

Bio 210 - General Biology
Spring 2017 Syllabus and Schedule
Lecture: TRF 10:00-10:50, TNR 170

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Office hours: Wed 1-2:30 pm, Th 1-4:00 pm,
and by appointment

Course Description

This course serves as an introduction to the basic principles of genetics. The course covers fundamental aspects of genetics including molecular structure and replication of the genetic material, molecular properties of genes, patterns of inheritance, genetic technologies, and genetic analyses of individuals and populations.

Student Learning Outcomes

Students completing this course will attain varying levels of proficiency in their ability to:

1. Explain the organization and transmission of genetic material.
2. Describe the relationship between the structure and function of the genetic material, and how changes in the structure affect function.
3. Explain common cellular and molecular genetic technologies and their applications.
4. Relate population genetics to evolution.
5. Articulate why understanding genetics is important to decision making at the personal, medical, and societal levels.

Required texts:

Booker, R.J. (2015). **Genetics: Analysis & Principles, 5th ed.** McGraw-Hill, New York. Available at text rental in DUC Bookstore.

Attendance Policies

Attendance at lectures will help you to perform well on exams. There is no formal attendance requirement for lectures, but there are often quizzes and assignments during lecture for which you will receive points. If you are absent from lecture, you will not be able to make up these points. These points will improve your overall score in the class, so it pays on multiple levels to come to class regularly.

Attendance at exams is required. In general, the reasons that you miss an exam should be the same as those for which you would miss your wedding or a job interview. In a large class, make-up exams can be difficult to administer, and students usually do poorly on them. Because of this, it is best to avoid make-up exams if you can. If, however, you are very ill, in court, have a dental emergency, death in the family, etc., you can take a make-up exam. In order to qualify for a make-up exam, you must notify me within 24 hours of the missed exam, and provide a written, verifiable excuse from an authorized party (doctor, dentist, minister, etc.) within one week of the missed exam. This excuse should clearly articulate that you were UNABLE to make it to class for the exam, including a timetable for restriction from work or school. **All make-ups for Exams I, II and will be held in 254 TNR at 4 pm on May 12,**

2017. If you have a conflict with this time, please inform me in advance, so other arrangements can be made for your make-up exam. **Make-ups for Exam III and the final exam will by appointment.**

Behavioral Expectations

In order to keep the course running smoothly, and to ensure that all students have a good learning environment, I have the following expectations of students in this course:

1. Arrive on time, and take your seat promptly, so that the lecture can begin at 10:00. It is rude and disruptive to others to arrive late.
2. No phones out during lecture.
3. No computers/tablets out during lecture.
4. No tapping of pencils, pens, legs, hands, or other repetitive movements that will annoy the person sitting next to you.
5. No talking or side conversations.
6. No blurting. If you have a question, please raise your hand and wait to be called on.
7. One question per person per lecture. Save extra questions for office hours.

Any student committing a first violation of these rules will be asked to leave the classroom for the remainder of the lecture period. Upon second violation, students will be asked to leave and will be referred to the Dean of Students for behavioral concerns.

Grading

My philosophy of grading is that **student learning is paramount**, and should be rewarded when there is evidence of this. Therefore, this course is designed to allow you to improve your grade when possible. Your grade in this course will be based on the following:

1. **Exams.** Exams will cover specified lectures, as well as assigned readings. They will contain a combination of multiple choice, matching, short answer, and problems. There are three regular exams and a **comprehensive final** (aka **Final Redemption**).
 - Sometimes, students get off to a rocky start. It's important to identify what is and is not working for you and to make corrections to your study behaviors if your performance indicates that you're not succeeding. To motivate you to do that, I will award bonus points for improvements in exam performance from Exam I to Exam II, and from Exam II to Exam III, as long as both exams were completed.
 - Any higher exam score = 2 bonus points.
 - For improvements greater than 5% of the total exam score, I will award additional bonus points totaling $\frac{1}{2}$ of the difference between the two scores. So, for example, if you score 70% on Exam I, and 80% on Exam II, you will be awarded 5 bonus points.
 - If a student's score on the final exam is higher than their mean exam score, all exam scores will be replaced with the final exam score for final grade calculation (hence redemption!). Each exam will be worth 100 points. Consult the course schedule for the exact date of each exam.
2. **In-Class Quizzes/Activities.** Quizzes will be given during of some lectures, and will cover material from the previous lectures and/or the day's assigned reading. In order to do well on these

quizzes, it is essential that you **STUDY EVERY DAY**. Each quiz will be worth 3 points. You will receive up to 45 points for quizzes. Students not in attendance will NOT be allowed to make up these points. Quizzes will not be announced. There will be about 51 points worth of quizzes and activities during the term, but the maximum possible score is 45 points. This allows you some flexibility, since you can miss two quizzes, or score less than perfect on several, but still have the ability to score all 45 points.

3. **Homework.** During the term, there will be 14 homework assignments. The due date for each assignment is listed on the syllabus. The nature of the homework will vary from assignment to assignment, but all homework will be accessible in the Course Content Folder of D2L. Each homework assignment will be worth around 10 points. Only 120 points will count toward your grade. This means that you can occasionally get some questions wrong or miss an assignment, yet still get full credit. You should plan to do all of the homework assignments, as doing so will help you perform better on the exams. Although homework will be “open” for you to review, only your score as of 6 pm on the due date will be recorded in your grades. Any subsequent scores will revert (eventually) to the score as of the due date.
4. **Extra Credit:** Because interesting opportunities for learning sometimes come up (visiting lecturers, special events, etc), I will occasionally announce small assignments that will yield up to 5 points of extra credit each. Extra credit points will be added to your course total at the end of the term. No extra credit will be provided at the request of students as a means of grade improvement. No more than 15 extra credit points will be applied toward your final grade.

