

Invertebrate Zoology/Biology Biol S405

- Instructor:** Dr. Julie Schram (she/her/hers)
- Office:** Anderson 205F, Phone 796-6599
- Email:** jbschram@alaska.edu
- Office hours:** Tuesday 1- 4 pm, in person or virtually: [Office hr zoom room](#) (Meeting ID: 498 711 7046; Passcode: 978173) or by appt
- Lecture:** Monday, Wednesday, Friday 12:00-1:00 pm, AND 204
- Laboratory:** Monday, 3:45 -6:45 pm, AND 314; There will be handouts and other readings available on Blackboard.
- Text books** Required Brusca, R. C. and G, J. Brusca. 2016. Invertebrates, 3rd edition. Sinauer Associates, Inc. Massachusetts
- Recommended Text (if you can find these) O'Clair, R. M. and O'Clair, C.E. 1999 Southeast Alaska's Rocky Shores (out of print
 - Tide Tables for Juneau (FREE at various locations around town; and of course on the internet)
- Pre-requisites:** Biology 105 &106; or instructor approval

Course Overview:

This course will discuss and emphasize the animal phyla and taxonomy, including multicellular invertebrate organisms from marine, estuarine, and terrestrial habitats. The lecture and laboratory course material is designed to promote an understanding of the body plans (morphology), physiology, ecology, and evolution of these diverse animal groups. Some animal taxonomy is required, although a detailed taxonomy will not be emphasized. Whenever possible we will study living organisms in the laboratory and in the field in order to better understand their biology.

Learning Objectives: At the end of this course, students will be able to:

- Identify structures and characteristics that differentiate invertebrate phyla (*demonstrate comprehension on exams, class discussions, laboratory practicals*)
- Explain unique invertebrate adaptations in the context of ecological and environmental interactions (*demonstrate comprehension on exams, class discussions, written concept summaries, term project*)
- Compare and contrast evolutionary advantages of invertebrate adaptations to their habitats (*demonstrate comprehension on exams, laboratory practicals, lab participation*)
- Collect disparate data on an invertebrate species and formulate a species description using relevant morphologies, structures, and taxonomic tools (*demonstrate comprehension on exams, laboratory practicals, laboratory notebook, term project*)

Course requirements and expectations

- Students are expected to come to class prepared (having read the specified readings BEFORE class) and on time.
- For laboratories that will be based in the field (outside), you need to dress appropriately.
- Rubber boots and warm protective clothing including a hat and gloves are strongly recommended.
- Certain laboratory exercises will require invertebrate dissections or manipulations (blood sampling or injections) and all students are expected to participate in these activities.

Course Assignments

Examinations

- There will be 3 written examinations and 3 laboratory practical exams; written examinations and laboratory practicals will be given in the same week.
- Written examinations will be based upon information provided in the lectures and observed in the lab.
 - These exams will be primarily in essay format, but may also include and are not limited to matching, multiple choice, short answer, etc.
- Laboratory practicals will require identification of animal structures and local organisms, including basic taxonomy, and will be based on laboratory exercises, field trips, demonstrations, and exhibits.

Term Project

One of the goals of this class is to generate a web-based guide to the common invertebrates found in and around the Juneau area. Each student will choose 2 species (a shared Google Sheet will be provided) for which they will provide appropriate scientific information to generate a future web page.

- Each species project is worth 50 points and will be graded for scientific content, grammar, and visual appeal of the photographs.
- Each student will select one species from “Species List A” and one species from “Species List B”.
- We have initiated a website that will be updated extensively this year, but as an example you can refer to: [Invertebrates of the Salish Sea](#)

A detailed handout will be distributed to all students to explain content of the report. Information for each of your species must include photographs taken *by the student* of each of the species. It is recommended that you bring a water resistant camera on field trips.

Lab Notebook

The laboratory component of this class is very important for your success on laboratory practicals. Therefore, you are required to keep a notebook in which you diagram every specimen that you see.

Lab Participation

Active participation in the laboratory component of this class is central to developing a nuanced understanding and appreciation of invertebrate diversity. Therefore, ~ 6 % of your class grade is based on your participation in lab.

Grade Breakdown

Approximately 75% of the points available are from knowledge assessment, retention and understanding (lecture and lab exams). We have additional activities that are designed to reflect your active engagement in our class activities and give you an opportunity to apply what you are learning (e.g., lab notebook) and integrate this knowledge (e.g., term project). Students that only demonstrate knowledge of content can expect a grade in the range of a high C or low B. Students earning higher grades reflect that you are developing and demonstrating more sophisticated professional skills in this field. Grading is based upon points earned as follows:

Assignment	# Assessments	Points per assignment	Total points per assignment
Written exams	3	100	300
Lab Practical exams	3	50	150
Laboratory notebook	3	20, 40, 40	100
Student term project	1	100	100
Discussion participation	5	10	50
Lecture quiz	10	5	50
Lab participation	10	5	50
Total Points possible:	---	---	800

Your grade will reflect your accumulation of points over the course and breakdown as follows:

<u>Points</u>	<u>Grade percentage</u>	<u>Letter grade</u>
≥ 720	≥ 90%	A
640 - 719	80 – 89%	B
560 - 639	70 – 79%	C
480 - 559	60 – 69%	D
≤ 479	≤ 59 %	F

Regrade Policy:

If a student wishes a regrade on an assignment or exam, the student must request the regrade in writing within 48 hours of the assignment or exam being returned. The request must include the question/topic in dispute.

