

**BSC 422 – Animal Physiology – Syllabus**  
**Spring 2017 - Department of Biological Sciences - Marshall University**

<b>Course Title/Number</b>	Animal Physiology / BSC 422
<b>Semester/Year</b>	Spring 2017
<b>Days/Time</b>	Tuesdays and Thursdays 8:00 – 9:15 am
<b>Location</b>	S-376
<b>Instructor</b>	Dr. Nadja Spitzer
<b>Office</b>	315 Science Building, inside S-311A
<b>Phone</b>	304-696-7147
<b>E-Mail</b>	<a href="mailto:spitzern@marshall.edu">spitzern@marshall.edu</a>
<b>Office Hours</b>	Tuesday & Thursday 9:30am – 11:30am, or by appointment. *I make every effort to keep scheduled office hours. Please note that conflicts requiring my absence may arise.
<b>University Policies</b>	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to <a href="http://www.marshall.edu/academic-affairs">www.marshall.edu/academic-affairs</a> and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <a href="http://www.marshall.edu/academic-affairs/policies/">www.marshall.edu/academic-affairs/policies/</a> . 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

**Course Description:**

Physiological principles operating in cells, organs, and systems of animals, with a focus on vertebrate, including human, function. 4 credit hours. Prerequisite: Grade with C or better in: BSC322; CHM355; MTH140 or 132 or 229; or permission.

Animal physiology is the study of how animals function to maintain life. This course builds upon what you learned in introductory biology and chemistry to integrate molecular, cellular, and systems functions into an understanding of physiological function in animals ranging from sponges to large mammals. While we will do some superficial review in this course, I expect that you have learned basic chemistry and cell biology well, and that you remember it. This is a 400-level course and I expect you to do much more than memorize and regurgitate information. You will be expected to not only to understand the concepts you learn, but to be able to apply them to novel questions and to integrate complex mechanisms.

**The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.**

<b>Course student learning outcomes</b>	<b>How students will practice each outcome in this course</b>	<b>How student achievement of each outcome will be assessed in this course</b>
Students will describe physiological processes at the level of cells, organs, systems, and organism.	Discussion in lectures, textbook readings, weekly laboratory activities.	Weekly online and in-lecture quizzes. Exam questions. Laboratory assignments.
Students will apply physiological concepts to novel situations.	Discussion in lectures, textbook readings, weekly laboratory activities.	Weekly online and in-lecture quizzes. Exam questions. Laboratory assignments.
Students will compare physiological processes in animals with different life histories and needs.	Discussion in lectures, online practice with LearnSmart on Connect, textbook readings, weekly laboratory activities.	Weekly online and in-lecture quizzes. Exam questions. Laboratory assignments.
Students will infer how an animal as a whole functions based on knowledge from different parts of the course.	Discussion in lectures, textbook readings, weekly laboratory activities.	Weekly online and in-lecture quizzes. Exam questions. Laboratory assignments.
Students will form	Discussion in lectures,	Weekly online and in-lecture quizzes. Exam

conclusions based on critical evaluation of information and data.	textbook readings, weekly laboratory activities.	questions. Laboratory assignments.
Students will perform well-designed experiments and write concise scientific reports.	Weekly laboratory activities.	Laboratory quizzes and assignments.

**Required Texts, Additional Reading, and Other Materials**

**Animal Physiology 4<sup>th</sup> edition.** Hill, Wyse, Anderson; Sinauer (**required**)

NOTE: online materials associated with the textbook are not required

**You will require a lab notebook; a spiral notebook or composition book will be fine.**

**Turning Technologies Response Card** NXT or better (required). You **MUST** bring your clicker to every lecture. **Penalties for not having clicker:** a score of zero on a quiz, 25% penalty on an exam.

**Computer Requirements:** Access to MUOnline is required. I use MUOnline to distribute slides from my lectures, supplementary material or exercises, study aids and additional material you may find interesting. I do not post lecture notes or study guides. I may send messages to your Marshall email account, you are expected to check it regularly. Any electronic course communication must be from your Marshall email account (not gmail, yahoo, MUOnline, etc). Do not email me inside MUOnline; always use the address above. In most cases, I will reply to messages within 2 business days. If you enter into an email conversation with me, I expect you to check for answers and reply promptly.

**Course Requirements/Due Dates**

Written exams (dates in schedule below) and quizzes are a necessary means of evaluating how well students have met my expectations. The preliminary and final exams will be a mixture of multiple choice, fill in the blanks, matching, true false, and short and long answer. Exam questions will be written so as to test your preparation at every level, from memorization of facts to application of conceptual knowledge. I expect that you will be prepared to answer questions in the lecture, and with this in mind short announced or unannounced quizzes will be given. Regular online quizzes will also be given throughout the semester through MUOnline. These quizzes should benefit your final scores as they help you to develop good study skills by keeping up with the material in the lecture and laboratory.

