



Biology 171 – Animal Biology

University of Wisconsin Stevens Point at Wausau

Spring 2019

Lectures	Rm 180	TR 9:10-10:25	G001, PRISM 2103
Labs	Rm 271	MW 1:00-2:50	G041, PRISM 2104
	Rm 271	MW 3:00-4:50	G042, PRISM 2105

Instructor Paul Whitaker, Rm 285C, paul.whitaker@uwc.edu, 715-261-6284
Open lab & office hours: Thurs 10:30 AM – 3 PM, or by appointment, or just stop by my office

Honors For students interested in exploring some biological topics in a bit more detail, a one-credit honors discussion is associated with this course: BIO 298, PRISM 2130, (day & time to be determined).

Required text Hillis, Sadava, Hill, & Price. 2014. Principles of Life, 2nd edition (Launchpad Access Card NOT needed). Sinauer Associates. Please bring your textbook to every lecture as we WILL be using it in lecture regularly. There is no separate laboratory textbook. **In all course materials, this textbook is abbreviated as PoL.**

Other readings Additional readings/materials may be placed on the course's D2L website or on library reserve as needed.

Electronic course materials Lecture notes, PowerPoint presentations, study guides, lab handouts, and lecture recordings will be made available via a D2L web site. If you've not used D2L before, go the UWMC homepage, click on "D2L," and login using your campus login & password. Click on *Animal Biology Spring 2019* under your list of courses, and you'll find announcements and instructions that will take you from there.

Course overview The UWC Catalog states that BIO 171 covers "General biological principles - structure and function of cells, histology, embryology, heredity, ecology, and evolution; survey of the animal kingdom; and structure and function of the vertebrate body... NS/LS."

Learning outcomes

1. Recognize cell theory, inheritance, evolution, and developmental biology as the foundations of zoology.
2. Integrate various levels of biological organization and their emergent properties.
3. Compare and contrast animal body-plans and physiological processes in animals from different phyla.
4. Demonstrate critical thinking as a process of identifying, analyzing, evaluating, and constructing reasoning in deciding what conclusions to draw or actions to take.
5. Apply principles of zoology to broader personal and societal issues.

Assignments & grading The course schedule lists the topics for each class period. For each topic, I will post on D2L the reading assignment, any online activities from PoL, a vocabulary list, and learning objectives for that topic. When readings or activities are assigned before a lecture or lab, I will assume that you have completed them: failing to complete such assignments will certainly hinder your success in this course.

You can earn a total of 1000 points in this course, as shown below. Keep track of your grade in D2L.

<i>Lecture exams</i>	400 pts	4 at 100 pts each
<i>Lab quizzes</i>	240 pts	6 at 40 pts each
<i>Final portfolio</i>	80 or 100 pts	watch for details later in the semester (may replace lowest exam or 2 quizzes)
<i>Lecture assignments</i>	70 pts	mostly worksheets related to lecture materials
<i>Pre-lab assignments</i>	40 pts	occasional homework to help you come to lab prepared
<i>Post-lab assignments</i>	120 pts	some individual + some group, so due at end of lab, some due later
<i>Writing</i>	130 pts	short writing related to content (80 pts) & self-regulated learning (50 pts)

This semester I am building on revisions I added to the course last spring, in an attempt to help more students be successful in this course. One is a series of short content-based "micro-themes," which will generally require you to write one paragraph about a specific course topic. Another is a set of writing assignments intended to help you become more effective as a self-regulated learner. A self-regulated learner is someone who thinks about how s/he thinks and learns (called metacognition), is self-disciplined, defers gratification, and avoids procrastination. Abundant research has demonstrated that being a self-regulated learner has significant benefits. I want to help you move in that direction.

