

BIOLOGY 321
SURVEY OF INVERTEBRATES
Section A01 2019 CRN 10356

Lecture:

COR A221

Section A01: Tue, Wed, & Fri 9:30-10:20am

Instructor: Dr. Louise R. Page

PETCH 009; ph. 721-7142; email lpage@uvic.ca

Office hours: Thu 12 noon to 1 pm or by prior arrangement

Laboratory:

PETCH 109

Sections: B01 Tue 2:30; B02 Wed 11:30; B03 Wed 2:30; B04 Thu 2:30

Senior Lab Instructor: Alicia Rippington; email aliciad@uvic.ca

Office hours and contact information for TAs will be given during your first lab session.

- Labs begin week of September 10-12, 2019
- Bring to lab: lab manual (purchase from UVic bookstore), textbook, pencil & eraser; dissecting kit.
- **If you have a valid excuse to be absent from the first lab please contact Alicia Rippington (aliciad@uvic.ca) or you may get shunted into a different lab section.**

Textbooks and Supplies:

- Pechenik, J.A. Biology of the Invertebrates, 6th edition or 7th edition. Copies of the 6th edition are available at the Reserve Reading Desk in the MacPherson library.
- Biology 321 Laboratory Manual – 2019 edition; purchase at UVic Bookstore
- basic dissecting kit including two fine forceps can be purchased from the Bookstore

Course Content:

The ‘invertebrates’ represent possibly 90% of the species of multicellular animals. The organisms belonging to this informal grouping are not defined by the possession of any unique characteristic, but only by what they lack – an internal skeleton (cartilage or bone) protecting a brain and dorsal nerve cord. Biol 321 will focus at the organismal level 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 in 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, and taxa. What terms and definitions are you expected to know?

- terms that I display in writing during lecture
- terms given in bold font in ‘Required Readings’ from your textbook

Laboratory:

The laboratory sessions are an integral part of Biol 321 and are worth 45% of your final grade. The laboratory will allow you to examine organisms described in the lecture and to observe structural and functional diversity within and between various taxa. Some of the lab work will involve dissection of heavily anaesthetized live specimens. Dissections will be done in groups of 3-5 students so as to minimize the number of animals sacrificed. Late submission of the lab essay assignment will be penalized at 20% per day.

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. Field trips have been planned to exploit the educational value of this great resource. Additional information about these field trips will be provided during both lecture and lab and will be posted on the CourseSpaces website for Biol 321.

Bamfield Marine Sciences Centre (optional). A trip to BMSC is planned for **Oct 25 to 27** (leave UVic Friday 2:30 pm; return to UVic Sunday ~4:30 pm). Spaces are limited to 18 or 24 and sign-up will occur on **Thursday Sep 12 from 8:00-10:00am in Petch 009**. After that date & time, contact L.Page for sign-up (if sign-up slots still remain). The cost for the trip is **\$250.00** and payment must be made when you sign-up for the trip (cash or cheque made out to Biology Dept., Univ. of Victoria). The fee covers everything (transportation, accommodation, meals, boat time and instruction during excursions) except dinner on Friday, which will be purchased *en route*. Visit BMSC's website at: <http://www.bamfieldmsc.com>

Intertidal Field Trip (optional). A field trip to the intertidal zone of Clover Point is planned for **Mon Oct 28 @ 9:00 pm** (all fall & winter low tides occur after sunset in our area). Return transportation between UVic and Clover Point for a limited number of students will be available. Otherwise please arrange your own transportation. Wear warm clothing, rain gear if appropriate, and bring a **flashlight**. Rubber boots are highly recommended. Friends welcome. No fee.

Biology 321 - 2019 - Survey of Invertebrates - Schedule of Lectures & Labs

Date	Lect No.	Lecture Topic	Readings Pechenik ed 7 (<i>ed 6</i>) S = suggested R = required
Sep 04 W	1	Introduction to Course; Habitats, Lifestyles, Phylogeny	S Ch1 pp.1-6 (<i>1-6</i>) R Ch2 pp.18-30 (<i>16-32</i>)
Sep 06 F	2	Choanoflagellates & Porifera	S Ch4 pp.77-89 (<i>79-91</i>) R Ch4 pp.89-90 (<i>91</i>) Placozoa
Sep 10 T	3	Porifera	
Sep 11 W	4	Cnidaria I	R Ch5 pp. 95-97 (<i>97-99</i>) S Ch6 pp.99-126 (<i>101-125</i>)
Sep 13 F	5	Cnidaria II	
Sep 17 T	6	Cnidaria III	
Sep 18 W	7	Internal Compartments, Bilateria, 'Superphyla', Animal Skeletons	S Ch2 pp.7-17 (<i>7-15</i>)

