

Biology 861P: Human Genetics

Instructor: Dr. Kimberly A. Carlson

Phone: 865-1554

Contact Hours: M-F: 9:00 am to 5:00 pm central standard time (CST). I do not check email after 5:00 pm CST and rarely on weekends.

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Course Materials:

- Required: *Human Genetics* (10th edition, Domestic version) by Ricki Lewis (ISBN ##978-0-07-352530-3) & *In the Family: A Case Workbook* to accompany the text (9th edition; ISBN #978-0-07-731304-3-0; little girl with curly hair touching a DNA helix model). In addition, you are given a free VoiceThread (voicethread.com) account to watch the later lectures. You will need to login to your account with the information provided to you and access <https://voicethread.com/groups/subscribe/152340/ebad11ccf/d>
- Announcements, assignments, tests, and quizzes: All information for this class will be available on blackboard (<http://bb.unk.edu>). You should check it regularly.
- E-mail: All students MUST use their UNK email account so that I can reach them. All emails to Dr. Carlson should be sent from your email account and **not** through blackboard.

Course description: The course focuses on contemporary human genetics with emphases on genetic diseases. Some class topics may be upsetting in terms of ethics, human relationships, or religion. Talk to me beforehand if you have any questions or concerns.

Course objectives:

1. Understand the analysis of genetic transmission in families and populations.
2. Understand the genes, DNA, mutation, and control of gene expression.
3. Understand population genetics.
4. Understand the role of genetics in human disease.
5. Discuss the role of human genetics in medicine and society.
6. Understand genetic technologies.
7. Develop & reinforce writing skills through case studies & discussions.

Students will achieve these objectives through lectures, online quizzes/tests, discussion board, movies, clips, and the case study workbook.

Expectations: Grades are based on participation and quality of discussion, quizzes, tests, and case study workbook answers. Students must participate online for all discussion topics. You are expected to post on blackboard weekly on the case study(ies) 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.

Grading Scheme:	Points	Due Date
Exam #1	100	Sunday, October 2 nd by 11:55 pm CST
Exam #2	100	Sunday, November 13 th by 11:55 pm CST
Exam #3	100	Wednesday, December 14 th by 8:00 am CST
Quizzes (14 @ 10 pts each)	140	Weekly from Monday 8:00 am CST to Sunday 11:55 pm
Case Study Workbook Answers	100	11:55 pm CST on the Sunday of the week when discussion board ends
Discussion Board (13 @ 8 pts each) + 2 for posting your picture in your introduction + 4 for posting every week	110	Weekly from Monday 8:00 am CST to Sunday 11:55 pm
Group Participation (2 @ 25 points each)	50	8:00 am CST on 10/7 and 12/9
Total Points	700	

Grade assignment: Grades will be assigned using the standard grading scale for the Department of Biology, as follows: A (93-100%), A- (90-92%), B+ (88-89%), B (83-87%), B- (80-82%), C+ (78-79%), C (73-77%), C- (70-72%), D+ (68-69%), D (63-67%), D- (60-62%), and F (below 60%). FYI, I do not round up grades. Therefore, if you have an 82.6%, you have earned a letter grade of a B-, not a B. Also, 1% = 7 points not 1 point. Grade assignments are final unless there is a calculation error.

Lecture topics: Chapters 1, 2, 3, part of Chapter 4 (up to 4.2 on page 73), & Chapter 9 are considered a review of material that you should have had in a basic biology course. You are solely responsible for this material. You will be given a timed 10-point quiz (5 minutes/5 questions/2 pts each) over each review chapter for a total of 50 points. These quizzes can be taken at any time during the semester, but must be completed by September 4th at 11:55 pm CST. At this time, they will be removed from blackboard. I have indicated times in the semester when you may want to take these quizzes. This schedule is subject to change. Small portions of chapters may not be covered. My PowerPoint slides will **not** be made available to the class. They are copyrighted by the book publisher and can't be distributed. All Lectures will be PowerPoints without me in them and are available in VoiceThread.

