer carefully. If we have done calculations in the lecture for a certain week, make sure to have a calculator with you at the time of the test. If you run out of time while taking the quiz, you will not be given extra time. If you have a problem while taking your quiz, send me an email and I will deal with it as soon as possible. **THE DEADLINE IS FINAL! The quiz will be removed at 11:00 pm CT on the Sunday due date.**

**GENERAL DISCUSSION BOARD:** For this class, there will be two discussion boards. One will be for introductions, syllabus discussion, general questions, and questions over lecture. With the exception of the introductions and syllabus forums, the general discussion board will **not be graded** and there will be no groups established. If you have questions about lecture material, please post it here. Do not post questions about the quizzes or exams here. If you have a question about a quiz or exam you have taken, email me directly.

**CASE STUDY DISCUSSION BOARD:** The second discussion board will be the Case Study Discussion Board. The instructor will post the weekly Case Study questions that you can also find in your textbook at the end of the chapter. To receive a satisfied grade in this discussion board, you are expected to a) actively contribute to the discussion, b) read proper literature, and c) solve the case questions. For each weekly case study discussion board, you must post at least one case-related topic (such as the case-related knowledge you learned from the literature reading), and reply to at least two other's postings or comments. You are to discuss the case during the week and turn in the final document through Canvas. **Either Word file format or PDF format is accepted.** You are to format the document as follows with 1" margins all around, 12pt Arial font, Double spacing, Students name in the *right hand corner of the header*, Case Study # and the date in *left hand corner of the header*. The document **must contain 2 peer reviewed primary science research articles**. You do not have a limit to the number of references used, but you must have a minimum of **2 peer-reviewed scientific primary research** journal articles. You may consult NCBI publication database (<https://pubmed.ncbi.nlm.nih.gov/>), NCBI OMIM ([www.ncbi.nlm.nih.gov/sites/entrez?db=omim](http://www.ncbi.nlm.nih.gov/sites/entrez?db=omim)), and NCBI Disease ([www.ncbi.nlm.nih.gov/disease/](http://www.ncbi.nlm.nih.gov/disease/)) for your answer. These will not count as your 2 peer reviewed references, but you can use them as the platform to find the literature you want to cite. **Books and other websites are not counted as references.** In the text, cite references should be by superscripted number<sup>1</sup>. In your reference list, use the following format (note punctuation, capitalization, and abbreviation). The references are listed in the order they are cited in the paper, not in alphabetical or chronological order. They should be single-spaced and this is the only part of the paper that is single-spaced.

*Journal articles:*

1. Sinoway MP, Kitagawa K, Timsit S, Hashim GA, Colman DR. 1994. Proteolipid protein interactions in transfectants: implications for myelin assembly. *J Neurosci Res* 37:551-562.

*Web page:*

2. Converse PJ. 2006. Zinc finger protein 175; ZNF175. *OMIM*. Retrieved on August 1, 2018 from <https://omim.org/entry/601139>.

All of your discussion to answer these questions should be made over Canvas so that I can witness the interactions. I will post the grading rubric on case study discussion board. **LATE PAPERS WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES!**

### **BONUS POINTS OR EXTRA CREDIT**

I don't give Bonus Points/Extra Credit to Graduate Students, so please don't ask.

### **LATE WORK/MAKE-UP EXAM POLICY**

Students are strongly encouraged to complete assignments, quizzes, and exams several hours before due. There will be no opportunity to make up missed quizzes, assignments or exams, and a score of zero will be assessed. **The deadline is final!** The exams will be removed at 5:00 pm on the due date. **Late papers will not be accepted!** Makeup exams will be given only under extreme or extenuating circumstances, which can be documented! In any and all cases, the final validity and acceptability of any excuse for absence are at the instructor's discretion.

### **PLAGIARISM AND ACADEMIC DISHONESTY**

Neither will be tolerated! I have a **ZERO TOLERANCE POLICY** for both of these. Do either of them and you will automatically fail this course, not be allowed to re-enroll, possibly have criminal charges brought against you, and possibly be unable to enroll in future Biology courses.

