

BIOLOGY 120: ANIMAL SYSTEMS
SPRING 2010 COURSE SYLLABUS
Section 001-008 MWF 10:00-10:50 SL 1105

Dr. Paul Brunkow

Office: SL 3322 Lab: SL4216

Office Hours: Wednesday 2-3 pm, Thursday 2-3 pm, *or by appointment*

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Laboratory Coordinator: Katie Durbin (cadurbi@siue.edu)

Associate Instructors: Katie Miller (kathmil@siue.edu), Stephanie Miller (stemill@siue.edu),
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Required Materials for Course:

Textbook: *Integrated Principles of Zoology* Hickman, et al. 14th Edition (available from textbook services)

(Dissecting Kit - not required, but available at bookstore if you'd like to have your own)

Course Objectives

Our goal in this course is for you to gain knowledge and understanding of a variety of concepts related to animal organismal biology within the framework of the following objectives:

- Present an overview of diversity within the Kingdom Animalia, emphasizing evolutionary, structural, and physiological patterns;
- Introduce the basics of metabolism, physiology, anatomy, behavior, and ecology of animals;
- Increase familiarity with hypothesis-testing and literature retrieval with respect to animal biological questions;
- Introduce the nature of science: techniques used in scientific inquiry, the strengths and limitations of science, and scientific ethical issues.

Grading

Dr. Brunkow and Dr. Brugam will coordinate efforts to assign grades for both sections of BIOL 120 and will work to insure that students have as equivalent an experience in each section as is possible. Final grades will be assigned at the end of the semester based on a joint determination by Drs. Brugam and Brunkow and the laboratory instructors.

Your grade in this course will be determined by a straight curve based on the percentage of points you earn from a fixed number of points: 100 - 90% = A, 89 - 80% = B, 79 - 70% = C, 69 - 60% = D, < 60% = F. Initially, this fixed curve will be used to calculate your grade; grades will be curved in your favor if necessary but will not be curved against you (e.g., if you earn 81% of the points, you'll receive at least a B). Points will be distributed as follows: 3 lecture exams (100 points each), 1 lecture pseudo-cumulative final exam (150 points), 10 quiz scores out of 11 given in labs (10 points each = 100 points), two written assignments (100 points), and two laboratory practical exams (100 points) = 750 total points in the course. There will not be any extra credit opportunities in the course. Improvement in grades throughout the semester and course participation will be considered in calculating final grades. A grade of "Incomplete" will

not be assigned except under unusual circumstances.

Your grades will be posted on the Blackboard site for this course; however, it is important that you keep everything that is returned to you: labs quizzes, exams, writing assignments, etc. This will prevent frustration later on. If you feel that your performance in this class is not what you were expecting, please come to see me early in the semester.

Make-up exams will not be given except under extenuating circumstances. If you miss an exam for a verifiable, legitimate reason, your grade will be calculated based on the remaining exam scores; otherwise you will receive a “0” for that exam. We reserve the right to apply this policy on a case-by-case basis, and this policy does not apply to the final. There will be no make-up lab quizzes or practicals. Cheating will not be tolerated on any exercise in this course; cheating will likely result in receiving a “0” for that exercise, plus any other action deemed appropriate (e.g., withdrawal from the course, etc.). See the University Undergraduate Catalog for further description of activities considered as cheating (= academic dishonesty) and possible consequences; *it is your responsibility to familiarize yourself with the SIUE Student Academic Standards and Performance Policies (<http://www.siu.edu/policies/toc.shtml#onei>)*.

Attendance/Participation:

Attendance in lecture is not required, but strongly advised. You will be responsible for everything discussed in lecture regardless of its nature (e.g., information not present in any readings or handouts, changes in test dates, etc.). Attendance in lab is required; missing more than two labs may result in you being withdrawn from the course. **You must attend the lab in which you are registered.** If you must miss a lab for a verifiable, legitimate reason, you may be allowed to make up the lab later (or earlier) in the week, but only if space allows; you will only be allowed to do this twice through the semester. For missed exams and labs, laboratory and course instructors have final say over what constitutes a verifiable, legitimate excuse. **Switching laboratories during the week before Spring Break will not be allowed.**

For Students Registered With Disability Support Services:

Be sure to contact me early in the semester regarding policies supported by DSS. Every reasonable accommodation will be made on your behalf, but we need to know about needs for exams, labs, etc. early in the semester.

