



Biology 160 – Animal Biology

University of Wisconsin Stevens Point at Wausau

Spring 2021

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Lectures All lecture material and activities are asynchronous online within Canvas.

Labs Labs are scheduled for Thursdays 8:00 – 10:50 AM (W1L1) and 12:00 – 2:50 PM (W1L2) in Rm 271. Due to COVID spacing restrictions, we can accommodate just nine students at a time in the lab. This means you will come to lab every other week, and there will be an asynchronous online lab activity in the intervening weeks. You'll be notified during the first week of class what your personal lab schedule will be. If you requested a fully online lab experience, you'll be provided with an asynchronous online alternative for each in-person lab activity.

Office hours Zoom in Canvas, Wednesdays 5:00-6:00 PM & Fridays 1:00-2:00 PM, but please message me via Canvas Inbox at least an hour in advance so I know you plan to use an office hour. This is time for you to ask questions, get study suggestions, offer kudos or complaints, or just chat. If you'd like to meet one-on-one at another time (again, via Zoom) please ask! You may also be able to catch me in-person in the lab, 11:00-12:00 on Thursdays.

Required text *Biology 2e*, from OpenStax, Print ISBN 1947172514, Digital ISBN 1947172522
You can purchase a paper copy or use a free electronic version (web view and PDF) at www.openstax.org/details/books/biology-2e A two-volume paperback copy with black and white images is available for low cost from the campus bookstore. For just a few dollars more, a hard cover book with color images is available from Amazon.com, <https://www.amazon.com/dp/1947172514>.
In all course materials, this textbook is abbreviated as Bio2e

Electronic course materials All course materials other than the textbook, (lecture notes, PowerPoints, lab handouts, lecture recordings, etc.) will be made available in Canvas. If you would like a hard copy of any of these, you will need to print them out for yourself.

Course overview The UWSP Catalog states that BIOL 160 covers “Anatomy, physiology, adaptation, and classification of animals; morphology and anatomy of various types of animals.” For the GEP, this course has the Natural Science (NSC) designation. For the AAS, it has the Natural Science/Laboratory Science (NS/LS) designation. This course has the following **learning outcomes**; that is, by the end of the course, you should be able to:

1. Explain how scientific inquiry is different than other intellectual endeavors.
2. Recognize cell theory, inheritance, evolution, and developmental biology as the foundations of zoology.
3. Integrate various levels of biological organization and their emergent properties.
4. Compare and contrast animal body-plans and physiological processes in animals from different phyla.
5. Apply principles of zoology to broader personal and societal issues.

UWSP's Associate Degree Assessment Program has these learning objectives for this class:

- NW LO1: Describe and evaluate existing knowledge of the natural world;
- NW LO2: Interpret, analyze and communicate data, results, and conclusions; and/or
- NW LO3: Apply concepts across disciplines.

UWSP's General Education Program (GEP) has these learning objectives for this class:

- NSC LO1: Interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques;
- NSC LO2: Explain major concepts, methods, or theories used in the natural sciences to investigate the physical world.
- NSC LO3: Describe the relevance of some aspect of the natural science to your life and society.

You will demonstrate your achievements in both of these sets of learning outcomes through quizzes, exams, and other assignments, but this course is not included in formal assessment of these learning outcomes this year.

Assignments & grading The course schedule lists topics for each class period. More details will be posted in Canvas modules. For lecture material, this will include a lecture outline with the reading assignment, suggested online activities, a vocabulary list, and learning objectives, as well as a PowerPoint file and recorded lecture. Appropriate materials will be posted for labs. All assignments, quizzes, and exams are open books, notes, etc., but please carefully read the syllabus section on academic integrity.

You can earn a total of 800 points in this course, as shown below. Keep track of your grade in Canvas.

