

Course ID:	Course Title:	Winter 2022
ZOO 275	Invertebrate zoology	Prerequisite: BIO 133
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	In Class/Online	Instructor:	Dr. Matthew Morris	First Day of Classes:	January 10, 2022
Days:	Tues/Thurs	Email:	Matthew.Morris@ambrose.edu	Last Day to Add/Drop:	January 23, 2022
Time:	10:00-11:15 am	Phone:	ext. 6932	Last Day to Withdraw:	March 18, 2022
Room:	L2100	Office:	Wednesdays	Last Day to Apply for Extension:	March 28, 2022
Lab/Tutorial:	3 hours/wk Mon, 11:15-2:15, A2145 Dr. Pike, instructor	Office Hours:	9 am - Noon	Last Day of Classes:	April 14, 2022
Final Exam:	Office of the Registrar will publish Final Exam Schedule				

Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University, please refer to the Academic Calendar at <https://ambrose.edu/academic-calendar>.

Course Description

This course deals with the organization and morphology of the invertebrate phyla.

Expected Learning Outcomes

Coming out of this class, students will:

1. Develop a knowledge of animal diversity and the relationship between animal form and function
2. Be able to identify animals to phylum and class
3. Describe the evolutionary history of invertebrates
4. Read, interpret, and create field guides for public use
5. Understand the ecosystem services provided by invertebrates
6. Gain experience at dissection techniques and scientific drawings

Textbooks

Biology of the Invertebrates, Pechenik, Jan A. McGraw-Hill, 7th ed.

Animal Earth, Piper, Ross. 2013. Thames and Hudson. (free pdf uploaded to Moodle)

Course Schedule

Date	Topic	Ross chapters	Pechenik chapters
Jan 11	What is an animal?	Introduction	1, 2
Jan 13	In the beginning		
Jan 18	Your epidermis is showing	Porifera, Placozoa	4
Jan 20	The circle of life	Ctenophora, Cnidaria	5, 6, 7
Jan 25	The circle of life II	Cnidaria	6
Jan 27	Just disgusting	Platyhelminthes	8
Feb 1	A tale of two penises	Cycliophora, Chaetognatha	18
Feb 3	Wheel-bearers and worms with teeth	Rotifera, Micrognathozoa, Gnathostomulida	10
Feb 8	Extremely specific parasites and hairy grandmothers	Orthonectida, Dicyemida, Gastrotricha	9, 18
Feb 10	Look at that S-car go! Field guide taxon due	Mollusca	12
Feb 15	The smartest invertebrates	Mollusca	12
Feb 17	Exploding sperm bombs	Annelida	13
Feb 22	READING BREAK		
Feb 24	READING BREAK		
Mar 1	Bloodsuckers and dirt-eaters	Annelida	13
Mar 3	The frustrating world of things that look like other things	Nemertea, Bryozoa (Ectoprocta), Entoprocta, Phoronida, Brachiopoda	11, 19
Mar 8	Just disgusting II	Nematoda	16
Mar 10	Spitting “worms”, water “bears”, and bursting “horses”	Nematomorpha, Tardigrada, Onychophora	15, 17
Mar 15	Armoured monsters	Arthropoda	14
Mar 17	Web-builders Species list due	Arthropoda	14
Mar 22	Rulers of the sea	Arthropoda	14
Mar 24	Rulers of the land	Arthropoda	14
Mar 29	The scientific name is “penis worm”	Priapulida, Loricifera, Kinorhyncha, Echinodermata	17, 20
Mar 31	Surprisingly like us	Echinodermata	20
April 5	Your grandmother was a (xenoturbellid) worm	Xenacoelomorpha, Hemichordata	21, 22
April 7	Almost human	Cephalochordata, Urochordata (Tunicata)	23

April 12	TBA field guides due		
April 14	TBA		

Laboratory Schedule

The labs will be weekly. You will be performing several dissections and examinations of species of each of the major phyla.

The lab portion of this course will consist of graded scientific drawings from observations of live specimens and/or dissections of preserved specimens.

Date	Lab topic	Due date	Value (%)
Jan 17	Introduction	Drawing end of class	2
Jan 24	Porifera, Cnidaria	Drawing end of class	3
Jan 31	Cnidaria continued	Drawing end of class	3
Feb 7	Platyhelminthes	Drawing end of class	2
Feb 14	Microscopic phyla	Drawing end of class	2
Feb 21	Reading break	NO LABS	
Feb 28	Mollusca	Drawings end of class	2
Mar 7	Annelida	Drawing end of class	2
Mar 14	Nematoda	Drawing end of class	2
Mar 21	Crustacea	Drawing end of class	4
Mar 28	Hexapoda	Drawing end of class	4
April 4	Presentations on your field guides to Alberta's invertebrates		
April 11	Echinodermata	Participation only	4

Covid lecture policy

Lectures will be held in-person when permitted. For now, until at least January 31st, lectures will occur live over Zoom. Zoom links will be provided on the Moodle page for each lecture. When courses resume in-person the expectation will be that everyone will attend in-person.

Quizzes will be posted over Moodle. They will open at the start of class time and will remain open for 5 minutes. Upon completion you are expected to enter the Zoom classroom.

When classes resume in-person, quizzes will be handled in-person rather than over Moodle.

