

Animal Physiology (Bi 482)

Fall 2013 Syllabus

Lecture: TR 8:00 to 9:15 a.m.; W206

Lab: F 2:00 to 5:00; W202

Instructor: Dr. Virginia Winder

Office: Westerman Hall, Room 212

Phone: (913) 360-7281

Email: vwinder@benedictine.edu

Office Hrs: M 12:00 to 1:00 p.m., W 2:00 to 3:00 p.m., or by appointment

The best way to reach me is by e-mail, but feel free to talk with me after class or phone me at my office. If you are having problems in class, please see me ASAP. I will do everything I can to help you, but don't wait until mid-semester or immediately before exams to contact me.

COURSE DESCRIPTION

Physiology is an integrative discipline that explores how living organisms function at the molecular, cellular, and organismal levels. In this course we will study physiological mechanisms of animals and put this information in the context of adaptation and evolution. The course will cover the following general topics:

- 1) Basic principles of physiology
- 2) Neurophysiology
- 3) Muscle physiology
- 4) Cardiorespiratory physiology
- 5) Osmoregulation
- 6) Endocrinology
- 7) Reproduction
- 8) Digestion and nutrition
- 9) Energetics
- 10) Thermal physiology

STUDENT LEARNING GOALS

- 1) Students will demonstrate the ability to apply the techniques of the scientific methods (SM2)
- 2) Students will produce an example(s) of effective visual communication (VC1)
- 3) Students can communicate effectively through expository writing (WC1)

STUDENT LEARNING OBJECTIVES

- 1) Students will demonstrate a fundamental understanding of physiological processes in animals, and how they are integrated at the molecular, cellular and organismal levels.
- 2) Students will demonstrate an ability to compare physiological processes across the animal kingdom.
- 3) Students will demonstrate an understanding of specialized adaptations that certain animals have evolved to meet their respective physiological needs and environmental constraints.
- 4) Students will demonstrate an understanding of how physiological systems and processes are controlled, and how they vary according to the conditions experienced by an animal.

TEACHING METHODS

I will use a variety of teaching methods during this course, including but not limited to: lecture, lecture-discussion, dialogue, lecture-small group discussion and student centered in addition to the laboratory aspect of this course.

COURSE MATERIALS

Blackboard (<http://eclassroom.benedictine.edu/>) will be used for electronic posting of course announcements, assignments, lecture slides and other materials.

Text Book: Hill, R.W., Wyse, G.A., and Anderson, M. 2012. *Animal Physiology* 3rd Edition, Sinauer Associates, Inc., Sunderland, MA.

EXAMS, QUIZZES, AND GRADING

Your grade will be determined by your performance on exams, assignments, and lab work. Exams will be multi-formatted (true/false, multiple choice, fill in the blank, short essay, etc.). Regrades must be requested within one week after the exams have been graded and handed back. All regrades are subject to having the ENTIRE test regraded at my discretion.

EXAMS (4 X 80 pts)	(53%)	320 pts
Individual Project	(13%)	80 pts
Lab	(25%)	150 pts
Participation/Quizzes	(8%)	<u>50 pts</u>
Total		600 pts

<i>Final letter grade:</i>	A	90 – 100%
	B	80 – 89%
	C	70 – 79%
	D	60 – 69%
	F	≤ 59%

If illness or other serious problems beyond your control prevent you from taking an exam, you are expected to provide some kind of verification of the reason, such as a note from Student Health Services. **Make-up exams (upon verified excused absence) will consist of essay and short-answer questions. You must contact me no later than one day after the regular exam** with a valid excuse to be accorded the privilege of taking a make-up exam.

I may give the entire class an opportunity to earn “extra credit” from time to time. This can be through in-class quizzes, assignments or any other means I feel. **However, there’s no such thing as “extra credit” on an individual basis.**

CHEATING

(College Policy) “Benedictine College endorses the principle of academic honesty. Any academic dishonesty is contradictory to the purposes and welfare of both the student and the college. Academic misconduct includes, but is not limited to, cheating on examinations; plagiarizing; failing to properly document sources both intentionally or unintentionally; turning in work prepared by another person, falsifying data and documents, or gaining or giving unauthorized access to assessment materials. Verified instances of academic dishonesty will result in an ‘F’ or a zero grade for the assignment, exam, or project connected to the academic misconduct and will be reported by the instructor to the Associate Dean of the College who will then report to the student’s advisor. Additionally, depending on the magnitude of the academic dishonesty, the student may receive a failing grade for the course and the student may be suspended or be subject to dismissal from the college.”

A high standard of conduct is expected of all students. It is assumed that obedience to the law, respect for properly constituted authority, personal honor, integrity, and common sense will guide the actions of each member of this class. Any student who fails to perform to expected standards will be withdrawn from the class.

ALL electronic devices (cell phones, text messaging devices, music devices, etc) must be turned off or in silent mode (no vibrating) during all lectures, discussions, lab periods, and exams. If I see these devices being used, you will be asked to leave the room and will lose your points for that day's participation, quiz, assignment, etc. Having a cell phone out and in use during an exam will be considered academic dishonesty and the student will receive a zero for the exam. If you have special need of receiving or making a personal call that cannot be rescheduled outside of class time, please see me before class to make arrangements to do so without disturbing the class. If in doubt, don't bring these devices to class!

