

BIOLOGY 321
SURVEY OF INVERTEBRATES
Section A01 2020 CRN 10404

Lecture:

- x Synchronous Zoom lectures: ~~T, Wed, & Fri~~ Wed, & Fri 9:30-10:20 am
- x Use the **recurring Zoom URL** to sign-in for every lecture. Please remember to sign in through the UVic Zoom app., which you have hopefully installed on your electronic ~~vide~~. This will allow you to enter the ~~meeting~~ meeting directly, without being delegated to the waiting room. When Zoom opens, click on "Join" and then click on the Zoom URL that's given ~~within~~ within the Overview message above
- x Synchronous Zoom lectures will be recorded and uploaded to Brightspace.
- x

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Course Content:

The 'invertebrates' represent possibly 90% of all species of multicellular animals. The organisms belonging to this informagpping are not defined by the possession of any unique characteristic, but only by what they lack – internal skeleton (cartilage or bone) protecting a brain and dorsal nerve cord. Biol 321 will primarily focus at the level of the whole organism and will be organized by phyla. It will deal with major elements of body plans, functional morphology, behaviour, physiology, reproduction & development, life cycles, evolution, and phylogeny of invertebrates. This is potentially a huge quantity of material, but I will whittle it down to a manageable amount by being highly selective about what I choose to include for each phylum and omitting some of the smaller phyla altogether. Fortunately, the biology of invertebrates is rich in fascinating material. As your instructor, my goal is to encourage enthusiasm for the study of invertebrates with all their ingenious adaptations and splendid diversity. I hope you will find that information about the structure and biology of invertebrates enriches, extends and enlightens your understanding of biological organization at other levels (i.e. molecular, cellular, ecological).

Terminology:

You will be expected to learn a number of technical terms for structures, concepts, taxa. What terms and definitions are you expected to know?

- terms that I display in writing during lecture (including labels on drawings and text within Power Point slides)
- terms given in bold font in 'Required Readings' from your textbook

Textbooks and Supplies:

x

Laboratory Activities for Assessment:

1) Participation in weekly synchronous labs and submitted reports based on lab discussions

During each synchronous lab, students will be assigned to “breakouts” to discuss questions relating to material provided in the lab videos that were viewed prior to the synchronous lab. Each student will then compile brief written answers to each question and submit these for grading. Answers will be due by 11 pm on the day of the student’s lab. A drop box within Brightspace will be set-up to allow students to upload their answers to lab discussion questions.

2) Animal Profile

This major lab assignment has been incorporated into the Biol 321 lab to provide students with the opportunity for personal discovery about an invertebrate, despite the pandemic-forced cancellation of in-person labs. Each student will find an invertebrate living in the ocean, freshwater, or terrestrial habitat and study its anatomy and behaviour from personal observations. Data should be documented by images recorded by camera (cell phone or other), USB microscope, or drawings from observations of specimens. These data will be incorporated into the biology of the animal. Although personal observations should form the major part of the project report, it is expected that information from the literature will also be included in the report. You should try to identify the specimen to the level of genus and possibly even species. If this is not possible, don’t get too stressed and don’t let it get in the way of your enjoyment of the project. Talk to your TA about difficulties with genus/species identification; it may be sufficient to identify the family placement. Submitted “Animal Profiles” will be made available to other students in each lab section. Spread the acquired knowledge about diverse invertebrates!

More information about the “Animal Profile” is provided in a document that can be accessed within the “Assignments” module of the Content page of Brightspace.

3) Essay

A second major assignment within the lab of Biol 321 will be an essay on a topic relating to invertebrate biology. You will select a topic from three that will be provided during your first lab session. This assignment will require you to read scientific literature relating to the topic, write an essay outlining important information and major issues relating to the topic, and provide a critical assessment of controversies or a prospectus of possible future directions for research.

More information about the essay assignment is provided in a document that can be accessed within the “Assignments” module of the Content page of Brightspace.

Late submission of the “Animal Profile” and the “Essay” will be penalized at 20% per day, except in cases of a prolonged debilitation during the term or a catastrophe shortly before the submission deadline.

Field Trips:

A great advantage of studying Invertebrate Biology at the University of Victoria is the close proximity to an exceedingly rich fauna of marine invertebrates. During this time of the covid-19 pandemic, I've obtained permission from the University of Victoria to hold one or two intertidal field trips, provided they are conducted with the guidelines issued by the BC Provincial Health Officer. I believe that these field trips will be rewarding – worth the extra effort that will be needed to adhere to the public safety guidelines.

All field trip participants will need to provide their own transportation to the site (a coastal location within Greater Victoria). We must try to maintain a 2 m. distance between participants, but because this may not always be possible, facemasks must be worn.

Low tides during the fall and winter are always after dark, so everyone will need a flashlight. Warm clothing and suitable footwear (rubber or sturdy boots) are also essential and rain gear may be necessary. Date, time, location of the field trips will be announced well in advance, along with a map indicating location. Field trips are an optional activity.

See next page for schedule of lectures, labs, exams and due dates for major assignments

Biology 321 - 2020 - Survey of Invertebrates Schedule of Lectures, Labs, and Exams

DATE	Lect No.	LECTURE	READINGS Pechenik ed 7(ed 6) S = suggested R = required	LABORATORY laboratory activity during the week of the Tuesday lecture
Sep 09 W	1	Introduction to Course	S Ch 1 pp.1-6(1-6)	
Sep 11 F	2	Phylogeny Choanoflagellates; Intro to Porifera	R Ch 2 pp.18-30(16-32)* S Ch 4 pp.77-89(79-91)	
Sep 15 T	3	Porifera		PORIFERA
Sep 16 W	4	Cnidaria I	R Ch 5 pp. 95-97(97-99) S Ch 6 pp.99-126(101-125)	
Sep 18 F	5	Cnidaria II		
Sep 22 T	6	Cnidaria III		CNIDARIA
Sep 23 W	7	Internal Compartments, Bilateria, 'Superphyla', Animal Skeletons	S Ch 2 pp.7-17(7-15) R Ch 4 pp.89-90(91) Placozoa	
Sep 25 F	8	Acoelomorpha, Platyhelminthes I	S Ch 8 pp.147-168(149-170)	
Sep 29 T	9	Platyhelminthes II		PLATYHELMINTHES
Sep 30 W	10	Annelida I	S Ch 13 pp.295-328(295-328)	

Oct 21 W	18	Mollusca IV – Bivalvia		
Oct 23 F	19	Mollusca V - Cephalopoda		ANIMAL PROFILE DUE SAT. OCT 24, 2020 at 11 pm
Oct 27 T	20	Ecdysozoa: Nematoda	S Ch16 pp.431-445(431-445)	MOLLUSCA-II
Oct 28 W	21	Arthropoda I: Introduction	S Ch14 pp.341-397	

Assessment of Learning: Distribution of marks to calculate final grade

Lecture	Laboratory
Midterm Exam (Oct 09, 2020).....20%	Midterm Lab Exam..... 7%
(lectures 1-13 inclusive + requi	

Academic Integrity

You are responsible for academic work that you submit or work with others. We expect you to adhere to the ethical values of honesty, trust, fairness, respect and responsibility. This means not cheating, plagiarizing, or acting in other academically dishonest ways.

What is academic dishonesty?

It's difficult to name every single kind of academic dishonesty, but here are a few examples:

- x hiring an editor for your written assignments without your instructor's approval.