INTRODUCTION TO ANIMAL BIOLOGY SYLLABUS

Bio 160 SEM II 2018-2019 (Spring 2019)

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Office Hours: Mon, Tue, & Wed 2:15-3:10 pm in TNR 463,
Tue 9:00-10:50 am in CBB 146, or by appointment

Required Supplies:

Textbook (Univeristy Bookstore rental):, Urry, Cain, Wasserman, Minorsky, Reece. 2017. *Campbell Biology, **11h Ed.***

For Lab (all available for purchase in book store): *Introduction to Animal Biology Lab Manual*, chemistry goggles, dissecting kit

Course Description:
This course will introduce you to how animals work, from cells to organ systems, how traits are inherited, and how animals interact with and adapt to their environments. You will also learn about animal classification, diversity of animals, and evolutionary relationship between many different types of organisms covered in lab, from sponges to mammals, as well as how those evolutionary relationships take shape (i.e., how evolution occurs). Even if you are not a biology major, you will leave this course with information that will affect your life in some way, whether it is personally or professionally.

Introductory Biology Sequence Learning Outcomes:
By the end of the biology introductory sequence (Biol 130, Biol 160, and Biol 270), you should be able to:

1. Recognize the multiple levels of complexity at which biological systems operate, from molecules to ecosystems and the biosphere, and explain the emergent properties and processes characteristic of each level.
2. Describe mechanisms for the continuity of life, including the processes of inheritance, development, and evolution.
3. Demonstrate proficiency in the methods and philosophy of science, including articulation and application of the Scientific Method, collection and analysis of biological data, and application of professional ethics.
4. Critically evaluate and synthesize biological information from multiple sources, including the primary scientific literature, and communicate biological knowledge to both professional and non-professional audiences.
5. Articulate the application of biological science to meeting the needs of society, including basic research, stewardship of biodiversity, human health, and entrepreneurial innovation.

Tentative Points for Exams and Assignments (Projected Minimum Points = 726 +/-)

Exams, include lab material	300 (+/-)	3 @ ~100 points
Final Lecture Exam	226 (+/-)	Includes material previously covered + new material
Lab Quizzes & assignments	200 (+/-)	variable points for pre- & in-lab quizzes & assignment

- **Quizzes and Assignments can be added at any time at my discretion.**
- **Though labs will include regular lab quizzes, exams whose purpose is testing over lecture material *could* include both lecture and lab material, as this is a combined lecture and lab class and the topics covered in each portion compliment the other.**

Grades: A=93-100%, A-=90- 92%, B+=87-89%, B=83-86%, B-=80-82%, C+=77-79%, C=73-76%, C-=70-72%, D+=67-69%, D=60-66%, F=< 60%

Class Conduct: I expect good conduct and a high level of respect in the classroom, between you and your peers and between you and me. **Please turn off your cell phones, refrain from texting and casual talking during lectures, lab introductions and discussion, and exams and quizzes**. These distractions take away from the positive learning experience I would like to have in class. Furthermore, having this respectful experience and attitude in class prepares you for the expectations of your future employers. Lastly, *good conduct does make a difference in determining your final grade.* This goes for lab, too. You may, however, use your phone to take pictures in lab or to use for timing experiments.

Attendance:

- Attendance for lecture and lab is mandatory, and there is a strong positive correlation between the amount of time a student spends in class and his or her final grade.
- If a quiz, exam, or other assignment is missed and you are not involved in a university-sponsored event, *I will evaluate whether or not to excuse the absence* and how to administer the assignment on a one-on-one basis. **Daily quizzes, pop quizzes, and any extra credit assignments cannot be made up unless you have an official university excuse and/or I am notified ahead of time of your absence and we work out a plan**, based on the reason for absence from the work. If you are truly sick and need to stay home, that is fine, but please let me know as soon as possible about your absence.
- If a quiz, exam, or other assignment is missed, you must **communicate with me about it within one week of missing said event, and it must be made up within one week of the communication**, unless other plans are made with me.
- If you are late to class, daily lecture and lab quizzes and exams must be turned in at the same time as all other students. **No extra time will be given to complete the quiz or exam.**
- See UWSP 22.03 in the university handbook regarding absences due to religious beliefs (and no, hunting is not considered a religious belief.)