<i>Exams</i>	300 pts	3 at 100 pts each; will cover material from both lectures and labs. You can take the exam any time on the assigned date, but must complete it within 2 hours.
<i>“Final” exam</i>	100 pts	As above, but during final exam week.
<i>Lecture quizzes/assignments</i>	150 pts	Quizzes &/or assignments associated with most lectures.
<i>Lab quizzes/assignments</i>	150 pts	Quizzes &/or assignments associated with most lab periods.
<i>Research paper</i>	100 pts	A chance for you to learn more about an animal biology topic of interest to you.

Course grades will most likely be determined using the following scale:

A, $\geq 92.0\%$	B, 82.0-87.9%	C, 72.0-77.9%	D, 60.0-67.9%
A-, 90.0-91.9 %	B-, 80.0-81.9%	C-, 70.0-71.9%	F, <60.0%
B+, 88.0-89.9%	C+, 78.0-79.9%	D+, 68.0-69.9%	

What these grades mean

- A: You have demonstrated overall excellence, with no significant weaknesses. Typical of students who have devoted themselves to learning and understanding the course material, who have an enthusiasm for learning, see the relevance of the course for their education and lives, are driven to do high-quality work, ask questions in and outside of class, and/or are able to communicate effectively both in writing and speaking.
- B: You have demonstrated more strengths than weaknesses, and are fairly consistent in high-level performance. Typical of students who are dedicated to doing well in all courses, are self-disciplined, and/or consistently spend several hours outside of class reviewing the course materials and creating quality lab work.
- C: You have demonstrated some level of skill, but are inconsistent, with weaknesses as well as strengths. You may be trying to force your way through the course by memorizing individual facts and definitions rather than trying to understand concepts. Typical of students who are inconsistent in their study, spend insufficient time on the requirements of the course, and/or have weak reasoning and problem-solving skills.
- D: You have demonstrated only a minimal level of understanding and skill in thinking about course material. Typical of students who spend more time working than studying, miss multiple classes during the semester, have little self-discipline and/or really are unmotivated to learn.
- F: You have demonstrated a pattern of unscientific thinking and/or failed to master the required work for the course. Typical of students who have missed many classes, have work commitments too great for their course load, and/or choose not to take and study good lecture notes, do not contribute to class discussions or study groups, and do not read and understand the course readings thoroughly.

Behavioral expectations: In order to keep the course running smoothly, and to ensure that all students have a good learning environment, I have the following expectations of students in this course:

For in-person labs

1. Arrive on time, take your seat promptly, and wear a mask correctly at all times.
2. Dress appropriately, meaning closed-toe shoes, long pants, and shirts with some type of sleeve. If you arrive in inappropriate attire, you may not be allowed in lab. Other safety precautions and behaviors will be discussed in lab.
3. Silence your phone, though you may use it to take pictures. Use of headphones or earbuds during lab is not allowed.
4. If you are disruptive, I may ask you to leave the class. Students with a pattern of disruptive behavior may be referred to the Dean of Students.
5. If you have a question, please ask it - raise your hand or call out to me if I do not see you.
6. If you need to miss an in-person lab, please let me know in advance; it is strongly preferred that you attend a different lab cohort than to miss the lab entirely.

In general

1. Pay attention to the course calendar in Canvas. All important course-related dates will appear there, and due dates are firm, unless you have made prior arrangements.
2. Check your campus e-mail regularly; all important course related announcements will be sent via the Canvas “Inbox” and posted as Announcements in Canvas.
3. Please use the Canvas Inbox to communicate any questions, concerns, suggestions, or planned absences.

Attendance, makeups, and late assignments Due to the possible need for contact tracing due to COVID-19, I will take attendance in lab, but this is not for a grade. If you cannot attend a your scheduled in-person lab and if you notify me in at least an hour in advance with a valid excuse (I may ask you to provide convincing written verification), you may either be permitted to make up the assignment or be assigned an alternate activity which could involve more work than the original assignment. Failure to make prior arrangements for missing an in-person lab will almost always result in a zero on any assignments, quizzes or exams associated with that class session, unless you can provide convincing evidence to justify your absence and inability to provide advance notice.

