

BIOL/WATR 361/561 Aquatic Invertebrate Zoology

Spring 2022

Lecture Tu Th @ 2:00 – 2:50 PM in TNR 460

Lab Th @ 3:00 – 4:50 PM in TNR 460

Instructor: Dr. Daniel L. Graf
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(include "BIOL/WATR 361" in subject)

Course web sites: <https://www.uwsp.edu/canvas/>,
<http://winvertebrates.uwsp.edu/>
Office Hours: Tu 10 AM-noon
and by appointment

General Course Description. "Classification, structure, and life history of lotic and lentic freshwater invertebrates (exclusive of insects and parasites) with emphasis on Wisconsin species."

Objectives. The objective of this course is to survey the diversity of the invertebrate animal taxa that occur in freshwater by comparing the body-plans, life histories, and ecologies of representative species.

Learning Outcomes. Upon completion of BIOL/WATR 361/561, students will be able to:

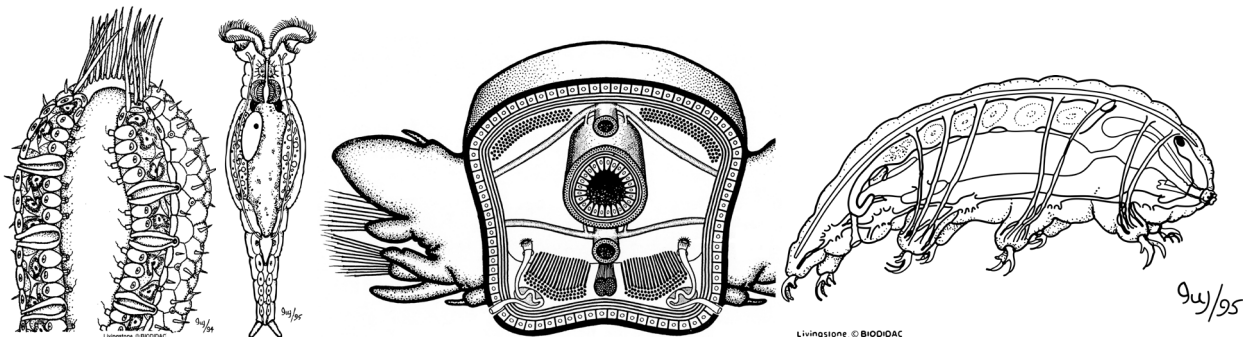
1. Differentiate and classify animal diversity.
2. Describe the variety of invertebrate animal body-plans, ecologies, life histories, and reproductive modes.
3. Recognize the value of invertebrate zoology to human health and happiness.

Prerequisites. Course in Introductory Biology (BIOL 101 or BIOL 111 or BIOL 160).

Required Materials. *Biology of the Invertebrates*, 7th edition (2015), by Jan A. Pechenik. McGraw-Hill Education, New York (ISBN 978-0-07-352418-4). This book is available for rent at the bookstore.

Because we will be working with specimens in preservative, you are required to purchase protective goggles. These are available from the bookstore.

Recommended Materials. A dedicated BIOL/WATR 361/561 notebook.



Exams, Assignments, and Grading. There will be a total of 264 possible points to earn this semester through lecture quizzes, lab exercises, two midterm exams, and a comprehensive final exam. *Be aware that as campus circumstances change, so might assignment schedules and grading expectations.*

	points	
midterm exams	60	23%
final exam	120	45%
lecture quizzes	44	17%
lab notebook	40	15%
TOTAL	264	100%

Lecture Quizzes. — 2-point quizzes will take place at the beginning of each lecture period. Questions will be short-answer format and emphasize recent lecture material. We are expecting 28 quizzes, but your six lowest quizzes (i.e., 3 weeks' worth) will be dropped from the final grade calculation (44 points; 17% of the total points).

Lab Notebook. — Each week, your lab notebook will be evaluated for completeness to earn up to 5 points. We have 11 scheduled labs, but your three lowest scores will be dropped (40 points; 15%).

Midterm Exams. — Every 6 weeks (10 lectures), we will have a 60-point exam that covers both lecture and lab material since the previous exam. There will be two midterm exams, and your lowest exam score will be dropped (60 points; 23%)

Final Exam. — The cumulative final exam is worth 120 points (45%) and will cover material from the entire course.

Grades will be based upon the following percentages of the course total:

	100-93%	A	92-89%	A-	
88-87%	B+	86-83%	B	82-79%	B-
78-77%	C+	76-73%	C	72-69%	C-
68-67%	D+	66-59%	D	<59%	F

REQUESTS FOR EXTRA POINTS WILL NOT BE HONORED.

Exam and Quiz Rules. The following rules apply to exam periods as well as quizzes.

- If you arrive late for a quiz or exam, you will not be given extra time. When the rest of the class is finished, you will need to be done.
- If you arrive so late for an exam that anyone else has finished and left, you will not be allowed to take the exam at that time. You may be able to take a make-up exam (see attendance policy below). There are no make-up quizzes.
- All exams and quizzes must be completed in black or blue ink or pencil.
- Only necessary testing materials will be allowed in the testing area (e.g., no phones, no notes)
- There may be multiple forms of exams and quizzes.

Laboratory. YOU MUST DRESS APPROPRIATELY FOR LAB. The same lab safety rules for other Biology courses apply for BIOL/WATR 361. We will be working with ethanol-, isopropanol-, and formalin-preserved materials as well as sharp objects like dissecting blades and (potentially broken) glass.

