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| Course ID: | Course Title: | Winter 2018 |
| ZOO 275 | Invertebrate Zoology | Prerequisite: BIO 133 |
| | | Credits: 3 |

| Class Information | | Instructor Information | | Important Dates | |
|---------------------------|---------------------------------------|------------------------|--|--|--------------|
| Days: | Tues/Thurs | Instructor: | Dr. Matthew Morris, PhD | First day of classes: | Thu, Jan. 4 |
| Time: | 1-2:15 pm | Email: | Matthew.Morris@ambrose.edu | Last day to add/drop, or change to audit: | Sun, Jan. 14 |
| Room: | A2212 | Phone: | 403-410-2000 ext. 6932 | Last day to request revised exam: | Mon, Mar. 5 |
| Lab/ Tutorial: | Monday A2145, 1-4 pm | Office: | A2158 | Last day to withdraw from course: | Fri, Mar. 16 |
| | | Office Hours: | Wed 1-4 or by appointment | Last day to apply for coursework extension: | Mon, Mar. 26 |
| Final Exam: | Sat April 14 9 am -12 pm, A2131 | | | Last day of classes: | Wed, Apr. 11 |

Course Description

This course is a survey of the invertebrate phyla, covering their phylogeny, physiology, and ecology. These phyla include: Porifera, Cnidaria, Platyhelminthes, Nematoda, Mollusca, Arthropoda, Echinodermata, and the “lesser” phyla.

The course will consist of 3 hours of lecture and 3 hours of lab each week.

Expected Learning Outcomes

1. The students will learn animal phylogeny of the invertebrate species
2. The students will gain an understanding of animal form and function for each of the major phyla
3. The students will gain experience at dissection techniques

Textbooks

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

Course Schedule

| Date | Topic | Phyla Covered | Text Chapters |
|----------|---|--|---------------|
| Jan 4 | Introduction | | 1, 2 |
| Jan 9 | Your epidermis is showing | Placozoa, Porifera | 4 |
| Jan 11 | The circle of life | Ctenophora, Cnidaria | 5, 6, 7 |
| Jan 16 | A tale of two penises | Chaetognatha, Bryozoa, Entoprocta, Cyclophora | 18, 19 |
| Jan 18 | Just disgusting | Platyhelminthes | 8 |
| Jan 23 | Wheel-bearers, worms with (tiny) jaws, and extremely specific parasites | Rotifera, Micrognathozoa, Gnathostomulida, Orthonectida, Dicyemida, Gastrotricha | 9, 10, 18 |
| Jan 25 | PROGRAM DAY | | |
| Jan 30 | Look at that S-car go! | Mollusca | 12 |
| Feb 1 | The smartest invertebrates | Mollusca | 12 |
| Feb 6 | Just one worm of many | Annelida | 13 |
| Feb 8 | The frustrating world of things that look like other things | Nemertea, Brachiopoda, Phoronida | 11, 19 |
| Feb 13 | Just disgusting II | Nematoda, Nematomorpha | 16, 17 |
| Feb 15 | Spitting “worms”, water “bears”, and sun “spiders” | Tardigrada, Onychophora, Arthropoda | 15, 14 |
| Feb 20 | READING BREAK | | |
| Feb 22 | READING BREAK | | |
| Feb 27 | Midterm I | | |
| March 1 | Rulers of the sea | Arthropoda: Crustacea | 14 |
| March 6 | Rulers of the land | Arthropoda: Hexapoda | 14 |
| March 8 | The scientific name is “penis worm” | Priapulida, Loricifera, Kinorhyncha | 17 |
| March 13 | Surprisingly like us | Echinodermata | 20 |
| March 15 | Your grandmother was a (xenoturbellid) worm | Xenacoelomorpha, Hemichordata | 22, 21 |
| March 20 | The baby that wouldn’t eat until it (sort of) lost its brain | Cephalochordata, Urochordata | 23 |
| March 22 | The non-animal “invertebrates” | Various Protista | 3 |
| March 27 | Invertebrates in deep time | | |
| March 29 | Midterm II | | |
| April 3 | TBA | | |
| April 5 | TBA | | |
| April 10 | Review | | |

Laboratory Schedule

The labs will be weekly. You will be performing several dissections and examinations of species of each of the major phyla. Attendance at the laboratory sessions is **COMPULSORY**. Any lab missed without a valid excuse cannot be made up. Lab coats are required for dissection weeks. The lab portion of this course will consist of 2 lab exams, a graded dissection, and a graded presentation.

| Date | Lab topic | Due date | Value (%) |
|----------|-------------------------------|------------------|---------------|
| Jan 8 | Introductory lab | | |
| Jan 15 | Life in a Pond | Jan 15 | 1 |
| Jan 22 | Cnidaria and Ctenophora | Jan 22 | |
| Jan 29 | Platyhelminthes | March 12 | |
| Feb 5 | Mollusca | Feb 12 | |
| Feb 12 | Annelida | Feb 26 | 1 |
| Feb 19 | Reading break | Happy happy | |
| Feb 26 | Lab Exam 1 | Feb 26 | 10 |
| March 5 | Nematoda | March 5 | |
| March 12 | Arthropoda 1: non-hexapods | March 12 | 1 |
| March 19 | Arthropoda 2: hexapods | March 19 | 1 |
| March 26 | Echinodermata | March 26 + PAPER | 1 + 5 (paper) |
| April 2 | No lab: Easter | | |
| April 9 | Lab Exam 2: graded dissection | April 9 | 10 |

Requirements:

This course consists of 3 hours of lectures per week, plus a 3-hour lab.

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.

Attendance:

While attendance at lectures is not mandatory, it will help ensure success on course exams and assignments. Attendance at laboratory sessions is mandatory. Lab reports will not be accepted unless the lab has been attended or exceptions have been made with the instructor.

Grade Summary:

Midterm – 30% (15% each)

Final – 40%

Labs – 30%

Lab exam 1 – 10%

Lab exam 2 – 10%

Paper – 5%

Other labs – 5%

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.

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.
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. Quoting nearly word-for-word from a source, changing only the occasional word, even if it is referenced.
6. Submitting an assignment in which >30% of the content is properly quoted and cited; 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.
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.

A tutorial explaining some of the above can be found at:

<http://library.acadiau.ca/sites/default/files/library/tutorials/plagiarism/>

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 a notice on your transcript.

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

Note that Ambrose has an appeal process in place if you feel that allegations of plagiarism were unfounded.

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 attendance, (b) reading course material in advance of class, and (c) engaging in discussions during class.

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 your 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 come to class or lab with your ipod or equivalent.

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 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 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.