You have 2 weeks to check your grades: You are responsible for checking in a timely manner after grades have been posted to ensure your grade has been properly assigned. Once grades are posted for an assignment, quiz, or exam, you have up to two weeks (14 days) to discuss your grade or outcomes, including any grades that may inadvertently be missing. After the 2-week period has passed for any event, I will not discuss any grade changes for that event.

Help & Resources

If you are feeling lost or overwhelmed…

1. **Make an appointment with me**
   Come see me during my office hours or make an appointment. **I'm always happy to see my students and always willing to help in any way that I can**!
2. **Attend group tutoring**
   Group tutoring sessions are opportunities to get reinforcement of lecture topics and additional help with concepts you just don't understand. The tutor for a particular section usually has taken that instructor's class and so should be familiar with the specific material.
3. **Go to the TLC**
   Head to the Tutoring and Learning Center (TLC), 018 Albertson Hall (ALB), for drop-in tutoring, office hours, or to sign up for one-on-one tutoring with a former Bio 160 student.
4. **See a counselor**
   The counseling center is located on the 3rd floor of Delzell hall, and they can assist you will test anxiety, time management, and struggles with social issues.
5. **Talk to Disability Services**
   If you have, or think you may have, a disability that is preventing you from making it to class, studying, or being successful on exams, contact the Disability and Assistive Technology Center in 609 ALB.

I *do not* give extra credit assignments on an individual basis, so *please do not ask*: I would rather you use any extra time you have toward your best effort on the assigned material. I will work with you in any way I can to help you get a better grade *on future course work assigned to the entire class*.

Students with Disabilities: Students with disabilities are welcome and encouraged in this class. If you have a medical problem (e.g., ADHD, migraine headaches that require medical attention, depression) that may cause you to miss class or exams often, please contact the Disability and Assistive Technology Center, (609 ALB) so your professors can be notified appropriately of accommodations that should be made for you.

Student Academic Standards and Disciplinary Procedures: You can find out about the academic standards and your responsibilities as a UWSP community member at https://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf. Any form of cheating, plagiarism, or any misrepresentation of your work, or if you are knowingly assisting someone in cheating, will result in a grade of zero (0) points for that test, quiz, or other assignment.

How can I succeed and excel in this course?	How Much Do I Need to Study?	How Can I Do Well on the Exams?	How Can I ***Excel***?
Your commitment to your classes is one of the most important things in your life right now. Even if you have a full time job outside of school, college is your career! To get the most out of your academic experience, you must be committed to coming to class, you must put in the time to learn the material, and you need to go beyond the course and ask yourself and others questions about biology.	Plan to study 2-3 HOURS FOR EVERY HOUR OF CLASS YOU ATTEND. Review the afternoon or evening after your lecture; this allows you to review your notes while they are fresh in your head and make sure you didn't forget to write something down. Review before class; this will help you better prepare for class that day and reinforce the material from previous lectures. Do not wait until the weekend to study. The weekend is for review and catching up with your friends.	I provide what, I think, is interesting material, but you are the only one that can get it into your head. Ways you can study are to rewrite your notes, take notes on your notes, and take notes on your book readings. But, the most important key to success on exams is to challenge yourself…until you're sure you know it. Research suggests that *just* rereading gives you a false sense of knowledge. How will you actually know you know it unless you test your knowledge? So, spend some time making yourself some tests from your notes.	You get out of your classes what you put into them. You can wade through and get some basic knowledge, and that is fine. You can really put in some serious time studying the given material and do well in the class. But, what you really *should* want is to maximize that precious money you are spending on school. Ask questions, of yourself or me, beyond what is given to you. I may not always know the answer, but it is a start to greater knowledge for you and, perhaps, for me. You may also want to subscribe to a science magazine or science new websites.

