Biology 310: Genetics,
Fall 2020
Craig R. Miller

OFFICE: Online
EMAIL: crmiller@uidaho.edu
OFFICE HOURS: By appointment. For most questions about the subject of genetics, use the help sessions (see below). Office hours should be used to discuss things that don't concern others, like grades, absences, etc.
LECTURE LOCATION & TIME: MWF 12:30-1:20 on Zoom.
ZOOM ID FOR LECTURE & HELP SESSIONS: https://uidaho.zoom.us/j/96974862637?
ZOOM PASSWORD: DNA
COURSE TA: Conner Gould, goul1548@vandals.uidaho.edu

COURSE PREREQUISITES: Biol 115: Cells and the Evolution of Life. You should have at least one semester of chemistry. If you do not have these prerequisites, we should talk.

COURSE BASICS—YOU NEED TO:

1. Attend lectures. Attendance is 12.5% of your grade.
2. Respond to iClicker questions (quizzes) during lecture. 12.5% of grade.
3. Read textbook. Ungraded but critically important.
4. Do online homework. 25% of grade.
5. Do Dr. Miller's study questions. Not graded, but used heavily to write exams. See below.
6. Take exams. 50% of grade.

GRADE:

12.5% Attendance*
12.5% iClicker responses*
25% Homework
50% Exams
A=90-100%, B=80-89%, C=70-79%, D=60-69%, <59% = F

* You get 2 absences at no cost. This means that if your internet is out during class one day, don't bother me about it. If you have serious reasons for missing class, like a medical emergency, that's different. In that case, send me an email and please evidence that your excuse is valid. The 3 free absences policy means you would be smart not to use your absences skipping class.
* For individuals with a class-scheduling conflict who cannot attend live (see "SCHEDULE CONFLICTS" below), weekly quizzes will replace both attendance and iClicker response.

COURSE COMMUNICATION & CONTENT: Bb Learn

1. **ANNOUNCEMENTS**: I'll send out communication to everyone via email.
2. **CORRESPONDENCE**: Communicate with me on email me at crmiller@uidaho.edu
3. **STUDY QUESTIONS:** For each lecture (or occasionally for a pair of lectures), I will post study questions that tell you I see as the most important material in each chapter. The exams will draw heavily from these questions, but I will tweak questions to make sure you understand the material. The study questions are my way of telling you, "This is what I think is important and is likely to be on the test, and you have plenty of time to learn it."

4. **LECTURE SLIDES:** I will post my slides from lecture and other materials in the "Lecture slides" folder on BbLearn. *I generally won't post my lecture notes until after class.* If you feel you would benefit from reviewing the material prior to lecture (an excellent strategy for getting more out of lecture), you should consider reading the appropriate section of the textbook in advance of each lecture.
5. **LECTURE VIDEOS:** Since this is all being done on Zoom, I will record lectures and post the videos afterwards. The links will be on BbLearn.

TEXTBOOK: ***Genetics: A Conceptual Approach*, Seventh Edition:**
The required textbook for this course is Pierce, *Genetics: A Conceptual Approach*, seventh edition. If you aspire to a career in biology, this is a textbook you will likely want on your bookshelf (real or electronic). It will be highly useful for future exams (like the GRE or MCAT) and other professional opportunities.

HOMEWORK: Via ***sapling learning*** which you are required to subscribe to. Due dates are generally 1 full week (7 days) after we begin a chapter. The due dates will updated on the Class Schedule which I will post under "Syllabus & Schedule" on BbLearn. No credit once due date has passed.
Working together on homework: Yes, I know some of you will do work on homework together. If you are learning in that way, I'm not worried if you do it together or not. But the flip side of this coin side is that I will make the exams difficult enough that people who are not learning the material will do poorly on the exams.