- You MUST wear shoes — not sandals, flip-flops, or other options that do not protect your feet.
- While working with specimens in preservative, you must wear protective eyewear.
- It is recommended that you wear clothes that you won't mind getting grubby.
- FAILURE TO COMPLY WILL RESULT IN YOUR REMOVAL FROM LAB UNTIL YOU ARE PROPERLY ATTIRED.

Attendance. YOUR COMMITMENT TO YOUR CLASSES IS AMONG THE MOST IMPORTANT THINGS IN YOUR LIFE RIGHT NOW. This is an in-person class, and you are expected to attend all scheduled lecture, lab, and exam sessions except for officially excused reasons (e.g., COVID-19 quarantine, too sick to safely attend class).

If you will miss a class to participate in a university-sanctioned event (e.g., athletics), you must notify the instructor in advance and complete the work, including exams, BEFORE the otherwise-scheduled class or due-date. Absences relating to religious beliefs will be accommodated according to [UWS 22.03](#). In either case, Dr. Graf must be notified within the first three weeks of class regarding the specific dates that you will be absent.

Make-Up Exams. You must make every effort to take exams at the scheduled times. MAKE-UP EXAMS WILL BE ALLOWED IN CASES OF EMERGENCY, FOR WHICH YOU MUST PROVIDE WRITTEN DOCUMENTATION. You must make arrangements with Dr. Graf within 24 hours of the exam to schedule a make-up exam.

- **E•mer•gen•cy** |i'mærjənsē| (noun): *a serious, unexpected, and often dangerous situation requiring immediate action.*
- A good rule of thumb: *If your situation wouldn't cause you to postpone your wedding, then it isn't a good reason to miss a scheduled exam.*

Academic Integrity. Any misrepresentation of your work, including plagiarism, or cheating of any kind will result in a zero (0) for that assignment. Students are encouraged to become familiar with the [UWS/UWSP Student Academic Standards and Disciplinary Procedures](#) governing student academic conduct. Information is available on the Dean of Students web site.

Remember: PROF. GRAF IS NOT AS DUMB AS YOU THINK HE IS.

Classroom Conduct. Student and instructor behavior should promote an environment favorable to both teaching and learning. It is disruptive to come late to class, read extra-curricular media in class, or use cell phones (and other electronic devices) during class time. Students that choose to disrespect their classmates and their instructor by disrupting lectures or labs will be asked to leave.

As long as [campus policy requires masking](#), EVERYONE in class MUST properly wear a suitable mask. Masking requirements will be strictly enforced.

Disabilities. Students with disabilities are welcome and encouraged in this class. Students with disabilities should contact the [Disability and Assistive Technology Center](#) during the first two weeks of the semester if they wish to request specific accommodations.

BIOL/WATR 361-01/561-01 Lecture and Lab Schedule, Spring 2022

Wk	Date	Day	#	Lecture	Chapter (pp.)	Lab
1	25-Jan	Tu	0	Welcome to BIOL/WATR 361!		NO LAB
	27-Jan	Th	1	Intro. to Invertebrate Animals	1 (1-6)	
2	1-Feb	Tu	2	Intro. to Freshwater Invertebrates	2 (7-20), Pennak (1985)	Animal Diversity & Microscopy
	3-Feb	Th	3	Porifera	4 (77-88)	
3	8-Feb	Tu	4	Cnidaria	5-6 (95-126)	Porifera & Cnidaria
	10-Feb	Th	5	Platyhelminthes (Turbellaria)	8 (147-155)	
4	15-Feb	Tu	6	Nemertea & Gastrotricha	11 (205-214), 18 (459-460)	Platyhelminthes & Nemertea
	17-Feb	Th	7	Rotifera	10 (183-196)	
5	22-Feb	Tu	8	Intro. to Mollusca	12 (215-224, 265, 271)	Gastrotricha & Rotifera
	24-Feb	Th	9	Gastropoda	12 (224-237)	
6	1-Mar	Tu	10	Synthesis & Review		NO LAB
	3-Mar	Th	E1	Exam 1		
7	8-Mar	Tu	11	Bivalvia	12 (237-254)	Mollusca
	10-Mar	Th	12	Intro. to Annelida (Polychaeta)	13 (295-305)	
8	15-Mar	Tu	13	Clitellata	13 (318-328)	Annelida
	17-Mar	Th	14	Intro. to Arthropoda	14 (341-350, 389-397)	
21-Mar to 25 Mar SPRING BREAK						
9	29-Mar	Tu	15	Tardigrada & Onychophora	15 (421-428)	Arthropoda (Arachnida) & Related Phyla
	31-Mar	Th	16	Arachnida	14 (350-354)	
10	5-Apr	Tu	17	Malacostraca (Decapoda)	14 (373-379)	Malacostraca
	7-Apr	Th	18	Malacostraca (Isopoda & Amphipoda)	14 (373-379)	
11	12-Apr	Tu	19	Branchiopoda	14 (379-381)	Branchiopoda
	14-Apr	Th	20	Cladocera	14 (381)	
12	19-Apr	Tu	21	Synthesis & Review		NO LAB
	21-Apr	Th	E2	Exam 2		
13	26-Apr	Tu	22	Ostracoda	14 (381)	Ostracoda & Copepoda
	28-Apr	Th	23	Copepoda & Branchiura	14 (381-382)	
14	3-May	Tu	24	Nematoda & Nematomorpha	16 (432-444), 17 (451-454)	Nematoda & Bryozoa
	5-May	Th	25	Bryozoa & Entoprocta	19 (473-492)	
15	10-May	Tu	26	Echinodermata	20 (497-521)	Review Activities
	12-May	Th	27	Synthesis & Review		
16	19-May	Th	FNL	Comprehensive Final Exam 8-10 AM		