All assignments, quizzes and exams will be submitted or completed in Canvas. Late assignments will be penalized 10%

(approx. 1 letter grade) per calendar day late, up to a maximum penalty of 50%. Late submissions will not be accepted after that assignment has been graded and feedback provided to other students.

Academic integrity - cheating, copying, plagiarism ALL suspected incidents of academic misconduct will be addressed in accordance with Chapter 14 of the UW Administrative Code, which states that academic misconduct includes but is not limited to: cheating on an examination; collaborating with others in work to be presented as solely your own and contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; tampering with the laboratory experiment or data of another student; and representing plagiarized work as your own. For more on this UW System policy, see:

<https://www.uwsp.edu/dos/Documents/UWS%2014-1.pdf>

Plagiarism is the use of someone else's wording or ideas and representing them as your own, intentionally or not, and is a serious violation of UW standards of academic conduct. All assignments will be examined to ensure that the submitted work is solely the work of the student(s) whose name(s) is/are on it, and action WILL be taken against students who commit plagiarism. Because of our on-line environment this semester, you will be able to access and use your book, the internet, and your fellow students on all assignments, quizzes and exams. Because of this, you may find it easy to plagiarize (copy, cut-and-paste, or minimally paraphrase) even if you don't mean to do so. However, plagiarism in any form is entirely unacceptable. To avoid plagiarism:

1. You must write up your work in your own words and using your own organization of ideas (not those of your friend, a textbook, a website, etc.). The best way to avoid plagiarism is to read whatever source you are using until you understand it, put it aside, then write the ideas in your own words without referring back to the source. Or, if working with another student, discuss the answer, then write it up in your own words later, from memory.
2. You must list your collaborators and sources (sources include people, printed matter, websites, etc.). Direct quotations are almost never appropriate in science writing, so put things in your own words (paraphrase). Even so, anything you paraphrase needs to be cited because the information and ideas are not your own.

The first time I identify academic misconduct in an assignment you submit, I will discuss it with you to make sure you understand what you did and ask you to re-do the assignment on very short notice; these actions are penalties in Group A in the previous URL. If your academic misconduct appears for the first time on an exam or in a second assignment, I follow the more formal process outlined by the Office of the Dean of Students:

<https://www.uwsp.edu/dos/Documents/UWSPCh.14ProcedureGuide.pdf>, which include formally notifying that office of the alleged misconduct. So please, PLEASE, PLEASE don't plagiarize or cheat in any way. If you are not clear on these expectations regarding academic misconduct, please ask for clarification.

Tutoring-Learning Center UWSP's TLC promotes and supports the academic environment by providing free, confidential, student-centered academic support. It offers one-on-one and drop-in tutoring services via Zoom, academic skills workshops, and one-on-one academic coaching appointments. For more information, please visit <https://www.uwsp.edu/wausau/tlc/Pages/default.aspx> or contact Maysee Cha, the Wausau campus Academic Success Coordinator at mcha@uwsp.edu or phone 715-261-6148.

Technology Support

Visit with a Student Technology Tutor: <https://www.uwsp.edu/tlc/Pages/techTutoring.aspx>

Contact the IT Service Desk at 715-346-4357, <https://www.uwsp.edu/infotech/Pages/ServiceDesk/default.aspx>, or email them at techhelp@uwsp.edu.

Canvas: self-enroll in this self-paced Canvas course, <https://uws.instructure.com/enroll/FNRAL8>

Suggestions to enhance your success You may find this course to be challenging. The main problem for students is it covers a five-credit course's worth of content at a pace that might be faster than you are used to. While I do have high expectations, I am also very willing to help any student who is willing to put in the required effort and requests help as soon as problems are detected. Many students have told me that my introductory biology courses have prepared them extremely well for course work at other UW campuses.