I will make the writing assignments through the course's D2L site and sometimes in class and you will submit your work at the beginning of class on the due date. I will generally not make specific comments on your submissions. In fact, I'll be grading them using a method called "spec grading." If you meet the specifications for the assignment, you'll get full credit, and if you fail to meet the specs, you'll get zero points. On some assignments, I may choose to use an intermediate score for work that partially meets the specifications. The specs will generally state a minimum length and ask that you fully address the topic with evidence of honest effort. I will occasionally demonstrate examples of exemplary student work during class time to help you understand what you should be working toward. For both types of writing assignments, there will be several extra assignments so that you can choose to skip a few or earn back points that you missed on other ones.

These writing assignments will be part of your final portfolio, which will be described for you a bit later in the semester.

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, 62.0-67.9%
A-, 90.0-91.9 %	B-, 80.0-81.9%	C-, 70.0-71.9%	D-, 60.0-61.9%
B+, 88.0-89.9%	C+, 78.0-79.9%	D+, 68.0-69.9%	F, <60.0%

What do 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.

Attendance, makeups, and late assignments I do not formally take attendance in lecture or lab, but I try to note who is missing. You should assume lecture & lab attendance is mandatory because:

- I assume that you have heard all announcements and have received all handouts;
- Lecture and lab activities will greatly enhance your ability to do well on assignments & exams;
- Lectures & labs may include assignments that will indicate your attendance, participation, & understanding; and
- If you are absent and unexcused, you may not make up any points associated with that class period.

If you cannot attend a lecture or lab and if you notify me in at least an hour in advance of that absence 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 a lecture or 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.

Assignments are generally due at the beginning of the class period. Late assignments will be penalized 10% (approx. 1 letter grade) per calendar day late, beginning the minute they are due. Although you cannot hand in paper assignments on evenings or weekends, you may e-mail them to avoid additional late penalties. I will consider them submitted when I receive a readable file in one of these formats - MS Word, OpenOffice, JPEG, or PDF – attached to an e-mail from your UW e-mail account. I will not accept assignments in other formats or from other e-mail accounts.

Cheating, copying, plagiarism, and academic integrity 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 this course both encourages and requires you to work with other students and to use information from various sources, you may find it easy to plagiarize, 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 don't use quotations. Even so, anything you paraphrase needs to be cited because the information and ideas are not your own.

The first time academic misconduct appears in an assignment, 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 will pursue actions in Group B in the PDF mentioned above. If you commit academic misconduct once more, the necessary steps will be taken to fail you in the course and have a letter placed in your academic record. So please, don't plagiarize or cheat in any way. If you are not clear on these expectations regarding academic misconduct, please ask for clarification.

Suggestions to enhance your success You may find this to be quite difficult. The main problem, for students, is that the course covers a five-credit course's worth of content, and does so at a pace that will be far faster than you might be used to. While we do have high expectations, we also are very willing to help those students who are willing to put in the required effort and request help as soon as they recognize that they are having problems. Many students have told us our introductory biology courses have prepared them extremely well for course work at other UW campuses.

Your first writing assignment is tied to an article ("Learning: Your First Job") on the course D2L site. The assignment is due soon, so do it tonight! It will give you suggestions and motivation for getting a strong start in BIO 171. 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. Come to class prepared with questions about things you did not understand.
- 3) If you have questions in lecture or lab, don't be embarrassed to ask them right away. 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 lecture and 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 least twice weekly, 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. Coming to class without having mastered what's come before means 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 end of the scheduled 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. Similarly, use open lab time weekly to review materials and get help long before a lab exam.
- 11) Please come 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 – we are here to help you to learn, to do well, and to enjoy the course.

Required statement on assessment For 2018-19, UW Colleges classes that fulfill outcomes at the Foundation Level of the UW Stevens Point [General Education Program](#) (GEP) will be assessed using the GEP assessment portfolio process. BIO 171 is an Investigation Level course for the GEP ([category learning outcomes](#)) and is not part of GEP assessment this year.

Disclaimer This syllabus represents a plan for the course at the beginning of the semester. Aspects of the syllabus may change during the semester as needed. Any changes will be announced both in class and on D2L.