Notable Dates for Exams

Wk	Day	Date	Exam Activity
4	We	2/13	Receive Lecture Exam I Pre-view
5	M	2/18	Lecture Exam I In-class Collaboration
	Th	2/21	Lecture Exam I Opens online at 12:00am Thursday
	Sa	2/23	Lecture Exam I Closes online at 12:00noon Saturday
7	W	3/6	Receive Lecture Exam II Pre-view
8	M	3/11	Lecture Exam II In-class Collaboration
	Th	3/14	Lecture Exam II Opens online at 12:00am Thursday
	Sa	3/16	Lecture Exam II closes online at 12:00noon Saturday
12	W	4/10	Receive Lecture Exam III Pre-view
13	M	4/15	Lecture Exam III Practice Quiz, In-class Exam Collaboration
	Th	4/18	Lecture Exam III Opens online at 12:00am Thursday
	Sa	4/20	Lecture Exam III Closes online at 12:00noon Saturday
16	M	5/6	Receive Pre-view of ***new*** final exam material
17	Th	5/13	**FINAL EXAM, 12:30pm – 2:30pm, CBB 101** **NOT A COLLABORATIVE EXAM!, COMPREHENSIVE, includes previous & new material**

PREVIEW EXAMS & QUIZZES MUST BE COMPLETED IN ORDER TO PARTICIPATE IN COLLABORATION. IF NOT COMPLETE, YOU WILL BE ASKED TO SIT IN A DIFFERENT LOCATION (E.G., FRONT ROW), AND WORK INDEPENDENTLY.

Biol 160 Lab Schedule

J. Hubbard

(Dates are for Monday, Tuesday, or Wednesday labs, depending on the section you belong to)

Wk.	Dates	Lab Exercises & Quizzes
1	Jan 22, 23, 24	No Lab
2	Jan 28, 29, 30	Microscopy & figure technique (bring goggles next three weeks)
3	February 4, 5, 6	Properties of membranes, diffusion & Osmosis **Lab quiz: Microscopy**
4	Feb 11, 12, 13	Properties of enzymes **Lab quiz: Properties of membranes, diffusion, osmosis**
5	Feb 18, 19, 20	Metabolism **Lab quiz: Properties of enzymes**
6	Feb 25, 26, 27	Mitosis & Meiosis (material tested on lecture exam) **Lab quiz: Metabolism**
7	Mar 4, 5, 6	Phylogeny & Classification
8	Mar 11, 12, 13	Development, Animal Body Plan Deuterostomes I: echinoderms, amphibians, fish; intro too amphibian & fish common animals (CA) **Lab quiz: Phylogeny & classification**
9	Mar 18, 19, 20	**SPRING BREAK: NO LABS**
10	Mar 25, 26, 27	Deuterostomes II: birds, reptiles, mammals; intro to bird, reptile, & mammal CA
11	Apr 1, 2, 3	NO LAB **(HUBBARD PRESENTING AT MEETING)** REVIEW INVERTEBRATE I (PORIFERA, CNIDARIA, PLATYLEMINTHES) POWERPOINT OUTSIDE OF CLASS **Lab quiz: Deuterostomia I & II + fish, amphibian, and reptile CA**
12	Apr 8, 9, 10	Invertebrates II & III: Mollusca, Annelida, Tardigrada, Annelida (bring dissection kits rest of semester)
13	Apr 15, 16, 17	RAT DISSECTION I & II: Skeleton and muscles; digestive, respiratory and urogenital systems; histology of systems **Lab Quiz: Invertebrate I & II + bird CA**
14	Apr 22, 23, 24	RAT DISSECTION II & III: Digestive, respiratory and urogenital systems; circulatory & nervous systems and sense organs; histology of systems. **Lab Quiz: Invertebrate III mammal CA**
15	Apr 28, 30, May 1	**NO LAB (Hubbard out of town Monday & Tuesday)** Study for rat quiz next week (see PowerPoint); see last page of syllabus for extra review days
16	May 6, 7, 8	**Rat Practicum**