Late Assignment Policy:

All tests, presentations, and lab assignments must be completed and handed in on the required date. Your grade for that assignment will be decreased 10% by each class day your work is late. After one week, late assignments will not be accepted. Exceptions can be made only if discussed and approved well in advance of absence.

Lab Attendance Policy:

Attendance in labs is mandatory. Missed work during lab is the student's responsibility.

- If you need to miss a lab, contact myself **and** Sara Caldwell (skcaldwell@alaska.edu) prior to a missed lab for a lab absence to be excused.
- After two unexcused absences from lab, your overall grade for the class will be dropped by one letter grade, and so forth for additional absences.
- If you anticipate missing a lab, contact me in advance.
- Note which labs are outside – come prepared. This means wear warm, waterproof clothes and boots!!
- There will be 2 field trips that will require you to be outside for at least 2 hours.

Cell Phones: Cell phones are not allowed during lecture and need to be out of site. Cell phone use in the classroom distracts other students and is responsible for decreased attention in the classroom. Cell phones may be used in the laboratory for learning purposes only. If you need your cell phone because of a personal emergency or other reason, please give me a heads up and having your cell phone available in class won't be questioned or a problem. You can provide as many details about the personal situations as you are comfortable with, I respect your privacy and that each student has a life outside of class that is important and valued. Thank you for your respect.

UAS PoliciesPlagerism

Students are reminded to consult the course catalog for the Student Code of Conduct. cademic dishonesty will not be tolerated, this includes but is not limited to cheating and plagiarism. As stated in the [UAS Student Code of Conduct](#), students are expected to “conduct themselves honestly and responsibly and to respect the rights of other students”. **The most common instances of academic dishonesty occur because a student makes a bad choice when faced with a looming deadline or not fully understanding what academic dishonesty is.** If you suspect you might be at risk of taking an inappropriate short-cut, *please talk to me and I can help you with strategies to avoid unintentional academic dishonesty or plagiarism.* Some common types of plagiarism or academic dishonesty include:

- Cheating is when a student gives or receives any form of assistance during an examination or quiz.
- Plagiarism is defined as the submission or presentation of work, in any form, that is not a student's own, without acknowledgment of the source.
- However, asking someone for advice and help is not plagiarism.

- Submission of the same work in more than one course *without prior approval* of all professors responsible for the courses is also considered academic dishonesty.
- For additional information on the tolerance and repercussions of academic dishonesty, please contact:

Lori Klein, UAS Student Conduct Administrator: 907-796-6529, laklein@uas.alaska.edu

Disability Support:

Students needing accommodations or modifications should contact and arrange to meet with the course instructor. To request accommodations for this and any other UAS courses, please contact Disability Services as soon as possible. Accommodations will need to be requested each semester of attendance.

If you experience a disability and would like information about accommodations, please contact Disability Services, located at the Student Resource Center in the Mourant building. Phone # 907-796-6000. You can also visit the [DSS website](#)

Notice of Nondiscrimination

The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate based on race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination.

For more information, contact:

UAS Office of Equity and Compliance

11066 Auke Lake Way, Novatney Building 103, Juneau, AK 99801

907-796-6371

uas.titleix@alaska.edu

Title IX/Sex and Gender-based Discrimination

UAS students, faculty, staff, and visitors have the right to be free from all forms of gender and sex-based discrimination. UAS prohibits sexual harassment, sexual assault, other forms of sexual violence, domestic violence, dating violence and stalking. In the event of an act of prohibited conduct does occur, UAS will take steps to stop the behavior, prevent its recurrence, and provide remedies. All employees at the University of Alaska Southeast, with the exception of UAS counselors and health care providers, are consider "responsible employees" and must share any reports of gender-based and sexual misconduct with the

UAS Title IX Office. Students are encouraged to speak up and help end the silence surrounding sexual violence and harassment. For more information, see <https://www.alaska.edu/titleIXcompliance/>

As your instructor, I am a mandatory reporter. If you have experienced gender-based and/or sexual misconduct, check out the following links for information on systems in place that can assist you in exploring options and support:

11066 Auke Lake Way, Hendrickson Building 202, Juneau, AK 99801

Phone: 907-796-6036

Email: uas.titleix@alaska.edu

Website: www.uas.alaska.edu/titleix

UAS Mask Policy

Effective June 29th, UAS began requiring students, staff, and faculty to wear a mask on campus and at University-sponsored activities regardless of location. This policy means that we must wear a mask in this class (lab). Please refer to the Face Coverings on UAS Campuses webpage at <https://uas.alaska.edu/pub/maskpolicy> for any updates to this policy. UAS has masks available at various campus locations should you forget to bring one with you to campus

Lecture Outline

Wk#	Date	Day	Lecture Topic	Reading
1	Jan 10	M	Introduction/Diversity	Ch 1,2
	Jan 12	W	Development, Life Histories & Origin	Ch 4,5
	Jan 14	F	Protista	Ch 3
2	Jan 17	M	HOLIDAY (no class or lab)	none
	Jan 19	W	Protista	Ch 3
	Jan 21	F	Porifera	Ch 6
3	Jan 24	M	Cnidaria	Ch 7
	Jan 26	W	Cnidaria	Ch 7
	Jan 28	F	Ctenophora	Ch 8
4	Jan 31	M	Bilateria & Platyhelminthes	Ch 9
	Feb 2	W	Platyhelminthes	Ch 10
	Feb 4	F	Platyhelminthes	Ch 10
5	Feb 7	M	Enigmatic Protostomes	Ch 11
	Feb 9	W	Nemertea	Ch 12
	Feb 11	F	<i>Catch up & review session for Exam 1</i>	Ch 1-12
6	Feb 14	M	Exam 1 (100 pts)	Ch 1-12
	Feb 16	W	Mollusca	Ch 13
	Feb 18	F	Mollusca	Ch 13
7	Feb 21	M	Mollusca	Ch 13
	Feb 23	W	Mollusca	Ch 13
	Feb 25	F	Annelida	Ch 14
8	Feb 28	M	Annelida	Ch 14
	Mar 2	W	Annelida	Ch 14
	Mar 4	F	Spiralia & Gnathifera	Ch 15, 16
9	Mar 7-11	M-F	Spring Break No classes	none
10	Mar 14	M	Lophorates	Ch 17
	Mar 16	W	Nematoda & Nematomorpha	Ch 18
	Mar 18	F	Scalidophora	Ch 19
11	Mar 21	M	<i>Catch up & review session for Exam 2</i>	Ch 13 - 19
	Mar 23	W	EXAM #2 (100 pts)	Ch 13 - 19
	Mar 25	F	Emergence of the Arthropoda	Ch 20
12	Mar 28	M	Emergence of the Arthropoda	Ch 21
	Mar 30	W	Arthropoda : Crustacea	Ch 22
	Apr 1	F	Arthropoda : Myriapods	Ch 23
13	Apr 4	M	Arthropoda : Hexapoda	Ch 24
	Apr 6	W	Arthropod : Chelicerata	Ch 25
	Apr 8	F	Intro to Deuterstomes & Echinodermata	Ch 25
14	Apr 11	M	Echinodermata, Guest lecture : Ginny Eckert	Ch 25
	Apr 13	W	Echinodermata Guest lecture : Ross Whippo	Ch 25
	Apr 15	F	Echinodermata	Ch 25
15	Apr 18	M	Echinodermata Guest lecture : Nicole Nakata	Ch 26
	Apr 20	W	Hemichordates, Pterobranchs, Cephalochordates & Urochordates	Ch 27
	Apr 22	F	<i>Catch up and session for Exam 3</i>	Ch 20 - 27
16	Apr 27	W	Exam #3 (100 pts): 12 :30-2 :30 pm AND 204; Final project due	Ch 20 - 27

Lab and Field Trip Schedule

Wk#	Date	Day	Lab Topic
1	Jan 10	M	No Lab
2	Jan 17	M	No labs: MLK HOLIDAY
3	Jan 24	M	Protists, Porifera,
4	Jan 31	M	Cnidarians/Ctenophores
5	Feb 7	M	Practical Exam I (50 pts) Lab notebook due at end of class (20 pts) Platyhelminthes & Nemertea
6	Feb 14	M	Mollusca Part I
7	Feb 21	M	Mollusca Part II (bivalves & cephalopods)
8	Feb 28	M	CANCELLED
9	Mar 7 - 11	M	SPRING BREAK
10	Mar 14	M	Practical Exam II (50 pts) Lab notebook due at end of class (30 pts) Annelida
11	Mar 21	M	Arthropoda Part I
12	Mar 28	M	Arthropoda Part II
13	Apr 4	M	Echinodermata
14	Apr 11	M	Practical Exam III (50 pts) Laboratory Notebook due (50 pts)

Proposed Field Trips

Mudflat Field trip at the Mendenhall Wetlands
Saturday, April 2 at 7:00 AM (-1.9 ft at 8:44 AM)

Rocky Intertidal Field Trip (Species identification) at False Outer Point
Sunday, April 17 at 7:00 am (-2.8 at 8:20 am)