Grading Breakdown

Exams	4 @ 100 points	400 points
Quizzes and Activities	3 pts @ up to 45 points	45 points
Homework	14@ ~10 points each, up to 120 pts	120 points
Total		565 points

Grading Scale

A = 93-100%	B+ = 87.0-89.9%	C+ = 77.0-79.9%	D+ = 67.0-69%
A- = 90.0-92.9%	B = 83.0-86.9%	C = 73.0-76.9%	D = 60.0-66.9%
	B- = 80.0-82.9%	C- = 70.0-72.9%	F = <60%

Grades will be available to students on the class site at Desire to Learn. Privacy laws preclude the distribution of grades via email or the phone.

Safe Learning Environment

UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, we have developed a set of expectations for all students and instructors. This set of expectations is known as the *Rights and Responsibilities* document, and it is intended to help establish a positive living and learning environment at UWSP. More information is available at: <http://www.uwsp.edu/stuaffairs/Pages/rightsandresponsibilities.aspx>

Academic Misconduct

All acts of dishonesty in any work constitute academic misconduct. This includes, but is not limited to, cheating, plagiarism, fabrication of information, misrepresentations of a student's academic performance, and abetting any of the above. This includes submitting papers that reflect the work of a group rather than the work of an individual. **(Be very careful about this. Although you may work in groups for your labs and final lab report, the written work you submit to me MUST BE YOUR OWN INDEPENDENT COMPOSITION.)** The Academic Standards and Disciplinary Procedures of the University of Wisconsin will be followed in the event that academic misconduct occurs. Students should refer to Dean of Students website for more information (<http://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx>).

Disability and Assistive Technology Center

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for student with disabilities. For more information about UWSP's policies, check : <http://www.uasp.edu/stuaffairs/Documents/RightsResps/ADA/rightsADAPolicyInfo.pdf> If you are registered with the Disability and Assistive Technology Center, please contact me as soon as possible to plan any course accommodations that may be necessary. If you have a disability but have not contacted the DATC, please call 346-3365 or visit 609 LRC to register for services.

Lecture Schedule

Date	Lecture Topics	Reading	Assignments
T Jan 24	1. Syllabus and introduction	Chapter 1	
R Jan 26	2. DNA Structure	Chapter 9	
F Jan 27	3. DNA Structure	Chapters 9	Homework 1
T Jan 31	4. Chromosome organization	Chapter 10	Homework 2
R Feb 2	5. DNA Replication	Chapter 11	
F Feb 3	6. DNA Replication/Transcription	Chapter 11 and 12	
T Feb 7	7. Transcription	Chapter 12	Homework 3
R Feb 9	8. Translation	Chapter 13	
F Feb 10	9. Translation	Chapter 13	
T Feb 14	10. Regulation of Prokaryotic genes	Chapter 14	Homework 4
R Feb 16	11. Regulation of Prokaryotic genes	Chapter 14	
F Feb 17	12. Regulation of Eukaryotic genes	Chapters 15	
T Feb 21	13. Regulation of Eukaryotic genes	Chapter 15	Homework 5
R Feb 23	14. Review Session		
F Feb 24	Exam		Exam I
T Feb 28	15. DNA mutation and repair	Chapter 18	
R March 2	16. DNA Mutation and repair/Recombination	Chapters 18-19	
F March 3	17. Recombination	Chapter 19	
T March 7	18. Mitosis and Meiosis	Chapter 3	Homework 6
R March 9	19. Mitosis and Meiosis	Chapter 3	
F March 10	20. Mitosis and Meiosis	Chapter 3	
T March 14	21. Chromosome structure and number	Chapter 8	Homework 7
R March 16	22. Mendelian Inheritance	Chapter 2	
F March 17	23. Mendelian Inheritance	Chapters 2	
March 2-25	SPRING BREAK!!!!		
T March 28	24. Mendelian Inheritance and Chi Square	Chapter 2	Homework 8
R March 30	25. Inheritance Patterns and Sex-linked Traits	Chapter 4	
F March 31	26. Non-Mendelian Inheritance	Chapter 5	
T April 4	27. Genetic Linkage	Chapter 6	Homework 9
R April 6	28. Genetic Linkage	Chapter 6	
F April 7	29. Review Session		Homework 10
T April 11	Exam		Exam II
R April 13	30. Recombinant DNA Technology	Chapter 20	
F April 14	31. Recombinant DNA technology	Chapter 20	
T April 18	32. Biotechnology	Chapter 21	Homework 11
R April 20	33. Biotechnology	Chapter 21	

Lecture Schedule ^{continued}

F April 21	34. Genomics	Chapter 22	
T April 25	35. Genomics	Chapters 22-23	Homework 12
R April 27	36. Genomics	Chapter 23	
F April 28	37. Genetics of Cancer	Chapter 24	
T May 2	38. Developmental Genetics	Chapter 25	Homework 13
R May 4	39. Developmental Genetics	Chapter 25	
F May 5	40. Population Genetics	Chapter 26	
T May 9	41. Population Genetics	Chapter 26	
R May 11	42. Review Session		Homework 14
F May 12	Exam		Exam III
T May 16	FINAL REDEMPTION	10:15-12:15	