ICLICKER (CELL PHONE OR LAPTOP) BASED ATTENDANCE & QUIZZING: Each lecture I'll ask a few questions related to material we have covered recently that you will answer via your cell phone or laptop. You will get half credit for just being there answering the question (attendance) and the other half of the credit for getting the answer correct (quiz). Yes, this is basically a carrot to get more people to attend and pay attention. Most students benefit immensely from doing this.
Download App: You will need to download the *iClicker Reef* app on your smart phone or laptop. The costs is between $16 and $50 depending on how long you want your account to remain active. If you used *iClicker Reef* in a previous class and purchased an extended plan, you should be good. Add this course by selecting the + symbol in the corner of the app, select University of Idaho for the institution, and search for *Genetics* or *Biology 310*. Immediately
Already own a clicker? If you happen to be someone who already owns a physical iClicker device, you sadly can't use your device for this class (since we won't be in physical proximity). However, you can get a steep discount on the app. Here is the link the textbook rep sent me that I hope will let you "add-on" the app: https://store.macmillanlearning.com/us/storefront/201801213.

SCHEDULE CONFLICTS & WEEKLY QUIZES: I know there are a very small number of students in this class who cannot attend lecture because they have another critically important class at the same time. You need my individual approval to do this. These students will be required to watch the recorded lectures and they will have to take weekly quizzes. The quizzes will be posted on bblearn. You will need to download the quiz and email it by Sunday at midnight to Conner Gould, the class TA, goul1548@vandals.uidaho.edu. Use the subject line "Weekly Quiz."

HELP SESSIONS: One Mondays 10:30-11:30 and Thursdays 1:30-2:30 of each week there will be help sessions. These be on our usual Zoom channel (https://uidaho.zoom.us/j/96974862637?). These will be hosted by the class TA, Conner Gould, and myself and give a chance for direct interactions. We won't

be presenting any new material at these sessions; rather, students will bring questions and we will answer them.

SCHEDULE: Here is the game plan in terms of what chapters (and topics) we will be covering on what days, when online Sapling homeworks are due, and when we will have review days, and when we will have exams. I guarantee it won't quite work out like this. That said, I'm very unlikely to shift exam dates.

Month	Day	Week-day	Chapter: topic	Homework and due date
August	24	M	Syllabus, Ch 1: Intro to Genetics	
	26	W	Ch 2: Chromosomes and cellular reproduction -------->	(a) Ch2 Read Quiz; (b) Ch2 Animation-Genetic Variation. **Due 9/2/20**
	28	F	Ch 3: Basic Principles of Heredity ---------->	(a) Ch 3 Read Quiz, (b) Ch 3 Learning curve, (c) Ch 3 Homework,
	31	M	Ch 3: Continued	(d) Ch 3 Animation. **Due 9/4/20**
September	2	W	Ch 3: Continued	
	4	F	Ch 4: Sex determination and sex linked characters --->	(a) Ch 4 Reading Quiz, (b) Ch 4 Learn curve,
	7	M	**No class: Labor Day**	(c) Ch 4 Homework, (d) Ch 4 Animation. **Due 9/11/20**
	9	W	Ch 4: Continued	
	11	F	Ch 4: Continued	
	14	M	Ch 5: Extensions & modifications of basic principles -->	(a) Ch 5 Read Quiz, (b) Ch 5 Learn Curve,
	16	W	Ch 5: Continued	(c) Ch 5 Homework, (d) Ch 5 Animation. **Due 9/22/20**
	18	F	***In class review and example problems***	
	21	M	**Exam 1: Chapters 1-5**	
	23	W	Ch 6: Pedigree Analysis and applications ----------	(a) Ch 6 Read Quiz, (b) Ch 6 Learn curve, (c) Ch 6 Homework,
	25	F	Ch 6: continued	(d) Ch 6 Animation, (e) Ch 6 Tutorial. **Due 9/30/20**
	28	M	Ch 6: continued	
	30	W	Ch 24: Quantitative Genetics ----------	(a) Ch 24 Reading Quiz. (b) Ch 24 Homework. **Due 10/7/20**
October	2	F	Ch 24: Continued	
	5	M	Ch 24: Continued	
	7	W	Ch 25: PopulationGenetics ----------	(c) Ch 25 Animation Activity - The Hardy-Weinberg Law
	9	F	Ch 25: Continued	**Due 10/14/20**
	12	M	Ch 25: Continued	
	14	W	Ch 26: Evolutionary Genetics ----------	(a) Ch 26 Reading Quiz. (b) Ch 26 Homework. **Due 10/26/20**
	16	F	Ch 26: Continued	
	19	M	Ch 26: Continued	
	21	W	***In class review***	
	23	F	**Exam 2: Chapters 6, 24, 25, 26**	
	26	M	Ch 7: Linkage, recomb., & eukaryotic gene mapping --->	No Sapling work for Ch 7 unless I announce it
	28	W	Ch 8: Chromosome variation ----------	(a) Ch 8 Reading Quiz. (b) Ch 8 Homework. **Due 11/4/20**
	30	F	Ch 8: Chromosome variation	
November	2	M	Ch 10: DNA - the chemical nature of the gene ---------->	(a) Ch 10 Reading Quiz. (b) Ch 10 Homework. **Due 11/9/20**
	4	W	Ch 10: Continued	
	6	F	Ch 11: Chromosome structure and organelle DNA ------>	(a) Ch 11 Reading Quiz. **Due 11/13/20**
	9	M	Ch 12: DNA replication and recombination ----------	(a) Ch 12 Reading Quiz. **Due 11/16/20**
	11	W	Ch 13: Transcription ----------	(a) Ch 13 Reading Quiz. (b) Ch 13 Homework. **Due 11/18/20.**
	13	F	Ch 13: continued	
	16	M	Ch 14: RNA molecules and RNA processing ----------	(a) Ch 14 Reading Quiz. (b) Ch 14 Homework. **Due 11/23/20.**
	18	W	***In class review***	
	20	F	**Exam 3: Chapters 7,8, 10-13**	
	23	M	**Thanksgiving Break (No Class)**	
	25	W	**Thanksgiving Break (No Class)**	
	27	F	**Thanksgiving Break (No Class)**	
	30	M	Ch 14: continued	
December	2	W	Ch 15: The genetic code and translation ----------	(a) Ch 15 Reading Quiz. (b) Ch 15 Homework. **Due 12/9/20.**
	4	F	Ch 15: Continued	
	7	M	Ch 15: Continued	
	9	W	TBD	
	11	F	TBD	
	14	M	***No class (Finals weeks)***	
	16	W	***No class (Finals weeks)***	
	18	F	**Final (12:45-2:45): ~40% exam on new material, rest on previously covered material**	

