BSC 422 Animal Physiology
Fall 2014

Course description: Comparative concepts of animal physiology, including physiological control mechanisms operating at cellular, tissue, organ, and systems levels in invertebrates and vertebrates. 4-credits
(Prerequisite: BSC 121 and CHM with grade of C or better, one 300-level BSC core course)

Instructor: Jeff Kovatch, PhD **Office**: S-122A
Phone: 304-696-3829 **email:** kovatch@marshall.edu
Office Hours: Open hours Mon. 1:30-4:50 and Tues 8:30-11:00
An appointment is required if you want to meet outside of open office hours.

Lecture: 374 Science Building **Times:** T & Th 11-12:15
Lab: 387 Science Building **Times:** M 9-11:50

Text: *Animal Physiology: From Genes to Organisms*, 2nd Edition, 2013, Sherwood *et al.*, Brooks/Cole Cengage

Grading: Letter grades will be assigned as follows:
A = 90 - 100% B = 80–89% C = 70–79% D = 60–69% F = <60%

Proportional point allocation for the course:	
Short Exams (4)	40 %
Cumulative Final Exam	10 %
Lab reports	40%
Participation	10%

I do not offer extra credit assignments.

Lecture exams: There will be four exams. Each exam will be worth 10% of the total course grade. Material on examinations can include information from lectures, assigned readings, and laboratory exercises. Please notify me in advance if you know you will miss an exam (see Attendance Policy below). The final exam will be cumulative and will be worth 10% of the total grade. You may elect not to take the final exam and instead use the mean of the previous four exams as your final exam score. If you choose this option, you must notify in writing two days prior to the final exam.

Labs: Your laboratory performance will contribute 40% of your total course grade. This will be determined from laboratory data analyses and submitted lab reports. All lab reports are to be handed in, in printed paper form, at the beginning of the lab on which they are due to considered on time. Late reports will be penalized. I do not accept electronically submitted reports. Details about what will be required for each lab report will be given at the time of each laboratory experiment.

Participation: It is expected that students come prepared to class ready to learn and to discuss what they have read. Failure to be prepared for class, at the instructor's discretion, can lead to dismissal from the class and/or will affect the participation grade. Students should bring intelligent and well thought out questions about the reading material to class for discussion. Students can expect to be called on to verbally participate in this course. Unexcused absences from class will affect your grade.

University and Course Policies:

1. UNIVERSITY POLICIES: By enrolling in this course, you agree to the Marshall University Policies (listed in the link below). Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802 for Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment.
2. ATTENDANCE POLICY*:* Attendance in lectures is expected and is required for laboratory exercises. Students are responsible for all activities and announcements that occur during lecture and lab. Students are responsible for any material missed. Missed information should be obtained from classmates. Missed lectures will influence your participation grade.

Absences and from exams or labs due to illness, death in the family, or institutional activities will be excused ***only*** with an official university excuse from the MU Student Affairs Office (MSC 2W38). Make-up exams will only be administered for excused absences. Missed labs may not be able to be made up given the nature of the course and the labs. The instructor must be notified within 10 days of the missed exam in order to be eligible for a make-up exam (see Policy 1).

Students are expected to be on time for lectures, labs, and exams. Arrival for an exam after the first person has handed in their exam will result in you not being allowed to take the exam. Late arrival to the lab may result in you not being allowed to participate in the lab at the instructor's discretion.

3. COMPUTER LITERACY: Course materials and course announcements are located on MUOnline (http://www.marshall.edu/muonline). Notify me within the first week of class if you cannot access these.

4. STUDENTS RESPONSIBLY: *Students are responsible for reading the appropriate material from the textbook, posted readings, and lab handouts prior to the lecture or lab meeting*.

Students are required to stay on task during the lecture and laboratory exercises. Students may be asked to work in groups during class time and as part of following protocols in lab.

Communications from the instructor may come via your Marshall E-mail account, MUOnline and/or lecture. It is your responsibility to check both your Marshall email account and MUOnline announcements regularly.

Electronic communications to the instructor must have BSC 422 in the subject line, include your full name and lab section in the message, and be written formally.

5. RECORDS: *Grades will not be given or discussed over the phone or e-mail.* You must be present during lecture or lab to collect graded exams, quizzes, and lab reports. Students should keep all returned exams score sheets and lab reports so that their relative standing in the course can be known at any time. All grades appeals must be done formally in writing and with 10 calendar days of the returning of the graded item to the student.

6. ELECTRONIC DEVICES: Only electronic devices (laptops or calculators) actively being used in the course are permissible. All other electronic devices must be turned off or silence and put away during class and lab. *Failure to do so may result in your dismissal from that lecture period or laboratory exercise.* Only standard calculators will be permitted during examinations; cell phones, handheld computers, PDA's, laptops, or the like will not be permitted. Do not come to exams unprepared. Audio or video recording of lectures is not permitted without prior consent of Dr. Kovatch.

Student Learning Outcomes: BSC 228

Course Outcomes	Opportunities to Practice Course Outcome	Course Outcome Assessment(s)
Articulate and describe the concepts of animal physiology at multiple levels of organization	In-class discussions, laboratory experiments, and reading of primary literature	Examinations
Discuss and use the scientific approach to solve problems within the field of physiology	In-class discussions, laboratory experiments, and reading of primary literature	Examinations and laboratory reports
Read, analyze, and interpret data, figures, tables and associated statistics conveying scientific information	In-class discussions, laboratory exercises and experiments, and reading of primary literature	Examinations and laboratory reports
Collect, interpret, present and discuss physiological data	Laboratory experiments	Laboratory reports

Tentative Course Schedule **BSC 422/522 Fall 2014**

Date	Topic	Text Readings
8/26	The animal's environment	1
8/28-9/2	Thermodynamics and cellular metabolism	2
9/4-9	Animal energetics	15
9/11	No lecture	15
9/16-28	Temperature	15
9/23-25	N Membrane Physiology	3
9/30	Neural Physiology	4
10/2-7	Sensory Physiology	6
10/9-14	Nervous Systems	5
10/16	Cellular Movement	8
10/21	Organismal Movement	8
10/23	Endocrinology	7
10/28-30	Respiration	11
11/4-6	Circulation	9
11/11	Blood and Gas Transport	11 & 9
11/13-18	Water and Solute Balance	13
11/20	Excretion	12
12/2-4	Digestion	14
12/11	Final Exam, 10:15-12:15	

Tentative Laboratory Schedule

Week	Date	Topic	Submission	Points
1	8/25	Course Intro		
2	9/1	Labor Day	no lab	
3	9/8	Statistics lab and Biopac tutorial	write up with figures	50
4	9/15	RBC osmoregulation alb	write up with figures	25
5	9/22	Butterfly optimal foraging lab	write up with figures	
6	9/29	Goldfish Q10 Lab	write up with figures	50
7	10/6	Goldfish Q10 Lab	repeat experiment	50
8	10/13	Biopac 3 & 4	write up with figures	50
9	10/20	Biopac X	write up with figures	50
10	10/27	Biopac 1, 2 and 11	write up with figures	50
11	11/3	Build respirometer		
12	11/10	Metabolic Scaling Lab	write up with figures	50
13	11/17	Urinalysis lab	write up with figures	25
14	12/1	grad presentations (6 @ 15 min each)		
			Total	400