BIOLOGY 321
SURVEY OF INVERTEBRATES
Section A01 2018 CRN 10377

Lecture:

DTB A102
Section A01: Tue, Wed, & Fri 9:30-10:20am
Instructor: Dr. Hugh MacIntosh
Petch 108; email fmacinto@uvic.ca
Office hours: Wednesdays 10:30am-12:30pm 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: Therese Frauendorf; email tfrauend@uvic.ca
Office hours and contact information for TAs will be given during your first lab session.

- Labs begin week of September 10-14, 2018

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 Roswitha Marx (rmarx@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 – 2018 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 chord. 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. **Students will not be allowed to write the final lecture exam if they fail the laboratory section of Biol. 321.** Late submission of the lab assignments (animal profile and research focus) 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 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.

Intertidal Field Trip (optional). A field trip to the intertidal zone of Clover Point is planned for November 08, at 8:30pm (all fall & winter low tides occur after sunset in our area). Directions will be provided, but please arrange your own transportation to and from Clover Point. Wear warm clothing, rain gear if appropriate, and bring a **flashlight**. Rubber boots are highly recommended. Friends welcome. No fee.

Biology 321 - 2018 - Survey of Invertebrates - Schedule of Lectures & Labs

Date	Lect No.	Lecture Topic	Readings Pechenik ed 7 *(ed 6)* S = suggested R = required
Sep 05 W	1	Introduction to Course; Habitats, Lifestyles, Phylogeny	**S** Ch1 pp.1-6 *(1-6)* **R** Ch2 pp.18-30 *(16-32)*
Sep 07 F	2	Choanoflagellates & Porifera	**S** Ch4 pp.77-89 *(79-91)* **R** Ch4 pp.89-90 *(91)* Placozoa
Sep 11 T	3	Porifera	
Sep 12 W	4	Cnidaria I	**R** Ch5 pp. 95-97 *(97-99)* **S** Ch6 pp.99-126 *(101-125)*
Sep 14 F	5	Cnidaria II	
Sep 18 T	6	Cnidaria III	
Sep 19 W	7	Internal Compartments, Bilateria, 'Superphyla', Animal Skeletons	**S** Ch2 pp.7-17 *(7-15)*
Sep 21 F	8	Acoelomorpha, Platyhelminthes I	**S** Ch8 pp.147-168 *(149-170)*
Sep 25 T	9	Platyhelminthes II	
Sep 26 W	10	Annelida I	**S** Ch13 pp.295-328 *(295-328)*
Sep 28 F	11	Annelida II	
Oct 02 T	12	Annelida III	
Oct 03 W	13	Nemertea, Rotifera	**S** Ch11 pp.203-212 *(203-211)* **S** Ch 10 pp.183-196 *(183-196)*

Oct 05 F	****	**MIDTERM LECTURE EXAM LECTURES 1-13 INCLUSIVE**	
Oct 09 T	14	Bryozoa	**S** Ch 19 pp. 480-488 *(480-488)*
Oct 10 W	15	Mollusca I - Polyplacophora	**S** Ch12 pp.215-271 *(215-271)* **R** Ch12 pp.254-255 *(255)* Scaphopoda
Oct 12 F	16	Mollusca II - Gastropoda	
Oct 16 T	17	Mollusca III - Gastropoda	
Oct 17 W	18	Mollusca IV - Bivalvia	
Oct 19 F	19	Mollusca V - Cephalopoda	
Oct 23 T	20	Ecdysozoa: Nematoda	**S** Ch16 pp.431-445 *(431-445)*
Oct 24 W	21	Arthropoda I: Introduction	**S** Ch14 pp.341-397 *(341-396)*
Oct 26 F	22	Arthropoda II: Chelicerata-1	
Oct 30 T	23	Arthropoda III: Chelicerata-2	
Oct 31 W	24	Arthropoda IV: Mandibulata-1 Myriapoda, Pancrustacea	
Nov 02 F	25	Arthropoda V: Mandibulata-2 Pancrustacea - Malacostraca	
Nov 06 T	26	Arthropoda VI: Mandibulata-3 Pancrustacea - Cirripedia	
Nov 07 W	27	Arthropoda VII: Mandibulata-4 Pancrustacea - Copepoda	
Nov 09 F	28	Arthropoda VIII: Mandibulata-5 Pancrustacea - Hexapoda	
Nov 12-14		**READING BREAK**	
Nov 16 F	29	Echinodermata I	**S** Ch20 pp.497-520 *(497-520)*
Nov 20 T	30	Echinodermata II	
Nov 21 W	31	Echinodermata III	
Nov 23 F	32	Urochordata I	**S** Ch23 pp.539-548 *(539-548)*
Nov 27 T	33	Urochordata II & Hemichordata	
Nov 28 W	34	Ctenophora	**S** Ch7 pp. 135-144 (137-146)
Nov 30 F	35	Invertebrate research	
Dec 04 T	36	Review	
Dec 05 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 animal profile & research focus: 10% deduction per day (including weekends)**
- **Final exams for the Faculty of Science, Fall term 2018, extend from Monday, December 8th to Monday, December 22nd, 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 05, 2018)……..…..20% (lectures 1-13 inclusive + required readings)		Midterm Lab Exam…...……. 10% (week beginning Oct 08, 2018)	
Final Exam……..……35% (lectures 1-35 + required readings; emphasis on material following Midterm)		Final Lab Exam…….……. 15% (week beginning Nov 26, 2018)	
		Essay……...…..…… 15% (Due date October 28th)	
		Checkmarks…..……..5%	
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