Some Other Notes About This Course:

- You have entered what is (unfortunately) referred to as a “gatekeeper” course. This is the first in a series of core courses designed for Biology majors. You must earn a “C” or better in BIOL 120 in order to take the next course in the series (BIOL 121); this applies to all core courses. Thus, simply passing this class is not enough. The difficulty in this course comes from the amount of material we will cover, not from inherent complexity of any given topics. Thus, be sure to take lots of notes, even when I am not actually writing anything down on the overhead or the board. Work with other students in the course, read the textbook and the lab handouts, and start studying for exams and quizzes well ahead of time.
- Be sure to note the Departmental policy concerning repeating core courses, which has been implemented recently in response to the enormous increase in demand for our courses: If you get a grade recorded for any of these courses (BIOL 120, 121, 220, 319), and you attempt to register to repeat the course in a later term, you will be given the lowest

registration priority for the repeated class. The consequence of this? If you get a grade recorded for BIOL 120 in this semester (B, C, D, F, WF, or UW), *you may find it very difficult to ever repeat this course at SIUE in the future because of very high demand.*

- I operate under a fairly simple grading rule: Your grade is your business. I do not *give* you a grade; rather, you *earn* a particular grade. If you perform below your expectations on a particular exam or practical, I will not entertain the notion that this is somehow my fault. *However*, that being said, I am aware of my responsibilities to you as a registered student, and I am interested in having all students perform as well as they can in this class. I encourage you to ask questions during lecture and lab exercises, come to my and the T.A.'s office hours, make appointments to see me and ask questions, use e-mail to contact me and ask questions, and work together with your colleagues in this class as much as you can.
- Grades, for better or worse, are a reflection of achievement, not of effort. Just like paying your tuition does not guarantee you any particular grade in a course, studying for a given number of hours prior to an exam does not guarantee any particular grade on that exam. Your study and work habits must be effective to earn a particular grade in any course. This can be difficult given the demands of other courses, outside jobs, family commitments, etc., so be sure to utilize all of the resources available to you early in the semester if your performance in this class is not what you expected or not coincident with your own goals.
- I suggest you focus throughout this semester on the following mantra:

MEMORIZING \neq LEARNING

Biology, like many disciplines, certainly requires memorizing a lot of *Things* to be successful within the discipline. However, lecture exams are designed to determine whether and to what degree you have also learned the *Concepts* underlying the *Things* you are memorizing, *in addition* to whether or not you've memorized the *Things*. Simply memorizing *Things* in this class will not be sufficient to earn the highest grades; you must also learn the *Concepts* that unite and distinguish these *Things*. I submit to you that my exams are not "hard;" but many of you who have mastered the multiple choice exam in high school-level biology courses will discover just how difficult a multiple choice exam can be if all you do this semester is memorize...

- Let's be honest: large lectures are less-than-optimal environments for a class. If you have trouble hearing me from where you're sitting, let me know and/or move closer to the front of the room. If you have a question, raise your hand at an appropriate moment and get our attention. Alternatively, come up right at the end of class; I usually stay around until all questions/concerns are addressed. Let me know if you can't read something on the overhead or projector screen, if I am going too fast, not speaking loudly enough, etc.
- That being said, one of my biggest responsibilities is to maintain an atmosphere conducive to learning in this big lecture hall. To that end, no laptop computers are to be used during class; do not use cell phones or PDAs or iPods; do not read outside material during class. TAs will also be maintaining learning-conducive in the labs, and you will be required to adhere to their requirements.