Reports written in the laboratory will give you the opportunity to apply knowledge in a more practical situation. They will cover similar material as the lectures, and will emphasize your ability to integrate and concisely express facts, principles, and concepts. Laboratory reports and assignments will be submitted electronically via MUOnline. You will receive detailed grading rubrics for lab reports and instructions about how to write these reports. The final laboratory grade is calculated based on lab reports, assignments, quizzes, and final presentations; this is detailed in a separate lab syllabus that you will receive during your first session.

**Grading Policy**

Your grade will be based on your scores on a number of short unscheduled quizzes in the lecture and/or through MUOnline, two preliminary lecture exams, the final lecture exam, and the reports and quizzes you will write in the laboratory. All exams are cumulative. The final grade for the course is calculated as follows:

Lecture & Online Quizzes:	10%
Preliminary Exam 1:	20%
Preliminary Exam 2:	20%
Lecture Final Exam:	25%
Laboratory:	25%
Total:	100%

Final grades are determined using this scale: 100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; <59 = F. I round up if your score is X.5 to X.9. I do not give bonus points or extra credit.

Calculating grades requires basic algebra that you should be able to do, considering the prerequisites for this course. Every score you earn on quizzes and exams will be posted on MuOnline so that you can calculate your current grade at any time. I will not calculate grades for you throughout the semester. If you need a refresher, the math tutoring center should be able to help you, or you are welcome at my office hours for help. There are also many online resources to help you with this skill.

### **Attendance Policy**

I do not take attendance in the lectures. You will find, however, that you will quickly fall behind and get lost if you do not attend. In addition, quizzes will frequently be given during lectures. Missed quizzes can not be made up. The two lowest lecture quiz grades will be dropped when the final course grades are calculated. Missed exams can be made up only in the case of an excused absence issued by myself, Student Affairs, or a weather related closure. It is your responsibility to be familiar with University Class Attendance Policy, which can be found in the 2016-2017 Undergraduate Catalog or at this web address: [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/) If you miss a preliminary exam without an excused absence from Student Affairs, you must apply to me for an excused absence as soon as possible.

In case of an excused absence for an exam, you must contact me as soon as possible to arrange for a make up exam, and the exam must be taken on the FIRST DAY that your approval expires. In case of absence for a sporting event or other University sanctioned activity, arrangements to make up the exam must be made BEFORE the day of the exam. Failure to follow either of these policies will result in you being considered absent without excuse for the exam. Any make up exam may be, at my discretion, completely long answer or oral format.

**In case of university closure on an exam day, the exam will be rescheduled to the next lecture session.**

Attendance WILL be taken in the laboratories. Labs run only once a week, therefore, **if you miss a lab, you miss those points.** If you have an excused absence issued by Student Affairs or me, you may be permitted to obtain the lab data from your group members and complete the assignment. **An excused absence does not excuse you from completing the associated assignment by the due date.** Missed lab quizzes cannot be made up, but they will not be counted if the absence is excused. You must contact me as soon as you know you will be missing a lab to request an excused absence.

If absences, excused or not, result in a significant proportion of total classwork missed, you will receive a recommendation for withdrawal from the course.

### **Personal Conduct**

I will expect everyone in the labs and lectures to act in a professional and courteous manner. Disruptive, abusive, or offensive behavior directed at anyone involved in the class will not be tolerated, and offenders may be asked to leave the classroom and forfeit any associated grades. Cell phones and other communication devices should be turned off or set to silent ring. If you absolutely must answer a phone call, quietly leave the class before doing so. Text messaging is not allowed. Use of computers or personal electronic devices is not allowed, unless their use is directly involved with class activities **and** has been approved by me. If you are late, enter quietly and avoid disturbing the class. Any disruptive behavior, including but not limited to talking, reading other material in class, texting, or cell phone use, will result in the offender being required to leave the class and forfeiture of any associated grades. Finally, I only respond to emails that are written with professionalism and courtesy.

### **Academic Honesty**

I take honesty and integrity seriously, and will not tolerate any form of dishonest conduct. You are responsible for knowing the University's policies, which can be found in the student handbook or at this web address: [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/)

During exams, I will expect you to NOT look at the work of those sitting around you, or have any form of course related material or electronic devices either on or in view. In the lab, most experiments will be done in groups, but I expect that all assignments will be written up independently. Exceptions to independent work will only be allowed in cases where you are expressly instructed to write up your assignment in groups. I also expect that all references used in your reports be properly cited. Any incidence of dishonest conduct will result

in a grade of ZERO for that test, quiz, or assignment, and possible failure or dismissal from the course. Every case will also be referred to Academic Affairs for further action. I do not allow for-profit note-taking in my classes.

