Biol 244 - Experimental Animal Physiology - Fall 2010

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Please visit the Moodle site for reserve reading and updates to this syllabus

Introduction:

This is a laboratory class that will introduce you to research strategies and methods of animal physiology. The general approach will be to first learn an experimental preparation and then to design experiments using that preparation. You will be encouraged to explore areas of interest in detail and to approach questions using your own strategies. The schedule below is tentative; if there is interest in pursuing one area more fully, we can modify the schedule accordingly.

Grading:

- 4 short reports: 15% each, 60% total. Five reports will be assigned, 4 must be completed and the best 4 will be counted towards your grade. See instructions on the resources sheet for details on how to write short reports.
- Oral presentations: 20%
    - Almost every week, we will convene an informal "lab meeting". We will discuss the assigned reading, present results from the last week's experiments, and think about future experimental design. Analyze the data for each experiment so that it can be presented in lab meeting the following week. Usually, this will mean doing the calculations and making a graph or table to show the class.
    - Please come prepared to contribute to these discussions.
    - Your grade for this portion will be based on how well prepared you are for these discussions and the quality of your participation.
    - You are also responsible for reading the assigned research articles for each week. We will often discuss these during the lab meeting.
- Lab performance, notebook, and safety: 20%
    - Safety
        - You are responsible for your own safety during laboratory classes. The most important safety rule is to think before acting. Wear protective devices whenever needed including eye protection, lab coats, and gloves. **Open toe sandals or flip-flops may not be worn in the lab**. If you have a question about a safety issue, stop the experiment and ask the instructor.
        - You are responsible for the equipment you use. Please leave the equipment in the same (or better!) condition than you found it. Clean all glassware and instruments thoroughly.
        - 1% of the total lab grade will be deducted for each safety or lab practice violation. These include (but are not limited to) leaving a mess, failing to label tubes, eating or drinking in the lab, mistreating experimental animals, and wearing improper footwear.

- Lab notebook
  - You will be required to maintain a hardbound laboratory notebook (available in the textbook section of the bookstore). For each experiment you perform, you should include:
    - the date and time and place
    - the purpose of the experiment
    - the protocol used - you may refer to the lab handout, but describe exactly what you did (it will differ) - draw pictures if needed.
    - the data as it is collected
    - analysis and calculations
    - display of the data in tables, graphs, figures, pictures - you may paste graphs and tables into your notebook
    - a summary of the findings, problems, suggestions for future work.
  - Your notebook should also include all other notes you take relevant to the class including notes on papers we read, on short pre-lab lectures, or on brainstorming sessions with your partner. I expect that much of your lab notebook will be produced in class and your grade will be improved by creating a detailed notebook in class.
  - Before leaving lab, each group must meet with me to describe their progress and show me their notebooks. I will provide feedback and mark each notebook to indicate I have reviewed it.

Standards for submitted work: Work submitted in this class must conform to the following basic standards or it will be returned for revision without a grade.

- Assignments with multiple pages must be stapled.
- Assignments with multiple pages must be paginated.
- Assignments must include a list of references cited in a proper format unless no references were used.
- Assignments must be typed (word-processed).
- Assignments must be proofread for spelling and grammatical errors.

Attendance and deadlines: Attendance is mandatory and you will receive a zero for any lab period that is missed. Laboratory exercises can not be made up. If you know that you will miss a Tuesday afternoon lab session (i.e. because of sporting events), see me as soon as possible but no later than Sept 4th. Work in this class that is handed in late will be penalized 1/3 grade per day. For example, a B+ will become a B.

Academic honesty: This class will follow the official Kenyon College position on academic honesty. You may work with your lab partners to analyze data and make figures. However, all writing should be done individually. Be sure to cite any help you receive in an acknowledgements section - from the instructor, TA, lab partners, or anyone else.

Students with special needs: Students with disabilities who will be taking this course and may need disability related academic accommodations are encouraged to make an appointment to see me as soon as possible to discuss your learning needs. Also, you are required to register for support services with the Office of Disability Services in the Old Bank Building. Please contact Erin Salva at 5453 or e-mail salvae@kenyon.edu.

Schedule:

Week			
1	9/1	Experimental design in physiology	
2	9/8	A. Scaling in fiddler crabs	
3	9/15	B. Respirometry - Effect of size	Data analysis for 9/8. Hand in one complete graph.
4	9/22	B. Respirometry- Effect of temperature	Data analysis for 9/15
5	9/29	C. Body water volume - fiddlers, etc.	Lab report B due
6	10/6	C. Blood volume – crayfish	Data analysis for 9/29
7	10/13	C. Osmoregulation	Data analysis for 10/6
8	10/20	D. Whole animal ion transport - crayfish	Lab report C due
9	10/27	D. Whole animal ion transport - crayfish	Data analysis for 10/20
10	11/3	E. Crayfish ion pumps	Lab report D due
11	11/10	E. Crayfish ion pumps	Data analysis 11/3
12	11/17	Presentations	Lab report E due
	11/24	Thanksgiving	
13	12/1	F. Clam heart	
14	12/8	F. Clam heart	Data analysis 12/1
			Lab report F due 12/15