EXAMS WILL BE ONLINE & CHALLENGING: Given the large number of students, exams are going to be multiple choice and related type of questions. They will be draw almost exclusively from three sources: the study questions I post on Bb Learn, online homework, and questions I pose in lecture (which will also be available in the Lecture slides on Bb Learn). The exams are going to be conducted online on BbLearn. I'll provide details when we closer to our first exam.

Cheating: I expect you to take the exam on your own without accessing the internet, your notes, your textbook, lecture slides, or your friends. I understand that it's really easy to cheat on exams when taking them remotely because you do have access to all these sources of information. To be totally transparent, I am going to utilize an exam format and write exams to make cheating hard. In particular, exams will have a time limit and you won't be allowed to go back and check your work—thus people who know the material well will do much better than people who need to search for the answer. I recognize this won't be easy for some because not everyone thrives on taking exams. I apologize in advance—I don't like this situation either. I may curve the grades if lots of people struggle. I also encourage people to be sure to do well in the other domains of the class where steady hard work will give you high point totals: online homework, class attendance, in-class I-Clicker quizzing.

Missing an exam: If you cannot take an exam at the scheduled time for a valid reason, you need to let me know as soon as possible (via email). You will get to take an alternative exam. The alternative exam is likely to be harder than the online version and involve more short-answer type questions. All things being equal, I strongly encourage you to take the schedule exam.

LEARNING OUTCOMES: In accordance with *UI Learning Outcomes*, it is expected that students will:

- **Learn & Integrate:** Students will apply their previous training in biology to solve genetics problems and understand the relationship between genetics and other biological disciplines.
- **Think & Create:** Students will be able to apply the concepts and approaches learned in this course to solve problems they encounter in future courses and later in their careers.
- **Communicate:** Students will be able to effectively communicate genetic concepts and interpret genetic data.
- **Clarify Purpose & Perspective:** Students will understand the relationship between genetics and society.
- **Practice Citizenship:** Every student should be able to articulate basic genetic concepts to a lay person, in a manner that demonstrates how fundamental the field of genetics is to our everyday lives.