

Class Information		Instructor Information		First day of classes:	Wed., Sept 7, 2016
Dates	Lectures: Wed/Fri Time: 9:45-11:00 am Rm: A2210	Instructor:	Matthew Morris, BRE, BSc, MSc, PhD (ABD)	Last day to add/drop, or change to audit:	Sun, Sept. 18, 2016
	Labs: Wed Time: 1-4 pm Rm: A2151			Email:	Matthew.Morris@amb rose.edu
Final Exam Day		Phone:	403-410-2000 ext 6932	Last day to withdraw from course:	Mon, Nov 14, 2016
		Office:	A2158	Last day to apply for time extension for coursework:	Mon, Nov 21, 2016
Saturday, Dec 17, RM A2141, 9 am – 12 pm		Office Hrs:	Tuesdays 10 – 11 am, or by appointment	Last day of classes:	Mon, Dec 12, 2016

Textbook: *An Introduction to Genetic Analysis, 11th Edition*, AJ Griffiths, SR Wessler, SB Carroll, J Doebley

Course Description:

This course examines the principles of heredity and Mendelian laws, as well as basic concepts of gene structure and function, gene regulation and modern applications of genetics. Principles from prokaryotes, eukaryotes and viruses will be explored. The accompanying laboratory component contains experiments and exercises to illustrate key genetic principles and molecular techniques.

Expected Learning Outcomes:

This course will cover classical and modern genetics. Students should come out of this course being able to:

1. Understand the principles of gene inheritance
2. Interpret pedigrees and phenotypic ratios to make inferences about underlying genetic causes.
3. Test these inferences using appropriate statistics.
4. Understand the chemical nature of DNA and how its properties contribute to phenotypic variation.
5. Identify the appropriate genetics technique necessary to address real-life problems.

Course Schedule:

Week	Topic	Chapter	Lab	Due
Sept 7	Intro to genetics		NO LAB	
Sept 9	Mendelian genetics			
Sept 14	Chromosomal theory of inheritance		DNA barcoding; Corn genetics	
Sept 16	Sex-linked inheritance and pedigree analysis			
Sept 21	Linkage and recombination		Fruit fly genetics	Corn genetics
Sept 23	Other deviations from Mendelian ratios			Fish samples (bring to class)
Sept 28	Spiritual transformation day: no labs or classes			
Sept 30	DNA			
Oct 5	DNA Replication		Linkage	Fruit fly genetics
Oct 7	RNA			
Oct 12	Proteins		Polymerase Chain Reaction	Pedigree analysis
Oct 14	Bacterial genome			
Oct 19	Eukaryotic genome		Midterm	
Oct 21	Mitochondrial genome			
Oct 26	Genetic variation I		Gel electrophoresis	
Oct 28	Genetic variation II			
Nov 2	Genetic variation III		DNA damage	PCR and gel report
Nov 4	Epigenetics			
Nov 9	Comparative genomics		DNA barcoding I	DNA damage Topic for genetic disorders
Nov 11	Remembrance Day			
Nov 16	Methods in genetics I		DNA barcoding II	
Nov 18	Methods in genetics II			
Nov 23	Methods in genetics III		Online genomics	DNA barcoding
Nov 25	Applications I			
Nov 30	Applications II		CSI	Genomics CSI end of class
Dec 2	Quantitative genetics			
Dec 7	The human genome		Poster presentations	Genetic disorders poster
Dec 9	Review			

Requirements:

Mark distribution:

Quizzes or homework assignments: 10%

Midterm: 20%

Final exam: 30%

Lab: 40%

Quizzes/homework assignments, midterm, and final exam consist of some combination of true/false, fill in the blank, multiple choice, and short answer questions. Quizzes will not be cumulative. The final will include content from before the midterm. The midterm will occupy a lab session to allow for greater time for completion. Quizzes may be conducted at the beginning or end of select classes and will address only the previous (beginning of class) or current (end of class) lecture.

There will be no exam or tests for the laboratory component. However, the theory and problems behind the lab topics may be included in any of the tests and final exam.

The schedule provided above is flexible and may be altered. Consult the Moodle website for the most up-to-date schedule.

Due dates and test dates can be found under Course Schedule. Late submissions are not accepted unless sufficient reason is provided in a written request for extension to the instructor prior to the due date. Please note that students must earn at least 60% of the laboratory component marks in order to have these marks added to the final marks for grading. The final lab component is a poster presentation on a human genetic disease, and will be presented orally to the class.

Marks for the laboratory component are distributed as follows. Percentages add up to 40%, which is the contribution of the lab to your total mark.

1. Corn genetics (2%)
2. Fruit fly genetics (4%)
3. PCR/gel report (7%)
4. DNA damage (4%)
5. DNA barcoding (10%)
6. Genomics (3%)
7. CSI (3%)
8. Genetic disorders poster presentation (7%)

Attendance:

Although attendance will not be taken at lectures, pop quizzes will not be announced the week prior and cannot be made up. Attendance is compulsory for all laboratory exercises, tests, and exams.

Grade Summary:

The available letters for course grades are as follows:

<u>Letter Grade</u>	<u>Description</u>
A+	
A	Excellent
A-	
B+	
B	Good
B-	
C+	
C	Satisfactory
C-	
D+	
D	Minimal Pass
F	Failure

Grading scheme for Bio 211:

A+	93.0 – 100%	C+	66.0 – 69.9%
A	86.0 – 92.9%	C	62.0 – 65.9%
A-	82.0 – 85.9%	C-	58.0 – 61.9%
B+	78.0 – 81.9%	D+	54.0 – 57.9%
B	74.0 – 77.9%	D	50.0 – 53.9%
B-	70.0 – 73.9%	F	Below 49.9%

Because of the nature of the Alpha 4.00 system, there can be no uniform College-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other

It is the responsibility of the student to keep up with required reading and submit completed assignments by their due dates. Although all lab work is conducted in groups, written assignments will be handed in individually. Students are expected to complete written assignments on their own.

Lab Rules

1. Eating and drinking are strictly prohibited in all laboratories.
2. Always wash your hands prior to leaving the lab.
3. Report any spills, broken glassware, or equipment failure to the lab instructor.
4. Students are not allowed to work in the lab unless the instructor is present.
5. Always clean your glassware thoroughly after using.
6. Lab coats and Safety glasses are required for all Chemistry labs and microbiology labs. Lab coats are strongly recommended for other biology and zoology classes. Gloves should be worn as directed by your instructor.
7. Long hair should be tied back. It is recommended that contact lenses not be worn. Safety glasses may be worn over normal glasses. Open-toed shoes are NOT recommended.
8. When dealing with body fluids, do not handle anyone's but your own. Clean any spills with bleach. Use gloves as directed. Dispose of blood and urine as directed.
9. Do not begin the lab until the instructor has given special instructions on the equipment and chemicals to be used that day.

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10. Do not contaminate chemicals by reusing dirty pipettes or by returning leftover fluid to reagent bottles.
 11. Note the locations of fire extinguishers, eyewashes, first aid kit, and the emergency exit. The safety shower is for emergencies only.
 12. Dispose of chemicals or biohazards as instructed by the lab instructor. If unsure, please ask. Biohazards include physiological sharps (eg. Needles, scalpels, syringes) as well as contaminated wastes (eg. Blood on Paper towel, gauze etc.).
 13. Animal parts or waste must be disposed of appropriately and as directed by your instructor.
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Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office

in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Note: Students are strongly advised to retain this syllabus for their records.