**An important note on plagiarism:** Plagiarism is any use, whether intentional or not, of another person's words in your assignments. This includes the use of quotes to indicate borrowed words - using quotes is not done in scientific writing and is not allowed in this class. I am interested in how you can express your thoughts, not that you can copy someone else's. Safeassign, a plagiarism detection tool, will be used in this class. Students taking this class must agree to submit their written work to Safeassign for review.

### **General Learning Concepts**

I use the textbook to organize my lectures, but I do bring in additional ideas and I will emphasize different topics. Occasionally I may argue points with the textbook. Everything presented in lectures and reading assignments is examinable.

During the lectures, you will have to fill in a lot of information that is not printed on the slides. Therefore, by preparing yourself in advance for the lectures, you will place yourself in a much better position to succeed. Furthermore, attendance is critical, as material in this course builds upon itself and it can be very easy to fall behind. The lecture slides posted at MuOnline are not sufficient to achieve a passing grade in this course.

### **Study Habits**

This course will cover a great deal of material, and the exams will be comprehensive both in the scope of material covered and in the ways in which you will be asked to demonstrate how well you have learned the material. Cramming and memorizing from lecture handouts just before an exam tends not to result in good exam scores, so you will want to develop good study habits. Among these are coming to class prepared, and taking good notes. Study often; it is best to review material at least weekly, and to rewrite your notes. Ask questions in class. Use the textbook to help fill in gaps in your understanding. Self-test frequently and seek help from me early.

Find study habits that work for you. There are a few general rules (avoid distractions and stress, don't leave it to the last second), but aside from this different people respond very differently to different environments. Use this web page to read about different learning styles, and take the quiz to find out which ones might work best: <http://www.learning-styles-online.com/overview/>. There are also some good pointers at the following website: <http://www.cod.edu/people/faculty/fancher/STUDY.HTM>

### **Social Justice**

Absolutely NO student will be discriminated against based on race, ethnicity, sex, age, sexual orientation, social class, health condition, or religion. Every student is an integral and essential member of this class, and their opinions and discussion will be treated with value and respect.

### **Students with Disabilities**

Marshall University is committed to equal opportunity in education for all students, including those with physical, learning, and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304-696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 117, phone 304-696-2271.

## Tentative Lecture Schedule\*

<b>Week#</b>	<b>Starting</b>	<b>General Lecture Topics</b>	<b>Readings (Hill 4<sup>th</sup> ed)</b>
1	1/9	Animals and Environments, Principles of Physiology Molecules and Cells in Animal Physiology	Chapter 1 Chapter 2
2	1/16	Genomics and Proteomics. Development and Epigenetics. Transport of Solutes and Water.	Chapters 3&4 Chapter 5
3	1/23	Nutrition, Feeding, Digestion Energy Metabolism, Aerobic and Anaerobic Metabolism	Chapter 6 Chapter 7&8
4	1/30	Energetics, Thermal Relations Neurons	Chapter 9&10 Chapter 12
5	2/6	Synapses Catch up, apply, review	Chapter 13
6	2/13	<b>Exam I - February 14</b> Sensory Processes	Chapter 14
7	2/20	Nervous System Organization and Biological Clocks Control of Movement	Chapter 15 Chapter 19
8	2/27	Muscle Oxygen and Carbon Dioxide Physiology	Chapter 20 Chapter 22
9	3/6	External Respiration Transport of Oxygen and Carbon Dioxide	Chapter 23 Chapter 24
	3/13	Circulation Water and Salt Physiology Mechanisms	Chapter 25 Chapter 27
10	3/20	<b>Spring Break – no classes this week</b>	
11	3/27	Water and Salt Physiology of Animals in their Environments Catch up, apply, review	Chapter 28
12	4/3	<b>Exam II – April 4</b> Kidneys and Excretion	Chapter 29
13	4/10	Endocrine and Neuroendocrine Physiology Reproduction	Chapter 16 Chapter 17
14	4/17	Defense Mechanisms Integrated Physiology at Work	
15	4/24	522 Presentations Catch up, apply, review	

**Final Exam (cumulative):** Thursday, May 4 – 8:00AM-10:00AM in S-376

**\* Subject to change – we may start specific topics earlier or later than outlined here, depending on how things progress through the term. Exam Dates will not change except in cases of University Closure.**