Covid lab policy

Dissection materials for the month of January are to be picked up from Dr. Pike during normal lab time on January 10. If you cannot make this time, please range for an alternate pick up. You will need to verify that microscopes are in working order before leaving with your lab materials. **Failure to return microscopes and samples when classes resume in person (or at the end of the semester if classes have not resumed in-person), or returning them no longer in working order or with specimens missing, could result in a failing grade.**

Labs begin January 17th. At the start of lab time, you are to log in to Zoom to meet with Dr. Pike, who will go over safety concerns for that week, provide background, and potentially show you specimens or slides from the lab. You will then have one week to complete the required dissections and illustrations. The lab assignment will be due by email to both Dr. Pike (Ted.Pike@ambrose.edu) and Dr. Morris (Matthew.Morris@ambrose.edu) prior to the start of the next lab period. That is, you do not need to conduct the complete dissection during lab time, but have a week to complete the assignment.

When/if labs resume in-person, dissections will be conducted in the lab space provided, and illustrations will be due at the end of the lab period.

Your lab kits contain preservatives and some dangerous equipment (e.g. scalpels) – it is your responsibility to store this equipment in a safe place, and to use the equipment and chemicals appropriately.

PPE in lab will involve lab coats, safety goggles, masks, and gloves. All but gloves are to be provided by the student.

Labs at home will require gloves, which will be provided with your kit. Goggles are recommended.

Requirements:

This course consists of 2.5 hours of lectures per week, plus a 3-hour lab. There is no exam for the lab, but the anatomy learned in class will be highlighted in the lab and will be important for the final exam. The final exam is **open book** and will be scheduled by the Registrar’s office.

Each class will begin with a 5 minute (5 question) quiz on classification and anatomy based on the lecture prior. There may be quizzes (with advance notice) that focus on more than one lecture.

Labs – 30%

Field guide to Alberta’s biodiversity – 15%

Quizzes – 25%

Final exam – 30%

Field guide – more information will be provided separate from this syllabus, but in brief you will choose an invertebrate group that has representatives in Alberta, and you will write a field guide written for the public, that documents the biodiversity present in Alberta. There are **four deadlines** to be met throughout the semester:

Portion of Assignment	Due date	Grade
Taxon you wish to write a field guide on	Feb 10, start of class	None
Species list with classification, of species in your guide	March 17, start of class	3
Completed guide to be presented to your peers, with feedback provided by Dr. Pike	April 4, throughout lab section	None
Final guide due, to be graded by Dr. Morris	April 12	12

Attendance:

While attendance at lectures is not mandatory, it will help ensure success on course exams and assignments, and missed quizzes cannot be taken later. Attendance at laboratory sessions is mandatory, even when those labs are virtual. Lab reports will not be accepted unless the lab has been attended or exceptions have been made with the instructor.

Grade Summary:

The available letters for course grades are as follows:

Grade	Percentage	Interpretation	Grade Points
A+	96-100	Excellent	4.00
A	92-96		4.00
A-	88-92		3.70
B+	83-88	Good	3.30
B	78-83		3.00
B-	73-78		2.70
C+	68-73	Satisfactory	2.30
C	64-68		2.00
C-	60-64		1.70
D+	55-60	Poor	1.30
D	50-55	Minimal Pass	1.0
F	<50	Failure	0.00
P		Pass	No Grade Points

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.

Other:

Late assignment policies

Quizzes or lab assignments cannot be submitted late without cause and approval from the professor. Lab assignments **are due at the beginning of lab**; anything after the start of the lab 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 final exams, without cause, cannot be made up.

Plagiarism policy

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

Offence	Consequence
First	0% on paper, on chance to redo; report on plagiarism filed with the registrar
Second	F in course
Third	F in course and recommendation to registrar for expulsion

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 labs, and (c) engaging in discussions during class or labs. 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).

Ambrose University Important Information:

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.

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 Academic Calendar. 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.

Standards of Behaviour in the Classroom Setting

Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class. Please refer to your professor regarding their electronic etiquette expectations.

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.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at <https://ambrose.edu/content/academic-calendar-2>.

Privacy

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.

Coursework Extensions

Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and are normally granted for 30 days beyond the last day of the term.

Normally, Course Extension Applications will be considered only when all of the following conditions are met:

- the quality of prior course work has been satisfactory;
- circumstances beyond your control, such as an extended illness or death of a family member, make it impossible for you to complete the course work on time; and

- you submit *Coursework Extension Application* to the Office of the Registrar on or before the deadline specified in the Academic Schedule.

If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course.

A temporary grade of TX will be assigned until a final grade is submitted in accordance with the new deadline. A final grade of F will apply to:

- all course work submitted after the end of the semester unless a coursework extension has been granted; and all course work submitted after the revised due date provided by an approved extension to coursework.

Academic Success and Supports

Accessibility Services

Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services.

Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

Ambrose Writing Services

Ambrose Writing services provides academic support in the four foundational literacy skills—listening, speaking, reading, and writing. It also assists students with critical thinking and the research process. Throughout the academic year, students can meet with a writing tutor for personalized support, or they can attend a variety of workshops offered by Academic Success. These services are free to students enrolled at Ambrose University. Academic Success serves all students in all disciplines and at all levels, from history to biology and from theatre to theology. To learn more, please visit <https://ambrose.edu/writingcentre>

Ambrose Tutoring Services

Ambrose Tutoring Services provides support in specific disciplinary knowledge, especially in high-demand areas such as chemistry, philosophy, math and statistics, and religious studies. These tutors also coach students in general study skills, including listening and note-taking. During the academic year, Ambrose Tutoring Services offers drop-in tutoring for courses with high demand; for other courses, students can book a one-to-one appointment with a tutor in their discipline. These services are free to students enrolled at Ambrose University. To learn more, please visit <https://ambrose.edu/tutoring>.

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/crisissupport 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

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