ATTENDANCE

Any student enrolled in courses numbered under 300 who is absent more than two times the number of weekly meetings assigned to a course may be withdrawn by his or her instructor. A grade of 'F' will be recorded if this occurs after the official withdrawal period.

ADDITIONAL ACADEMIC SUPPORT: Any student in this course who has a disability should inform us as soon as possible. The student must declare disability and request related services by promptly submitting a completed Accommodations Request Form, as well as necessary documentation, to the campus Academic Assistance Coordinator (Camille Osborn, phone: 360-7517). All arrangements for implementing approved accommodations are collaborative, involving the student, the Academic Assistance Coordinator, and the instructor.

In addition, tutoring services are available to all students free-of-charge through the Student Success Center. The Center is located on the main floor of the Library.

Students should refer to the Benedictine College Course Catalog for all college-wide regulations.

LATE WORK POLICY

Grades for late work will be reduced by one letter grade (10% of total available points) for each day past the due date.

HOW TO SUCCEED IN THIS CLASS

If you would like to do well in this class, I suggest the following:

- 1) Attend class and take good, detailed notes.
- 2) Take advantage of the resources available on Blackboard.
- 3) Read chapters before class and review notes soon after class. I advise reviewing notes at least once a week. We cover A LOT of material, and frequent review of material will help you at exam time.
- 4) Ask questions during class and take advantage of office hours. If you are having difficulty with the lecture material, please come see me sooner (i.e. early in semester) rather than later (i.e. after you have performed poorly on 2 or 3 exams).
- 5) Do not wait until the day before an exam to start studying for that exam!

LECTURE SCHEDULE

Course content and schedule may deviate from this outline

GENERAL TOPIC	WEEK	DAY	DATE	SPECIFIC TOPIC	READINGS
Basic principles of physiology	1	R	29-Aug	Introduction; Molecules & cells	Ch. 1 & 2
	2	T	3-Sep	Membrane proteins & epithelia; Passive & active transport (All school Mass)	Ch. 2 & 5
Neurophysiology		R	5-Sep	Nervous system; electrical properties of neurons	Ch. 12 & 15
	3	T	10-Sep	Membrane potential; action potential	Ch. 12
		R	12-Sep	Synapses & sensory receptors	Ch. 13 & 14
	4	T	17-Sep	EXAM I	--
Muscle physiology		R	19-Sep	Muscle structure, function & fiber types	Ch. 20 & 21
Cardiorespiratory physiology	5	T	24-Sep	Respiratory physiology	Ch. 22 & 23
		R	26-Sep	Gas transport	Ch. 24
	6	T	1-Oct	Cardiovascular system	Ch. 25
		R	3-Oct	Diving physiology	Ch. 26
	7	T	8-Oct	EXAM II	--
		R	10-Oct	NO CLASS -> CONFERENCE	--
Osmoregulation	8	T	15-Oct	Body fluid regulation	Ch. 27
		R	17-Oct	Osmoregulation	Ch. 28
	9	T	22-Oct	Kidney structure & function	Ch. 29
		R	24-Oct	NO CLASS -> FALL BREAK	--
	10	T	29-Oct	Kidney structure & function	Ch. 29
Endocrinology		R	31-Oct	Endocrine physiology	Ch. 16
Reproduction	11	T	5-Nov	Reproduction	Ch. 17
		R	7-Nov	EXAM III	--
Digestion & nutrition	12	T	12-Nov	Digestion & nutrition	Ch. 6
Energetics		R	14-Nov	Energetics	Ch. 7
	13	T	19-Nov	Factors affecting metabolism	Ch. 7
		R	21-Nov	Metabolic pathways	Ch. 8
	14	T	26-Nov	Activity energetics	Ch. 9
		R	28-Nov	NO CLASS -> THANKSGIVING BREAK	--
Thermal physiology	15	T	3-Dec	Thermoregulation, Part I	Ch. 10
		R	5-Dec	Thermoregulation, Part II	Ch. 10
	16	T	10-Dec	Review for final exam	--
		R	12-Dec	FINAL EXAM (1:30-3:20 p.m.)	--

Lab Schedule

WEEK	DATE	TOPIC
1	30-Aug	NO LAB -> FIRST WEEK
2	6-Sep	Diffusion – water vapor conductance in avian eggs, part I
3	13-Sep	Diffusion – water vapor conductance in avian eggs, part II
4	20-Sep	Respiration in avian eggs I
5	27-Sep	Respiration in avian eggs II
6	4-Oct	Respiration in avian eggs III
7	11-Oct	NO LAB -> CONFERENCE; Work on individual project research
8	18-Oct	Cardiovascular physiology - EKG
9	25-Oct	NO LAB -> FALL BREAK
10	1-Nov	Bovine heart, lungs, kidney, digestive organs
11	8-Nov	Metabolism
12	15-Nov	Digestion
13	22-Nov	Work on individual projects
14	29-Nov	NO LAB -> THANKSGIVING BREAK
15	6-Dec	Present individual projects