Sep 20 F	8	Acoelomorpha, Platyhelminthes I	S Ch8 pp.147-168 (149-170)
Sep 24 T	9	Platyhelminthes II	
Sep 25 W	10	Annelida I	S Ch13 pp.295-328 (295-328)
Sep 27 F	11	Annelida II	
Oct 01 T	12	Annelida III	
Oct 02 W	13	Nemertea, Rotifera	S Ch11 pp.203-212 (203-211) S Ch 10 pp.183-196 (183-196)
Oct 04 F	**	MIDTERM LECTURE EXAM LECTURES 1-13 INCLUSIVE	
Oct 08 T	14	Bryozoa	S Ch 19 pp. 480-488 (480-488)
Oct 09 W	15	Mollusca I - Polyplacophora	S Ch12 pp.215-271 (215-271) R Ch12 pp.254-255 (255) Scaphopoda
Oct 11 F	16	Mollusca II - Gastropoda	
Oct 15 T	17	Mollusca III - Gastropoda	
Oct 16 W	18	Mollusca IV – Gastropoda/Bivalvia	
Oct 18 F	19	Mollusca V - Bivalvia	
Oct 22 T	20	Mollusca VI - Cephalopoda	
Oct 23 W	21	Ecdysozoa: Nematoda	S Ch16 pp.431-445 (431-445)
Oct 25 F	22	Arthropoda I: Introduction	S Ch14 pp.341-397 (341-396)
Oct 29 T	23	Arthropoda II: Chelicerata-1	
Oct 30 W	24	Arthropoda III: Chelicerata-2	
Nov 01 F	25	Arthropoda IV: Mandibulata-1 Myriapoda, Pancrustacea	
Nov 05 T	26	Arthropoda V: Mandibulata-2 Pancrustacea - Malacostraca	
Nov 06 W	27	Arthropoda VI: Mandibulata-3 Pancrustacea - Cirripedia	
Nov 08 F	28	Arthropoda VII: Mandibulata-4 Pancrustacea - Copepoda	
Nov 11-13		READING BREAK	
Nov 15 F	29	Arthropoda VIII: Mandibulata-5 Pancrustacea - Hexapoda	
Nov 19 T	30	Arthropoda IX: Mandibulata-5 Pancrustacea - Hexapoda	
Nov 20 W	31	Echinodermata I	S Ch20 pp.497-520 (497-520)
Nov 22 F	32	Echinodermata II	
Nov 26 T	33	Echinodermata III	
Nov 27 W	34	Urochordata I	S Ch23 pp.539-548 (539-548)
Nov 29 F	35	Urochordata II & Hemichordata	
Dec 03 T	36	Ctenophora	S Ch7 pp. 135-144 (137-146)
Dec 04 W	37	Review – last day of course	

S - 'Suggested Reading'. This material will be examined only if it was also given in lecture.

R - 'Required Reading'. All material in these readings is examinable; this material will not be covered in lecture.

Assessment of Learning:

Mastery of material given in the lecture section of this course will be assessed by a Midterm and Final Exam. Both exams will include a combination of multiple choice questions and questions requiring written, explanatory answers.

Valid excuses for missed exams or late assignments. The University of Victoria accepts three types of excuses for missed exams or late assignments:

- illness
- emotional trauma
- UVic-sponsored sporting activities

Requests for academic concession must be accompanied by valid documentation from a medical doctor, UVic Counseling services, or a member of the UVic coaching staff.

- **Penalty for late submission of the essay assigned in lab: 20% deduction per day**
- **Final exams for the Faculty of Science, Fall term 2019, extend from Saturday, December 7th to Saturday, December 21st, inclusive. Final exams will not be rescheduled for those who make travel plans that conflict with the final exam.**

Final Grade: Distribution of Marks:

Lecture	Laboratory
Midterm Exam (Oct 04, 2019).....20% (lectures 1-13 inclusive + required readings)	Midterm Lab Exam..... 10% (week beginning Oct 07, 2019)
Final Exam.....35% (lectures 1-37 + required readings; emphasis on material following Midterm)	Final Lab Exam..... 15% (week beginning Nov 25, 2019)
	Essay Assignment..... 15% (start of your lab section Nov 5-7, 2019)
	Checkmarks..... 5% (completion of lab exercises)
Total	55%
	45%

Course Grade and Academic Transcript: Grades for all UVic courses are submitted as percentiles. A student's academic transcript will include the percentile grade and a letter grade plus the class average and the number of students registered in the course at the time of the final exam. Percentiles will be rounded to the nearest whole number; a grade of xx.5 will be rounded up. Percentile grades will be converted to letter grades on the student's academic transcript according to the table given below.

A+	90 – 100%	B+	77 – 79%	C+	65 – 69%
A	85 – 89%	B	73 – 76%	C	60 – 64%
A-	80 – 84%	B-	70 – 72%	D	50 – 59%

F (Fail) is a grade less than 50%
No supplemental exams will be offered for this course