

Course ID:	Course Title:	Winter 2020
BIO 301	Principles of Evolution	Prerequisite: BIO 211, BIO 213
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	Tues/Thurs	Instructor:	Matthew Morris, PhD, MSc, BSc, BRE	First day of classes:	Tue, Jan 7
Time:	2:30-3:45 pm	Email:	Matthew.Morris@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Jan 19
Room:	A1085-2	Phone:	403-410-2000 ext. 6932	Last day to request revised exam:	Mon, Mar 9
Lab/ Tutorial:	1 hour tutorial	Office:	A2158	Last day to withdraw from course:	Fri, Mar 20
	Mondays, 12-1 pm, RELL124	Office Hours:	Wednesdays 9-12, or by appointment	Last day to apply for coursework extension:	Mon, Mar 30
Final Exam:	TBD Jan 30			Last day of classes:	Thurs, Apr 9

Course Description

An introduction to the evolutionary processes that shape variation within and between populations and species. Topics include heredity, mutation, genetic drift, natural selection and adaptation, sexual selection, speciation, macroevolution, and implications for conservation and medicine.

Expected Learning Outcomes

1. Gain a deep understanding of and appreciation for the natural world and the human species as understood through an evolutionary lens.
2. Understand the processes (e.g. natural selection, non-random mating, genetic drift, mutation, gene flow) by which populations evolve, including population genetic models of evolution.
3. Contrast artificial, natural, and sexual selection, and adaptive and non-adaptive evolution.
4. Assess evidences for evolution from the fossil record, genome scans, and contemporary observations.
5. Describe different biological models for the origins of life and species
6. Critically assess common misunderstandings of evolution

Textbooks

Zimmer C (2016) Evolution: Making sense of life. 2nd edition. Roberts and Company: CO.

Additional readings will be provided throughout the semester.

Course Schedule

Date	Topic	Text Chapters	Due
Jan 7	Defining evolution	1: Walking Whales	Jan 14
Jan 9	Historical context	2: Before and After Darwin	Jan 14
Jan 14	Mutations	5: Evolution's Raw Materials	Jan 21
Jan 16	Heritability		
Jan 21	Artificial selection		
Jan 23	Natural selection	6: Ways of Change	Jan 28
Jan 28	Sexual selection	9: Sex and Family	Feb 4
Jan 30	PROGRAM DAY		
Feb 4	Gene's-eye view: HWE	Assigned readings	
Feb 6	HWE II	Assigned readings	
Feb 11	HWE III	Assigned readings	
Feb 13	Guest lecture: Darrel Falk		
Feb 18	READING BREAK		
Feb 20	READING BREAK		
Feb 25	Adaptation	8: Adaptation	March 5
Feb 27	Speciation I	10: Darwin's First Question	March 5
March 3	Speciation II		
March 5	Coevolution	12: Intimate partnerships	March 10
March 10	Human-induced evolution		
March 12	Deep time	3: What the Rocks Say	March 17
March 17	Tree thinking	4: The Tree of Life	March 24
March 19	Neutral evolution	7: Molecular Evolution	March 24
March 24	Macroevolution	11: Macroevolution	March 31
March 26	Extinction		
March 31	Human evolution	14: A New Kind of Ape	April 7
April 2	Evolutionary medicine	15: Evolutionary Medicine	April 7
April 7	Evolutionary psychology	13: Minds and Microbes	April 9
April 9	Review		

Textbook chapters are based on the second edition. The first edition has different chapters and will not be as useful.

Tutorials

Date	Tutorial	Due date	Value (%)
Jan 13	Evidences for evolution	Jan 20	3
Jan 20	Mutations	Jan 27	3
Jan 27	Quantitative genetics	Feb 3	3
Feb 3	Measuring selection	Feb 10	3
Feb 10	HWE	Feb 11	3
Feb 17	Reading week		
Feb 24	Midterm		20
Mar 9	Speciation	Mar 16	3
Mar 16	Tree thinking	March 23	3
Mar 23	Sequence divergence	Mar 30	3
Mar 30	Human evolution	April 6	3
April 6	Misconceptions/Q & A	April 9	3

Requirements:

This course consists of 3 hours of lectures per week. The midterm and final exam will be a combination of multiple choice questions, as well as short and long answer questions. While most questions will be based on lecture material, the textbook reading will absolutely help in the understanding of this material.

Brief (one page) summaries of **ten of fifteen** textbook chapters will be handed in. **See schedule above.** Additional chapter summaries will be counted as bonus on the final.