## **STUDENTS WITH DISABILITIES**

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, 308-865-8214 or by email [unkdso@unk.edu](mailto:unkdso@unk.edu)

## **UNK STATEMENT OF DIVERSITY & INCLUSION**

UNK stands in solidarity and unity with our students of color, our Latinx and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: <https://www.unk.edu/about/equity-access-diversity.php>

## **STUDENTS WHO ARE PREGNANT**

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact Cindy Ference in Student Health, 308-865-8219. The following link provides information for students and faculty regarding pregnancy rights. <http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students>

## **REPORTING STUDENT SEXUAL HARASSMENT, SEXUAL VIOLENCE OR SEXUAL ASSAULT**

Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

**Local Domestic Violence, Sexual Assault Advocacy Agency** 308-237-2599

**Campus Police (or Security)** 308-865-8911

**Title IX Coordinator** 308-865-8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated. If you have questions regarding the information please contact **Mary Chinnock Petroski, Chief Compliance Officer** ([petroskimj@unk.edu](mailto:petroskimj@unk.edu) or phone 8400).

## **UNIVERSITY POLICIES RELATED TO COVID-19**

All vaccinated faculty, staff and students, as well as visitors to campus, are encouraged, but not required, to wear face masks indoors. Unvaccinated individuals should continue to wear masks. (Masks are required indoors for all individuals at the University of Nebraska Medical Center.) <https://nebraska.edu/news-and-events/news/2021/08/university-of-nebraska-system-updates-covid-19-protocols>

Consistent with the University of Nebraska's guiding protocols, there are circumstances in which many people in our community may not be able to be vaccinated. Faculty may request, not require, that students wear masks in class under circumstances that clearly indicate unnecessary yet controllable risk of infection. It is the right of instructor to decide if mask wearing will be required, or not, in their classrooms. Please note that pandemic precautions are subject to change. The absence and late assignment submission caused by COVID-19 will NOT receive penalties. If students were affected by the COVID, students should email the instructor as soon as possible so that the instructor could arrange other options for students.

## COURSE TIMELINE

Topics and dates are tentative and subject to change by the instructor.

<b>Week / Date</b>	<b>Chapter / Topic</b>	<b>Activities</b>
#1 / Aug23 - Aug29	Introduction	Overview quizzes Case study 01 (Introduction)
#2 / Aug30 - Sep5	Ch.13: Chromosomes	Overview quizzes
#3 / Sep6 - Sep12	Ch.4: Single Gene Inheritance	Timed Quiz 01 Case study 02
#4 / Sep13 - Sep19	Ch.5: Beyond Mendelian's Law	Timed Quiz 02 Case study 03
#5 / Sep20 - Sep26	Ch.6: Matters of Sex	Timed Quiz 03 Case study 04
#6 / Sep27 - Oct3	<b>Exam 1</b>	<b>Exam 1</b> (Ch.13, 4-6)
#7 / Oct4 - Oct10	Ch.7: Complex Traits	Timed Quiz 04 Case study 05
#8 / Oct11 - Oct17	Ch.8: Genetics of Behavior	Timed Quiz 05 Case study 06
#9 / Oct18 - Oct24	Ch.11: Gene Expression and Epigenetics	Timed Quiz 06 <b>No Case Study – Fall Break</b>
#10 / Oct25 - Oct31	Ch.12: Gene Mutation <b>Exam 2</b>	Timed Quiz 07 <b>Exam 2</b> (Ch.7,8,11,12)
#11 / Nov1 - Nov7	Ch.14: Genomes Ch.15: Constant Allele Frequencies	Timed Quiz 08 Case study 07
#12 / Nov8 - Nov14	Ch.16: Changing Allele Frequencies	Timed Quiz 09 Case study 08
#13 / Nov15 - Nov21	Ch.20: Cancer Genetics	Timed Quiz 10 Case study 09
#14 / Nov22 - Nov28	<b>No Class</b>	<b>Thanksgiving Break</b>
#15 / Nov29 - Dec5	Ch.21: DNA Technologies	Timed Quiz 11 Case study 10
#16 / Dec6 - Dec12	Ch.22: Genetic Testing & Treatment	Timed Quiz 12 Case study 11
#17 / Dec13 - Dec16	Finals Week: <b>Exam 3</b>	<b>Exam 3</b> (Ch.14-16, 20-22)