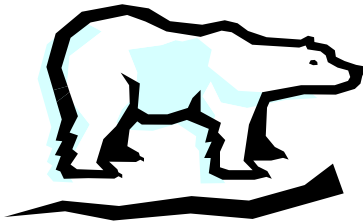


Course Syllabus

Biology 260

Organismal Biology

Spring Semester, 2008



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Department of Biology
Hope College

BIOL 260 Syllabus

Biology 260 - Organismal Biology

Overview

1. **Pre-requisite.** Biology 260, Organismal Biology is one of three introductory courses in biology. Students who are enrolled in Organismal Biology should have taken BIOL 240, Cells and Genetics, prior to enrolling in this course.
2. A **primary purpose** of this course is to help you understand how animals and plants function at the organismal level. This will involve understanding activities at the molecular, cellular, and tissue levels that are coordinated into systems that allow plants and animals to survive and reproduce. In addition, this course is designed to help you learn about the diversity of plants and animals that share planet Earth with us.
3. **Format.** We will meet three times a week to learn about biology. The basic format of the class meeting will be the sharing of information. Usually the instructor will provide an overview of the most important aspects of the topic under discussion (i.e. lecture). At other times you will share information with other students and the instructor. In addition, there will be a variety of other activities in class to help everyone learn and think about biology. In addition to the 3 lectures per week, there is also a Discussion section. Attendance in the discussion section is not required, but will help aide students in understanding laboratory and lecture assignments.

Class Times

Section 260-01	MWF	9:30 – 10:20 a.m.	Science Center 1000
Section 260-02	MWF	11:00 – 11:50 a.m.	Science Center 1000

Instructors & Course Coordinators

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Course Objectives

The instructors' objectives for you as part of the lecture component of this course include:

1. Increasing the size and complexity of your biological vocabulary.
2. Expanding your knowledge about the principles of plant and animal anatomy, physiology, and development.
3. Increasing your knowledge about selected details of plant and animal anatomy, physiology, diversity, and development to give you a better appreciation for the wonder and complexity of the biological world.
4. Increasing your ability to understand and manipulate quantitative information about biology,

BIOL 260 Syllabus

- including correct manipulation of data, understanding graphs, and presenting data and relationships in graphic form.
5. Increasing your ability to combine ideas and information from a variety of sources.
 6. Increasing your ability to integrate new knowledge about biology with previously learned knowledge.
 7. Giving you further experience in correctly answering multiple-choice questions.
 8. Giving you further experience in demonstrating your knowledge and critical thinking skills about biology in written form.
 9. Improving your ability to critically analyze information about biology gathered from newspapers, magazines, radio, television and the World Wide Web.
 10. Preparing you to make informed decision about the ethical issues related to research with plants and animals, including humans.
 11. Educate you to successfully complete the GRE/MCAT exams.
 12. Preparing you for further study in biology or life sciences.
 13. Improving your ability to work, communicate and learn with others.

To Do Your Best

Certain activities/attitudes can help you do your best in Biology 260. These include:

1. Reading the textbook assignment before coming to class.
2. Attending every class session.
3. Arriving on time for every class session and not leaving or preparing to leave until the instructor indicates the class session is over.
4. Being awake and alert during class.
5. Participating in class by answering questions asked by the instructor, contributing to group work, and taking accurate and complete notes.
6. Asking questions about the biological topics. Questions should be asked to your instructors before class, during and after class, and during formal or informal meetings with the instructors. You should also feel free ask other students and biology staff, in particular your lab instructor and teaching assistant, questions.
7. Rereading and studying the textbook after each class session.
8. Answering the questions assigned from the textbook.
9. Obtaining notes from several classmates if you miss a class.
10. Attending review sessions.
11. Beginning intense studying for each exam several days in advance of the exam.
12. Practicing taking exams by writing questions for yourself or getting together with other students and quizzing each other (without giving hints as to the answers).
13. Taking personal responsibility for your performance in the course.
14. Seeking help with any aspect of the course as soon as you need it. Your instructors want you to do well in this course so please feel free to see them if you are having any problems at all with the course. You can also seek help from the Academic Skills Center. **Do not wait until you have done poorly on two or three exams before seeking help.**

Required Texts and Manuals

The books and materials required for Biology 260 are:

BIOL 260 Syllabus

1. *Biology*, 1st Edition, by Brooker *et al.* This is the same textbook you used in Biology 240.
2. *Organismal Biology Laboratory Manual* by the Hope College Biology Department
3. Student Lab Notebook
4. Student Lecture Notes

The **texts and a coupon** for the *Laboratory Manual* and *Lecture Notes* are available in the Hope-Geneva Bookstore. Each student should have his or her own copy of the books. The class schedule that follows contains the reading assignment for each class session. Please note that in comparison to Biology 240 there is quite a bit more reading for Biology 260, so you will need to be very deliberate about doing the reading and will need to schedule more time for reading than you did for Biology 240. Before each class session you should read through the assigned pages so you will be better prepared to maximize your learning during class. After the class session you should carefully reread the assignment, make any notes from the text material you feel would be appropriate, and answer the questions at the back of the assigned chapter. The questions and your answers will be an important tool for studying for exams.