BIO 171 – Tentative Semester Calendar – Spring 2019

Lecture (9:10-10:25 on Tuesday & Thursday)		Lab (1:00-2:50 or 3:00-4:50 on Monday & Wednesday)	
		M 1/28	Introductions, course overview, lab safety, & Rock pocket mice 1 – Color variation over time
T 1/29	Basic biological chemistry – PoL 2.1-2.4	W 1/30	Osmosis
R 1/31	Membranes – PoL 5.1-5.4	M 2/4	Microscopes
T 2/5	Cells: working units of life – parts of PoL Ch 4 & Ch 5	W 2/6	Cells & tissues
R 2/7	Pathways that harvest & store energy – PoL 2.5, 6.1, 6.2 6.3, 6.4 (2/8 is add/drop deadline)	M 2/11	Cellular respiration
T 2/12	Fundamentals of animal function – PoL Ch 29	W 2/13	Lab quiz 1 & White nose syndrome in bats
R 2/14	Nutrition, feeding & digestion – PoL Ch 30	M 2/18	Rats 1 – Introduction
T 2/19	LECTURE EXAM 1 (covers thru 2/14)	W 2/20	Rats 2 – Skeletal system
R 2/21	Breathing – PoL Ch 31	M 2/25	Rats 3 - muscles
T 2/26	Muscles & movement – PoL Ch 33	W 2/27	Rats 4 – digestive & respiratory system
R 2/28	Control by endocrine & nervous syst – PoL 35.1-35.4	M 3/4	Lab quiz 2 & Frogs – muscles in action
T 3/5	Water & salt balance – PoL Ch 36	W 3/6	Rats 5 – Urogenital system
R 3/7	Circulation – PoL Ch 32	M 3/11	Rats 6 – Circulatory system
T 3/12	Neurons, sense organs, & nervous systems – PoL Ch 34	W 3/13	Nervous system
R 3/14	LECTURE EXAM 2 (covers 2/21 thru 3/12)	M 3/18	Enzymes
T 3/19	Nucleic acids, proteins, & enzymes – PoL 3.1,3.2,3.3,3.4	W 3/20	Lab quiz 3 & Transcription & translation
R 3/21	From DNA to protein: gene expression – PoL 9.1, 10.1, 10.2, 10.3,10.4, 10.5	SPRING BREAK	
		M 4/1	Genetics – PoL 8.2, 8.3
T 4/2	Meiosis, inheritance, genes, chromosomes – PoL 7.4, 8.1	W 4/3	Rock pocket mice 2 – Hardy-Weinberg equilibrium
R 4/4	Animal reproduction – PoL Ch 37	M 4/8	Animal behavior
T 4/9	Animal development – PoL Ch 38	W 4/10	Lab quiz 4 & Animal development
R 4/11	Genes, dev't, evolution: EvoDevo – PoL Ch 14 (4/12 is withdraw deadline)	M 4/15	Virtual lab on evolution of stickleback fish
T 4/16	LECTURE EXAM 3 (covers 3/19 thru 4/11)	W 4/17	Interpreting phylogenies, activity from PBS Nova – PoL Ch 16
R 4/18	Protozoa & animal origins – PoL 20.1, 23.1, 23.2	M 4/22	Bacteria, protists, sponges
T 4/23	Processes of evolution – PoL 15	W 4/24	Cnidaria, platyhelminthes, rotifers, nematoda
R 4/25	Speciation – PoL 17.1, 17.3, 17.4	M 4/29	Lab quiz 5 & Annelids
T 4/30	Annelids & mollusca – reading TBA	W 5/1	Mollusca
R 5/2	Arthropoda – PoL 23.4 + reading TBA	M 5/6	Arthropoda
T 5/7	Fishes, amphibians and the move to land – reading TBA	W 5/8	Echinoderms & invertebrate chordates
R 5/9	Reptiles, birds, mammals – reading TBA	M 5/13	Vertebrata
T 5/14	LECTURE EXAM 4 (covers 4/18 thru 5/9)	W 5/15	Lab quiz 6
F 5/17	FINAL EXAM 8-10 AM in Rm. 180		