I urge you to read an article ("Learning: Your First Job") on Canvas, even today if possible. It will give you suggestions and motivation for getting a strong start in this course. In the meantime, based on past experience, please seriously consider the following suggestions:

- 1) This is a five-credit course, so if you want to do well, you should expect to spend up to 10 hours per week (yes, really!) outside of class reading, studying, or working on course assignments.
- 2) Make every effort to read the relevant readings BEFORE that material is covered in lecture or lab.
- 3) If you have questions, don't be embarrassed to ask them right away, in lab, during office hours, or via a Canvas Inbox message. Most likely, others have the same question. They will be glad you asked, so they didn't have to!
- 4) Bring your textbook and relevant handouts to lab, and be willing to take notes directly in them.
- 5) Take notes on loose-leaf paper, not a bound notebook, and use a three-ring binder to integrate handouts with your notes. This will let you keep all your course materials well-organized and easy to study from.

- 6) Take lecture notes on only one face of a sheet of paper (the right side as you look at the paper as it would be in a binder). Use the facing sheet (the left side, in a binder) to add notes gleaned from lab or readings.
- 7) DO NOT study by “reading over your notes.” Study actively in a way that you have to recreate the material verbally or visually. “Study actively” means: draw and label your own figures; make tables to compare, contrast, or summarize information; construct concept maps; study in a group and quiz each other; read the text or your notes, then try to write or talk through your own summary from memory.
- 8) Schedule time daily, or at every other day, to study and learn the material as we cover it. Many units are cumulative, so new material will only make sense if you’ve already learned what was covered in the previous class session. Starting a new lecture or lab without having mastered what’s come before is setting yourself up to fail.
- 9) Cramming does not work for this course - there are too many terms and concepts that build on prior material.
- 10) Do not leave lab before the scheduled ending time. If you finish early, pretend that you must take an exit quiz covering the current day’s material and all previous material before leaving lab, or work with someone else to quiz each other.
- 11) Please ask for help before you are totally lost. Do NOT wait until right before an exam before you come for help. Get help early and often. Don’t be embarrassed or shy about asking questions – I am here to help you to learn, to do well, and to enjoy the course.

Students with disabilities The University has a legal responsibility to provide accommodations and program access as mandated by Section 54 and the Americans with Disabilities Act (ADA). The university’s philosophy is to not only provide what is mandated but also convey its genuine concern for one’s total well-being. If accommodations are needed, please contact the instructor as well as the Disability and Assistive Technology Center (DATC), located on the Stevens Point campus. Students can also pick up an application for accommodations packet in the Solution Center. DATC contact information: 715-346-3365 (Voice), 715-346-3362 (TDD only), or email at datctr@uwsp.edu

Disclaimer Aspects of the syllabus may change during the semester. All changes will be announced via Canvas announcements and Inbox messages.

And just because I have some space on this page, here is a poem about animals, which my department chair just shared with me. It’s called “Trophic Cascade” by Camille T. Dungy, and I hope you enjoy it!

After the reintroduction of gray wolves
to Yellowstone and, as anticipated, their culling
of deer, trees grew beyond the deer stunt
of the midcentury. In their up reach
songbirds nested, who scattered
seed for underbrush, and in that cover
warrened snowshoe hare. Weasel and water shrew
returned, also vole, and so came soon hawk
and falcon, bald eagle, kestrel, and with them
hawk shadow, falcon shadow. Eagle shade
and kestrel shade haunted newly berried
runnels where deer no longer rummaged, cautious
as they were, now, of being surprised by wolves.
Berries brought bear, while undergrowth and willows,
growing now right down to the river, brought beavers,
who dam. Muskrats came to the dams, and tadpoles.
Came, too, the night song of the fathers
of tadpoles. With water striders, the dark
gray American dipper bobbed in fresh pools
of the river, and fish stayed, and the bear, who
fished, also culled deer fawns and to their kill scraps
came vulture and coyote, long gone in the region
until now, and their scat scattered seed, and more
trees, brush, and berries grew up along the river
that had run straight and so flooded but thus dammed,
compelled to meander, is less prone to overrun. Don’t
you tell me this is not the same as my story. All this
life born from one hungry animal, this whole,
new landscape, the course of the river changed,
I know this. I reintroduced myself to myself, this time
a mother. After which, nothing was ever the same.