Evaluation

You will have the opportunity to earn up to 1000 points with 400 points coming from laboratory work and 600 points coming from lecture work.

There are five ways for you to earn points:

#	Category	Points
1.	Laboratory work	400
2.	Lecture exams (4 exams @ 100 points each)	400
3.	Lecture assignments	170
4.	Seminar attendance	30

Number 1 – Laboratory work (400 pts total). You can earn up to 400 points from your laboratory work. The breakdown of these points is given in your laboratory manual.

Number 2 – Four 1-hour exams (400 pts total @ 100 pts each). The exams will consist of multiple-choice questions.

- The exams will cover a) the material covered in class, b) assignments from the textbooks, and c) any other assignments the instructor may make. For example, the exams may include information directly from the textbook and the instructor may include figures and tables from the textbook and/or multiple-choice questions from the back of each chapter.
- **Make-up exam policy.** When you learn of some conflict you must let the instructor know **in writing** prior to the exam. If you must miss an exam due to participation in an official college event, illness, or family emergency you are to make arrangements as soon as possible with your instructor to take the make-up exam and you must be able to provide a written document that officially states the reason for your absence (i.e., a note from the Dean of Students office or physician) if requested by the instructor. Makeup exams will be short answer/essay and will

BIOL 260 Syllabus

require approximately 2 hours to complete.

- The dates of the hour exams are given in the class schedule that follows. You need to be well aware of these dates. Please write them down in a prominent place where you live. Be sure to schedule other activities such as trips, interviews, appointments, etc. at times other than times of the exams. Note in particular the exam dates during finals week. Be sure you do not schedule yourself to leave campus before your scheduled exam date and **do not ask** to take the last exam early.

Number 3 – Lecture Assignments (170 pts total). Throughout the semester there will be a variety of lecture assignments for you to complete. Some of these will be completed in class and some of these will be completed out of class. Some will be group work and some will be individual work. In order to fulfill an assignment that is done in class, you must attend class and be on time the day the assignment done. No make-ups for lecture assignments are possible. For in class assignments missed for excused absences (sickness, family emergency, official college activity) a grade that is equal to the average of the other assignment grades will be assigned.

Number 4 – Two Biology Department Seminars (30 pts total @ 15 pts each). The Biology Department seminars are usually scheduled at 3:00 pm Fridays in Science Center 1000. The instructor will inform you of these seminars and any additional seminars. To gain credit for seminar attendance you must 1) obtain a "Biology 260 Seminar Card" from a biology instructor at the beginning of the seminar, 2) answer the questions on the card and return the card to a biology professor at the end of the seminar. If you leave the seminar early, you will receive less than 10 points. Please read the material regarding Biology Department Seminars and Seminar etiquette at the end of this syllabus. **Seminar cards must be turned in at the time of seminar, NO LATE SEMINAR CARDS WILL BE ACCEPTED.**

For class schedule conflicts: If you are unable to attend the seminars due to class conflicts, you may write two summaries and critiques of two different research articles from any of the following journals: *American Journal of Physiology*, *Annals of Botany*, *Canadian Journal of Botany*, *Development*, *Developmental Biology*, *Developmental Dynamics*, *Endocrinology*, *International Journal of Plant Sciences*, *Journal of Applied Physiology*, *American Journal of Botany*, *Phytomorphology*, *Plant Physiology*, *Proceedings of the Society of Experimental Biology and Medicine*, *The Journal of Experimental Biology*, *The Journal of Immunology*, *Tree Physiology*, and *The Plant Cell*. These journals can be found in the basement of the Van Wylen Library or on-line through the Van Wylen Library web site. Each summary/critique is worth up to 15 points. To receive credit, summaries/critiques must be handed in prior to April 25, 2008. Each summary and critique must be typed and include 1) your name, 2) your class section, 3) the title of the article, 4) the names of all authors, 5) the title of the journal, 6) the volume, page numbers, and year of the journal, 7) a photocopy of the abstract, and 8) a one page summary and critique of the article.

Final Grades: No "extra credit" assignments will be accepted. If you earn 90% or better then an A- or A will be awarded; 80-89%; B-, B, B+ will be awarded; 70-79%, a C-, C, or C+ will be awarded; 60-69%, a D-, D, or D+ will be awarded; less than 60% will only earn an F.