Week	Chapter (Ch.)	Quiz/Test	Case Workbook (CW)/ Discussion Board (DB)
#1 8/22-28	Why is Human Genetics Important and Interesting?	Overview quizzes	DBs: Introductions Syllabus
#2 8/29-9/4	13: Chromosomes	Overview quizzes	CW: An Interesting Inversion DB: Questions 11 & 13
#3 9/5-11	4: Single Gene Inheritance	Timed quiz #1 over Chapter 13	CW: The Musical Maxwells & Inborn Athletes DB: Questions 8 & 17
#4 9/12-18	5: Beyond Mendelian's Law	Timed quiz #2 over Chapter 4 (p73-85)	CW: Long QT Syndrome DB: Questions 10 & 11
#5 9/19-25	6: Matters of Sex	Timed quiz #3 over Chapter 5	CW: Hair Loss & Digit Ratio DB: Questions 16 & 17
#6 9/26-10/2		Exam #1-Chapters 13 & 4-6 Due 10/2 by 11:55 pm CST	
#7 10/3-9	7: Multifactorial Traits	<i>Group Participation Scores Due by 8:00 am CST on 10/7</i>	CW: Losing Weight DB: Questions 8 & 10
#8 10/10-16	8: Genetics of Behavior	Timed quiz #4 over Chapter 7	CW: Drug Addiction DB: Questions 13 & 14
#9 10/17-23	10: Gene Action: From DNA to Protein	Timed quiz #5 over Chapter 8	CW: Double Muscles DB: Questions 11 & 13
#10 10/24-30	11: Gene Expression and Epigenetics	Timed quiz #6 over Chapter 10	CW: <i>BRCA1</i> Cancers DB: Questions 20 & 22
#11 10/31-11/6	12: Gene Mutation	Timed quiz #7 over Chapter 11	CW: The Mediterranean Diet DB: Questions 34 & 36
#12 11/7-13		Exam #2-Chapters 7-12 (not 9) Due 11/13 by 11:55 pm CST	
#13 11/14-20	14: Constant Allele Frequencies		CW: DNA Forensic Phenotyping DB: Questions 14 & 15
#14 11/21-27	15: Changing Allele Frequencies	Timed quiz #8 over Chapter 14	
#15 11/28-12/4	19: Genetic Technologies: Amplifying, Modifying, & Monitoring DNA	Timed quiz #9 over Chapter 15	CW: Genetically Modified Crops DB: Questions 12 & 14
#16 12/5-11	20: Genetic Testing & Treatment	<i>Group Participation Scores Due by 8:00 am CST on 12/9</i>	
#17 12/12-14	Finals week	Exam #3: Chapters 14, 15, 19, & 20 Due 12/14 by 8:00 am CST	

Exams: Exams may be composed of multiple choice, true/false, application problems, case studies, and/or short essays. I believe that genetics and science exams in general should be an application of the material learned, and not simply rote memorization. The exams are not comprehensive, in that, the questions asked

will specifically address material covered since the last exam or in the case of the first exam, material since the first day of class. The material on the test will include lecture material only, not the Case Workbook. The multiple choice/true or false portion of the exam will be taken as a timed online portion. 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. I will be available M-F from 9:00 am to 5:00 pm CST, not constantly as I do have other teaching and research responsibilities. **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, both online and take-home portions, will be made available at 8:00 am CST on Monday of the week listed and taken off at 11:55 pm CST on Sunday of the week listed. For example, the first test will be put on blackboard at 8:00 am CST on Monday, September 26th and you have until 11:55 pm CST Sunday, October 2nd to take the online portion and email the take-home portion to me. **THE DEADLINE IS FINAL! THE ONLINE PORTION WILL BE REMOVED AT 11:55 pm CST ON THE SUNDAY DUE DATE.** For the take-home portion, every day the test is late, your **total** test grade (not just the take-home portion) will be dropped one letter grade. FYI, late day grading starts at 11:56 pm CST on the Sunday the test is due (i.e., as of this time, your test is already a day late, even though it is only one minute late). **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 my sole discretion.**

Quizzes: Throughout the semester, you will be given 14 timed quizzes worth 10 points each. Of these, five are over the review material and must be taken by the deadline listed. The other nine quizzes will cover the book/lecture material not the Case Workbook. For all quizzes, you will be allotted 5 minutes to answer 5 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. For quizzes with calculations, you will be allotted extra time. 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 computer displays a message that tells us what kind of problem you had, whether you took too much time or there was a computer problem I will be available M-F from 9:00 am to 5:00 pm CST, not constantly as I do have other teaching and research responsibilities. The dates for the quizzes are listed on the schedule and will be made available at 8:00 am CST on the Monday of the week listed. You have until 11:55 pm CST on Sunday of the week listed to take the quiz. For example, the first regular (not review) quiz will be put on blackboard at 8:00 am CST on Monday, September 5th and you have until 11:55 pm CST Sunday, September 11th to take the quiz. **THE DEADLINE IS FINAL! THE QUIZ WILL BE REMOVED AT 11:55 pm CST 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. In my experience, if you have a question about the material, so does everyone else! Do not post questions about the quizzes or tests here. If you have a question about a quiz or test you have taken, email me directly. If it is something that should be shared with the rest of the class, I will post it.

