

BIOLOGY 321
SURVEY OF INVERTEBRATES
Section A01 2015 CRN 10311

Lecture:

ECS 116

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

Instructor: Dr. Louise R. Page

PETCH 010; ph. 721-7142; email lpage@uvic.ca

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

Laboratory:

PETCH 109

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

Lab Teaching Assistants: Natalia Filip, Robert Bourdon

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

- Labs begin week of September 14-18, 2015
- 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 Louise Page (lpage@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 – 2015 edition; purchase at UVic Bookstore
- basic dissecting kit and lab coat (optional); both 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 dorsal brain. 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 structure and biology of whole 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. **Students will not be allowed to write the final lecture exam if they fail the laboratory section of Biol. 321.** Late submission of the essay assignment will be penalized at 10% per day (weekend included) up to a maximum of 5 days. Thereafter, the submitted essay will be accepted only if affixed to documentation of a valid excuse.

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 tremendous 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 30 to Nov 1** (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 17 from 8:00-10:00am in Petch 010**. After that date & time, contact L.Page for sign-up (if sign-up slots still remain). The cost for the trip is **\$240.00** and payment (cheque or cash) must be made when you sign-up for the trip. 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 during a low tide is planned for **Tue Oct 27 @ 8:45 pm** (all fall & winter low tides occur after dark in our area). Transportation to 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 - 2015 - Survey of Invertebrates - Schedule of Lectures & Labs

Date	Lect No.	Lecture Topic	Readings Pechenik ed 7 (ed 6) S = suggested R = required
Sep 09 W	1	Introduction to Course; Habitats, Lifestyles, Phylogeny	S Ch1 pp.1-6 (1-6) R Ch2 pp.18-30 (16-32)
Sep 11 F	2	Choanoflagellates & Porifera	S Ch4 pp.77-89 (79-91) R Ch4 pp.89-90 (91) Placozoa
Sep 15 T	3	Porifera	
Sep 16 W	4	Cnidaria I	R Ch5 pp. 95-97 (97-99) S Ch6 pp.99-126 (101-125)
Sep 18 F	5	Cnidaria II	
Sep 22 T	6	Cnidaria III	

Sep 23 W	7	Internal Compartments, Bilateria, 'Superphyla', Animal Skeletons	S Ch2 pp.7-17 (7-15)
Sep 25 F	8	Acoelomorpha, Platyhelminthes I	S Ch8 pp.147-168 (149-170)
Sep 29 T	9	Platyhelminthes II	
Sep 30 W	10	Annelida I	S Ch13 pp.295-328 (295-328)
Oct 02 F	11	Annelida II	
Oct 06 T	12	Annelida III	
Oct 07 W	13	Nemertea, Rotifera	S Ch11 pp.203-212 (203-211) S Ch 10 pp.183-196 (183-196)
Oct 09 F	**	MIDTERM LECTURE EXAM LECTURES 1-13 INCLUSIVE	
Oct 13 T	14	Bryozoa	S Ch 19 pp. 480-488 (480-488)
Oct 14 W	15	Mollusca I - Polyplacophora	S Ch12 pp.215-271 (215-271) R Ch12 pp.254-255 (255) Scaphopoda
Oct 16 F	16	Mollusca II - Gastropoda	
Oct 20 T	17	Mollusca III - Gastropoda	
Oct 21 W	18	Mollusca IV - Bivalvia	
Oct 23 F	19	Mollusca V - Cephalopoda	
Oct 27 T	20	Ecdysozoa: Nematoda	S Ch16 pp.431-445 (431-445)
Oct 28 W	21	Arthropoda I: Introduction	S Ch14 pp.341-397 (341-396)
Oct 30 F	22	Arthropoda II: Chelicerata-1	
Nov 03 T	23	Arthropoda III: Chelicerata-2	
Nov 04 W	24	Arthropoda IV: Mandibulata-1 Myriapoda, Pancrustacea	
Nov 06 F	25	Arthropoda V: Mandibulata-2 Pancrustacea - Malacostraca	
Nov 09 to 11		READING BREAK	
Nov 13 F	26	Arthropoda VI: Mandibulata-3 Pancrustacea - Cirripedia	
Nov 17 T	27	Arthropoda VII: Mandibulata-4 Pancrustacea - Copepoda	
Nov 18 W	28	Arthropoda VIII: Mandibulata-5 Pancrustacea – Hexapoda (Insects)	
Nov 20 F	29	Echinodermata I	S Ch20 pp.497-520 (497-520)
Nov 24 T	30	Echinodermata II	
Nov 25 W	31	Echinodermata III	
Nov 27 F	33	Urochordata I	S Ch23 pp.539-548 (539-548)
Dec 01 T	34	Urochordata II & Hemichordata	S Ch21 pp.529-534 (529-534)
Dec 02 W	35	Ctenophora	S Ch7 pp. 135-144 (137-146)
Dec 04 F	36	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 essay submission: 10% deduction per day (including weekends)**
- **Final exams for the Faculty of Science, Fall term 2015, extend from Monday, December 7th to Monday, December 21st, inclusive. Final exams will not be rescheduled for those who make travel plans that conflict with the scheduled final exam for this course.**

Final Grade: Distribution of Marks:

Lecture

Midterm Exam (Oct 09, 2015).....20%
(lectures 1-13 inclusive + required readings)

Final Exam.....35%
(lectures 1-35 + required readings;
emphasis on material following Midterm)

Total

55%

Laboratory

Essay assignment..... 15%
(due in lab session of week beginning
Nov 02, 2015)

Midterm Lab Exam.....15%
(week beginning Oct 13, 2015)

Final Lab Exam.....15%
(week beginning Nov 30, 2015)

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