For a brief (< 5 minutes) video version of the ideas in this poem: https://www.youtube.com/watch?v=ysa5OBhXz-Q&feature=emb_logo

BIOL 160 – Tentative Calendar – Spring 2021

Lecture (materials posted Monday & Wednesday)		Lab (8:00-10:50 or 12:00-2:50 on Thursday)	
M 1/25	Introduction to animal biology; Ch 1	1/28	Online: Lab safety; Experimental design & data analysis.
W 1/27	Chemistry of life; Ch 2		
M 2/1	Macromolecules; Ch 3	2/4 or 2/11	In person: Membranes, diffusion, & osmosis Online: Metabolism; White-nose syndrome in bats
W 2/3	Cellular structure: membranes & organelles; see outline Drop deadline		
M 2/8	Cellular function: energy & enzymes; Ch 6		
W 2/10	Cellular function: cellular respiration; Ch 7.1 – 7.6		
M 2/15	Cellular division: mitosis; Ch 10.1, 10.2	2/18 or 2/25	In person: Rats 1 – External anatomy, skeletal system, & muscles Online: Mitosis & meiosis
W 2/17	LECTURE EXAM 1 (covers thru 2/11)		
M 2/22	Cellular division: meiosis and sexual reproduction; Ch 11		
W 2/24	Genes and inheritance; Ch 12 (genetics HW)		
M 3/1	Chromosomal basis for inheritance; see outline	3/4 or 3/11	In person: Rats 2 – Digestive, respiratory, & urogenital systems Online: Central Dogma
W 3/3	DNA to protein: the central dogma; see outline		
M 3/8	Evolution & speciation; see outline		
W 3/10	Evolution & speciation (cont);		
M 3/15	Classification & phylogeny; Ch 20	3/18 or 4/1	In person: In person: Rats 3 – Circulatory system; nervous system Online: Phylogeny & classification
W 3/17	LECTURE EXAM 2 (covers 2/17 thru 3/11)		
SPRING BREAK			
M 3/29	Protozoa & animal origins; see outline	3/18 or 4/1	In person: In person: Rats 3 – Circulatory system; nervous system Online: Phylogeny & classification
W 3/31	Principles of animal form & function; body plans, homeostasis; see outline		
M 4/5	Skeletal systems & movement; Ch 38	4/8 or 4/15	In person: Invertebrates I - Porifera, Cnidaria, Platyhelminthes, Rotifera, & Nematoda Online: Invertebrates II – Mollusca & Annelida
W 4/7	Nervous system; see outline		
M 4/12	Endocrine system; Ch 37		
W 4/14	Animal nutrition, feeding & digestion; Ch 34		
M 4/19	Circulatory systems & body fluids; Ch 40	4/22 or 4/29	In person: Invertebrates III – Tardigrada & Arthropoda Online: Deuterostomes I - Echinodermata, fish, & amphibians
W 4/21	LECTURE EXAM 3 (covers 3/15 thru 4/15) 4/23 is withdraw deadline		
M 4/26	Gas exchange; Ch 39		
W 4/28	Reproduction; Ch 43.1 – 43.5		
M 5/3	Development & embryology; Ch 43.6, 43.7	5/6 or 5/13	In: person: Deuterostomes II – non-avian reptiles, avian reptiles (birds), & mammals, including embryology & development Online: Student presentations
W 5/5	EvoDevo; reading will be on Canvas		
M 5/10	Water balance; Ch 41		
W 5/12	Immune system; Ch 42		
5/18	LECTURE EXAM 4 (covers 4/19 thru 5/13) You'll have two hours to complete this exam on this date.		