BIOL 260 Syllabus

Academic Integrity

Your instructors assume that all students enrolled in Biology 260 will exhibit the highest levels of academic integrity. Please refer to the Hope College Student Handbook for the College policy on academic integrity. It is the instructors' policy that each student take credit for work (including lecture and lab exams, lecture assignments, seminar attendance, and individual lab assignments) that is entirely her or his own unless the instructor authorizes a group project. The instructors never authorize group work on an exam nor the use of any types of notes during an exam. Note also that your review paper must be written by you in your own words. The utilization of other people's words without quotation marks and citations is plagiarism and thus a violation of the academic integrity policy. Students who violate the academic integrity policy of the College or the instructors can be given a grade of F for the course and referred to the appropriate college officials.

BIOL 260 Syllabus

Class and Laboratory Schedule

Shaded rows indicate laboratory topics.

Date	Topic	Text Chapter
		Brooker, 1 st edition
Week 1		
W Jan 9	Introduction to Plants; Origins & Major Lineages	30
F Jan 11	Life Cycles & Origins of Major Structures	30
No Lab First Week of Classes		
Week 2		
M Jan 14	Diversity in Seedless Plants (Mosses, Ferns, etc.)	30
W -Jan 16	Diversity in Gymnosperms (Pines, Spruces, etc.)	31
F - Jan 18	Diversity in Angiosperms (Flowering Plants)	31
Introduction to Laboratory Procedures, Statistics		
Week 3		
M - Jan 21	Flowering Plant Reproduction I	39
W - Jan 23	Flowering Plant Reproduction II	39
F - Jan 25	Flowering Plant Reproduction III	39
Plant Reproductive Morphology		
Week 4		
M - Jan 28	Flowering Plants: Cell Types & Tissues	35
W- Jan 30	Exam I: Intro to Plants through Cell Types & Tissues	
F – Feb 01	Flowering Plants: Gross Vegetative Morphology I	35
Plant Vegetative Morphology, Anatomy and Function I		
Week 5		
M – Feb 4	Flowering Plants: Gross Vegetative Morphology II	35
W - Feb 6	Transport at the Cellular Level	38
F - Feb 8	WINTER RECESS BEGINS	
Plant Vegetative Morphology, Anatomy and Function II		
Week 6		
M - Feb 11	WINTER RECESS CONTINUES	
W - Feb 13	Transport at the Tissue Level: Movement of Water in Plants	38
F- Feb 15	Transport at the Tissue Level: Movement of Sugars in Plants	38
No Laboratory, Winter Break: Independent Project		
Week 7		
M - Feb 18	Plant Behavioral Responses I: Hormones	36
W- Feb 20	Plant Behavioral Responses II: Hormones	36
F - Feb 22	Plant Behavioral Responses III: Movement	36
Plant Vegetative Morphology, Anatomy and Function III		
Week 8		
M - Feb 25	Plant Nutrition I	37
W - Feb 27	Plant Nutrition II	37
F – Feb 29	Exam 2 Vegetative Morphology through Plant Nutrition II	
Case Study on the Eye, Independent Project		

BIOL 260 Syllabus

Week 9		
M – Mar 03	Introduction to Animals	40
W – Mar 05	Cardiovascular Systems I	47
F – Mar 07	Cardiovascular Systems II	47
Lab Practical I, Independent Project		
Week 10		
M - Mar 10	Cardiovascular Systems III	47
W - Mar 12	Cardiovascular Systems IV/Gas Exchange I	47, 48
F - Mar 14	SPRING RECESS	
Cardiovascular Lab		
Week 11		
M - Mar 17	SPRING RECESS	
W - Mar 19	SPRING RECESS	
F- Mar 21	SPRING RECESS	
No Laboratory, Spring Break		
Week 12		
M – Mar 24	Gas Exchange II	48
W – Mar 26	Immune Systems I	53
F – Mar 28	Immune Systems II	53
Rat Castration Lab Part I		
Week 13		
M – Mar 31	Immune Systems III	53
W – Apr 02	Exam 3 Introduction to Immune Systems III	
F – Apr 04	<i>Good Friday—No Class</i>	
Metabolism and Temperature Regulation		
Week 14		
M - Apr 7	Digestion and Nutrition I	41
W – Apr 9	Digestion and Nutrition II	41
F - Apr 11	Digestion and Nutrition III	41
Urinalysis Lab		
Week 15		
M - Apr 14	Water Regulation I	49
W - Apr 16	Water Regulation II	49
F - Apr 18	Endocrinology	50
Rat Castration Lab Part II		
Week 16		
M - Apr 21	Endocrinology	50
W - Apr 23	Reproduction	51
F - Apr 25	Reproduction	51
Laboratory Practical II		
Week 17		
M - Apr 30	Finals Week	
Tuesday 2:00 PM	Exam 4 Digestion and Nutrition to Reproduction Lecture Section 01	

BIOL 260 Syllabus

Thursday 10:30AM	Exam 4 Digestion and Nutrition to Reproduction Lecture Section 02
Poster Symposium on Independent Projects	