Lab Protection: Eye protection will be required during any labs where chemicals will be used during the lab assignment. Gloves will be provided where it is necessary to wear them (e.g., during the osmosis and diffusion lab), **but gloves will not be provided for other labs, such as the dissection labs.** If you want gloves for those labs, you must purchase them yourself. If you do decide to purchase gloves for those labs, ry to make sure to get gloves that fit your hand.

***Tentative* Lecture Topics in Approximate Order**	**Reading in Campbell**
Unifying Themes of Life + What is Zoology	Ch. 1
Introduction to Chemistry – *review PowerPoint online and take online quiz*	Ch. 2-3
Chemistry of Life: Carbon, Macromolecules, & biological molecules	Ch. 4-5
Cell Membrane, extracellular matrix, movement across membrane, cell-to-cell communication, cell form & function	Ch. 6,7
Cellular Respiration & Enzymes	Ch. 8-9
Homeostasis: Thermoregulation - *review PowerPoint online and take online quiz PRIOR TO FEB 18 METABOLISM LAB*	Ch. 40.2-4
Cell Cycle & Mitosis	Ch. 12
Sexual Life Cycle & Meiosis	Ch. 13
Gametogenesis, fertilization, modes of reproduction- *review PowerPoint online and take online quiz PRIOR TO MAR 11 DEUTEROSTOMIA LAB*	Ch. 13.1, 34.3, 46.1-2, 47.1, Fig. 15.2, 15.6
Animal Development, body plan, & diversity – in lab	Ch. 32, 46, 47
Evolution: Descent with Modification, Early Theories, Natural Selection	Ch. 21, 22
Evolution: Mechanisms of change in populations	Ch. 23
Evolution: Evolution of Species, evidence for evolution	Ch. 23-24
Genetics: Mendel, Genes, & Inheritance (see fig. 15.2 for more on Laws of Segregation & Independent Assortment)	Ch. 14-15
Chromosomal basis of inheritance: sex-linked inheritance, sex determination	Ch. 15
Molecular Basis of Inheritance & DNA Replication	Ch. 16
Gene Expression (from gene to protein) & regulation	Ch. 17,18
Animal Tissues - *review PowerPoint online and take online quiz*	Fig. 40.5
Skeletons, Protection, & Movement - *review PowerPoint online take online quiz*	Ch. 40, 47, 50.5-6
Neurons, Synapses, Signaling	Ch. 48
Animal Nutrition & Digestive Systems	Ch. 41
Circulatory Systems	Ch. 42
Respiratory Systems	Ch. 42
Homeostasis: Osmoregulation	Ch. 44
Ecology: Introduction	Ch. 52
Ecology: Populations	Ch. 53
Ecology: Communities, Climate Change	Ch. 54

Note: There is no day-to-day chapter homework for this class, but there are instances where **I will require you to review lectures online on your own or read an article as homework or to work on exam pre-view materials**, and I do expect you will regularly keep up with reviewing the material for class.3

Notable Dates We WILL NOT HAVE CLASS (due to pre-scheduled events):
Monday April 1 – NO LAB (We **will** have lecture)
Tuesday April 2 – NO LAB
Wednesday April 3 – NO LECTURE, NO LAB
Monday April 29 – NO LECTURE, NO LAB
Tuesday April 30 – NO LAB
Wednesday May 1 – NO LAB (We **will** have lecture)

I will hold an OPEN LAB FOR RAT REVIEW on the following dates:
Wednesday May 1 – 11:00am-2:00pm
Thursday May 2 – 9:00am – 2:00pm
Friday May 3 – 9:00am – 12:00pm