Tutorials will involve a mixture of paper discussions, hands-on simulations, and practice problems. The midterm will occur during tutorial time, and will comprise 60 minutes. Each tutorial will be accompanied by homework assignments that are to be done independently.

Attendance:

While attendance at lectures is not mandatory, it will help ensure success on course exams and assignments. Attendance at tutorials is mandatory – attendance will be taken. Missed tutorials cannot be made up. Missing more than two tutorials will result in failure of the course.

Grade Summary:

Midterm – 20%

Final – 35%

Textbook review – 15%

Tutorial assignments – 30%

The available letters for course grades are as follows:

Grad	Percent	Grade Point Value	Description
A+	96-100	4.00	Outstanding
A	92-96	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	88-92	3.70	
B+	83-88	3.30	
B	78-83	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	73-78	2.70	
C+	68-73	2.30	
C	64-68	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	60-64	1.70	Minimum grade required if needed as a prerequisite course
D+	55-60	1.30	
D	50-55	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<50	0	Fail – unsatisfactory performance or failure to meet course requirements.

Because of the nature of the Alpha 4.00 system, there can be no uniform University-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.

Late assignment policies

Tutorial and homework assignments cannot be submitted late without cause and approval from the professor. All assignments are due at the start of the tutorial or class period. Anything submitted after the start of the tutorial or class will be considered late. The penalty for late homework or lab assignments are as follows:

- 5%/day for late assignments that have been communicated to the professor ahead of time.
- 10%/day for late assignments if the professor has to track you down to find out what is going on.
- 0% on any assignments passed in one week after the due date, unless otherwise stated by the instructor. *These assignments will still be “graded” so that you can have feedback before the exam, even if your official grade is 0.*

If your name is not on the assignment, it will not be graded and you will receive a grade of 0 for failing to submit an assignment.

Missed midterms or final exams, without cause, cannot be made up. The only acceptable reason for missing an exam is illness, for which a doctor's note will be required, or death of an immediate family member. Give yourself plenty of time to get to school on exam days. Traffic or weather is no reason for missing an exam.

Plagiarism policy:

All assignments will be submitted as one original piece of work per person. If you submit an assignment with only your name on it, it is assumed that you are the sole contributor of the work.

See below for Ambrose's statement defining plagiarism and outlining its consequences. In brief, it is your responsibility as a citizen of Ambrose to be aware of the policies of Ambrose and abide by them. Ignorance is no excuse. Plagiarism will not be tolerated.

Examples of plagiarism include, but are not limited, to:

1. Copying an assignment from someone else and submitting it as your own work.
2. Working with a friend and writing down identical answers, whether you understand the content or not, and submitting the assignments separately.
3. Quoting directly from a source without supplying quotation marks or a citation.
4. Quoting directly from a source without supplying quotation marks, even if it is referenced.
5. Copying nearly word-for-word from a source, changing only the occasional word, without providing quotation marks, even if it is referenced.
6. Submitting an assignment in which >30% of the content is properly quoted; that is, at least 70% of the words in an assignment need to be your own. A general rule of thumb: for every line quoted, there should be three lines of your own material explaining that quote.
7. Submitting the same or similar assignment for more than one class, or more than one iteration of the same class.
8. Not citing illustrations used in a paper.

Penalties for plagiarism

For a first offense in any one of my classes, a zero on the assignment with no chance of rewriting it, and a note in your academic file.

For a second offense in any one of my classes, a zero in the class, and recommendation for a note on your transcript.

For a third offense in any one of my classes, a zero in the class and a recommendation for expulsion from the university.

Note that Ambrose has an appeals process in place if you feel that allegations of plagiarism are unfounded; these are for final marks only, and not for individual assignments.

Note that my record of a student's past plagiarism does not reset with each semester.

Classroom Etiquette:

It is expected that students will take an active role in the learning process. This includes: (a) regular class and lab attendance, (b) reading course material in advance of class or tutorials, and (c) engaging in discussions during class or tutorials.

In respect to the professor and to your fellow students, we ask that you:

- a) Turn your phone off during class and that you don't use it for texting during lecture or lab;
- b) Not have conversations with the people beside you during lecture – it is very distracting to the people around you;
- c) Use your laptops for lecture material and assignments only – that you are not using the internet or Facebook during class time;
- d) Arrive to lecture and lab on time;
- e) Don't listen to music in class or lab.

These will help to maximize the learning experience for you and your fellow students (and will keep your professor in a good mood).

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crissupport for a list of staff members.

Off Campus:

- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Ambrose University Academic 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. 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.