Case Study Discussion Board: The second discussion board will be the Case Study Discussion Board and this discussion board **will be graded**. In this discussion board, you will be separated into groups and asked to work together. This is a really important practice in the field of Human Genetics, especially in Genetic Counseling because it takes multiple people from different disciplines to make a diagnosis on a genetic disorder or disease at times. This is a good practice for "real world" situations, in that, in science we rarely work alone. The Case Workbook is required for this course. No, there is not a way for you to download the cases. No, I will not scan all of them for you. You need this book for the second week of class. Every week, as a group you will discuss and be graded on the "Questions for Research and Discussion" listed for the week as a Discussion Board Grade. Each student will post a minimum of bi-weekly on these questions, if you want to be graded. Your posts should not be in succession and the students should not directly respond to themselves.

You are posting as part of a **discussion**, not just for points. You need to post during the week and weekend. You will be graded **not** on the number of posts per week (two is the minimum to get a score of any type for **each** question), but on the **quality** of posts. **At least one post per question** must have a peer-reviewed reference attached to it or OMIM (www.ncbi.nlm.nih.gov/sites/entrez?db=omim), NCBi's Genes and Disease (www.ncbi.nlm.nih.gov/disease/), & Genetic and Rare Conditions Site (www.kumc.edu/gec/support/). These are the only two websites allowed! Books and other websites are not counted as references. This is a good practice in having an **informed** opinion. Two posts per question a week with one containing a peer-reviewed reference does **not** guarantee you will earn all the points. The score for your posts will be based upon critical thinking (a post rich in content and full of insight), connection with issue and real-life situations, uniqueness (new ideas and new connections), depth and detail of posts, respect for classmates, and **discussion with classmates** (if you wait until Saturday and Sunday and are discussing with yourself or one other person, you get 0 points). As you can tell, I do not want people simply agreeing with each other or posting for points. You should be prepared to discuss the questions! The week runs from the Monday - Sunday listed in the syllabus. In addition, as a group, you will turn in **one** copy of the answers to the multiple choice questions. Your answers must be typed and sent to me by email. I will accept only one set of answers per group. I would **highly** recommend that you assign a different group leader for each week and have that person compile all of the answers for the group. I will set up a separate area for you in blackboard for you to discuss the multiple choice questions. All of your discussions to answer these questions should be made over blackboard so that I can witness the interactions among the group. This will count as a different grade from the discussions of the posted questions you are having. I will not be grading these discussions, but will be grading the answers you turn in to me. Your group answers **must** be emailed to me by 11:55 pm CST on the Sunday of the week when discussion board ends. For example, the first Case Workbook answers are due on Sunday, September 4th by 11:55 pm CST. This is for the Chapter 13 case. **LATE PAPERS WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES!** You will have a chance to grade your interactions/participation with each other as part of this process twice during the semester. Halfway through the semester and at the end of the semester, you will score yourself and everyone in your group on a 25-point scale using a rubric I will provide to you. I will compile the scores and the comments each of you make. The comments and scores will be returned to each of you, but in an anonymous fashion, so that problems do not arise. If you do not turn in the Group Participation Scores for yourself and your group mates by the due date, you will receive 0 out of 25 points as your score.

Bonus Points or Extra Credit: I do not give Bonus Points or Extra Credit to Graduate Students, please don't ask.

Students with Disabilities or Those Who are Pregnant Students with disabilities or those who are pregnant are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities or those who are pregnant. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Academic Success Office, 163 Memorial Student Affairs Building, 308-865-8214 or by email brandtdl@unk.edu. For those needing accommodation due to pregnancy, you need to visit with Student Health.

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) 308-627-4811

Title IX Coordinator 308-865-8655