Lecture Schedule -- Subject to change

Week- Date	Topic	Reading
1 1/11 1/13 1/15	Introductory material What is Science? What is Biology? Levels of Organization The Earth: Age, Position, Structure; Biological Molecules	pp. 3-14, 21-26, 26-30
2 1/18 1/20 1/22	<i>Holiday</i> Self-replicating molecules: RNA, DNA Earliest cells: membranes, organelles; Cell division	pp. 91-96, 37-51, 52-55
3 1/25 1/27 1/29	Cell Division: Mitosis; DNA duplication, transcription, translation Heredity: Meiosis; Genes, alleles Mendel's Laws; Connection between genotype and phenotype	pp. 91-96, 77-89
4 2/1 2/3 2/5	Evolution: Basic observations, history of ideas Evolution: Mechanisms Evolution: Examples	pp. 105-113, 124-126 ("Microevolution...")
5 2/8 2/10 2/12	Cellular Respiration EXAM # 1 Cellular respiration; Animals through time	pp. 62-70, In-class demo
6 2/15 2/17 2/19	Phylum Porifera Phylum Cnidaria Cnidarians and Phylum Ctenophora; Intro to Nerves	pp. 248-257, 261-285, 727-737
7 2/22 2/24 2/26	Nerves and Nervous System Function Structure and function of Senses and Brain The Coelom; Acoelomates; Pseudocoelomates	pp. 727-737, 741-750, 188-190 ("Components of...")
8 3/1 3/3 3/5	Phylum Mollusca EXAM # 2 The Molluscs (cont'd.)	pp. 332-360
3/8 3/10 3/12	Spring Break Spring Break Spring Break	Whatever you would like to read!
9 3/15 3/17 3/19	Phylum Annelida Phylum Arthropoda Phylum Arthropoda	pp. 363-378, 381-382, 403-418, 421-424, 427- 430, 430-438
10 3/22 3/24 3/26	Phylum Arthropoda Phylum Arthropoda Early Animal Development	pp. 442-451, 454-455, 162-166, 166-170
11 3/29 3/31 4/2	Phylum Echinodermata Phylum Echinodermata Phylum Chordata	pp. 472-490, 497-510
12 4/5 4/7 4/9	Subphylum Vertebrata - Fishes EXAM #3 Fishes - Muscles, Buoyancy, Counter-Current Exchange	pp. 515-533

Lecture Schedule (cont'd.)		
4/12 13 4/14 4/16	Subphylum Vertebrata - Amphibians Subphylum Vertebrata - Reptiles Subphylum Vertebrate - Birds	pp. 544-555, 564-583, 586-597
4/19 14 4/21 4/23	Birds, Evolution of Egg Physiology of Nitrogen Excretion Subphylum Vertebrata - Mammals	pp. 598-601, 175-178, 71- 72
4/26 15 4/28 4/30	Mammals - Key Characteristics Mammals - Reproductive Patterns, Diversity Open	pp. 613-623, 625-626, 626-630

FINAL EXAM:

Course section numbers 001 – 008 (the MWF 10:00 to 10:50 lecture):

Monday, May 3rd, 10:00 – 11:40 am

January 22: Last day to withdraw without receiving a grade

March 26: Last day to withdraw without permission of advisor and instructor

April 16: Last day to withdraw.

(See the Registrar's web site for final deadlines)

***** Note: If you withdraw from this course, be sure to do it officially. Do not simply stop coming to class and/or laboratories. *****

Laboratory Schedule - Subject to change.

Week Topic

- 1 Introductory material; Hypothesis testing; Use of microscope
- 2 Protozoans; Porifera **(Quiz 1)**
- 3 Electronic databases and library usage **(Quiz 2)**
- 4 Mitosis/meiosis; Cnidarians **(Quiz 3)**
- 5 Evolution of Paper Disks **(Quiz 4)**
- 6 “Wormy” things: Flatworms, nematodes, earthworms **(Quiz 5)**
- 7 Molluscs; Echinoderms **(Quiz 6)**
- 8 **Practical #1**
- 9 Spring Break
- 10 Arthropods
- 11 Arthropods, early chordates, fishes **(Quiz 7)**
- 12 Amphibians, reptiles **(Quiz 8)**
- 13 Birds **(Quiz 9)**
- 14 Mammals **(Quiz 10)**
- 15 Mammals, review **(Quiz 11)**
- 16 **Practical #2**