

Fall 2012

Lab: Section A: Tuesday 12:45 p.m. – 3:45 p.m., HOSCI 303

Lab: Section B: 12:45 p.m. – 3:45 p.m. HOSCI 303

Required Textbook: *Integrated Principles of Zoology, 15th. Edition*, by Cleveland Hickman, Jr. et al., McGraw-Hill, 2010.

Required Lab Manual: *Laboratory Exercises in Integrated Principles of Zoology, 15th Edition*, by Cleveland Hickman, Jr. et al., McGraw-Hill, 2010.

Other required equipment: Goggles (available at the book store, if you don't already have them), lab coats (provided), and dissection kits (also provided, but if you plan to be a biology major, you might consider purchasing your own kit at the book store), loose-leaf binder with lined and unlined paper for lab notebook.

Course Description: An introduction to basic concepts in biology through study of the major lineages of invertebrate and vertebrate animals, with emphasis on the ontogeny, structure, and function of organ systems in an evolutionary context. Topics covered will include basic cell structure and function, development, systematics, and evolution. The laboratory will focus on observation of structural-functional relationships of living and preserved representatives of the major animal phyla.

Course Objectives: By the end of this course, students should:

1. Understand the difference between science and non-science.
2. Be introduced to the specialized vocabulary of zoology.
3. Understand the relationship between animal structure and function.
4. Know the structural and functional characteristics of major animal groups, and be familiar with current hypotheses concerning how they evolved.

Blackboard: All information associated with this course will be posted on Blackboard. I recommend that you check the announcements regularly for news about quizzes, review sessions, etc. You must register yourself for this course on Blackboard *as soon as possible*---your opportunity to register will expire on Tuesday, September 4th. For instructions, see the following link:

<http://home.moravian.edu/public/cit/help/blackboard/bbstudent.asp>

The course ID is BIOL112.FA12 and the enrollment code is “zoology”. If you have difficulty with this, PLEASE E-MAIL ME IMMEDIATELY!

LECTURES: My lectures will generally be in the form of power point presentations, though I may decide to follow some other format if I find it more effective. I will post the power point lectures on Blackboard the evening before each class. It is your responsibility to download the lectures and print them for your use in the classroom, so that those of you who are slow note-takers or abysmal artists will not be struggling to keep up, and all of you can attend more carefully to what I say. Please note that the power point slides will not contain everything I say---you will have to add the details if you are to have an effective study aid (yes, you do still have to take notes). THUS, tempting though it may be, you cannot sleep in and skip the lectures without penalty. If I see that attendance is dropping, I will stop posting the lectures.

Lecture attendance: Students may miss class twice with no penalty (this includes illness, athletic activities, field trips, etc.). If you anticipate missing more than two classes, *contact me as soon as possible*.

Policy on electronic devices: Cell phones and ipods must be turned off during lecture (this means you cannot text your friends). I do not encourage the use of laptops in class, as the temptation to play games, converse with friends, etc., appears to be irresistible, and is disruptive for those around you. If you feel it is vital to bring a laptop to take notes, you must: 1. Convince me it is necessary. 2. Sit in the front row of the class. 3. Actually take notes.

Reading assignments: You have a well-written, up-to-date textbook; unfortunately, we will not have time to discuss everything in it. The chapters that are relevant to each lecture are indicated on the lecture schedule. I expect you to scan the relevant pages BEFORE each lecture to get a feel for the material I will be covering. After class, read the sections covered in the lecture more carefully, and amplify your lecture notes in areas you don't understand. There is an excellent summary at the end of each chapter, and useful questions to test your understanding. Though these are not included in the reading assignments, I suggest that you take advantage of them. I recommend that you also use the on-line study materials provided for the textbook (these include quizzes and flashcards that are quite helpful for learning the vocabulary). The link is posted on Blackboard under "course information;" click on the link to go to the textbook website.

Study questions: I will post study questions every weekend covering the previous week's lectures. *Many of the essay questions on exams are taken from these study questions*, thus it is in your best interest to *write* the answers to these questions every weekend (do NOT wait until the night before the exam). I will not grade your answers regularly, but I may collect and grade them occasionally, so be prepared.

Lecture quizzes: At the beginning of class on Mondays, there will be a short quiz (10 points) covering the previous week's lectures. This is not done to make your life miserable, but to help you learn the material by reviewing the lectures each week. I will announce any changes to the quiz schedule---but when in doubt, assume we are having a quiz. Plan to arrive for class on time, as *late arrivals will not be allowed to take the quiz and missed quizzes cannot be made up*. You are allowed to miss 2 quizzes without penalty, but you must contact me to explain your absence. At least one quiz grade will be dropped when computing your final grade.

Journal Club: In order to introduce you to the "hot topics" in zoology today, we will set aside time at the beginning of class to have a short student presentation and discussion of current research articles of your choice. The presentation grade will replace one quiz grade.

LABS: You are expected to read the assigned lab exercises BEFORE coming to lab (this includes both the assigned sections of the lab manual and the lab handouts, which will be distributed before the lab and posted on Blackboard). Please bring your lab manual and lab notebook to every lab.

Lab attendance: Don't even consider missing a lab except in cases of dire emergency. IT IS THE STUDENT'S RESPONSIBILITY to arrange to make up a missed lab before the next lab practical. Be aware that it may not be possible to make up exercises involving live material, and I may not be available to guide you as I would during the scheduled lab period. Make-up labs will be offered at the discretion of the instructor.

Lab notebook: Critical observation is absolutely essential to science. Therefore, I ask that you bring a loose-leaf binder with blank lined and unlined paper to lab. This binder will hold all lab handouts, plus your notes, drawings, and lab write-ups. The goal of this exercise is to hone your powers of observation and provide you with a useful study tool. The lab handouts will tell you what information must be included in your lab notebook, but you will receive extra credit for any extra drawings, notes, etc. that you include. Your lab notebooks will be handed in at the final lab practical.

EXAMS: Please see the lecture and lab calendars below for the exam schedule. Make-up exams will be given at the discretion of the instructor. IT IS THE STUDENT'S RESPONSIBILITY to contact the instructor BEFORE the missed exam, provide an appropriate excuse, and make arrangements to take the exam at another time. LAB PRACTICALS CANNOT BE MADE UP. If your absence is not excused, you will receive a 0 for the missed exam. The final lecture exam is cumulative, but weighted toward the last quarter of the course (75 points drawn from the period since the third lecture exam; 75 points drawn from the entire semester). ***Absolutely no activated electronic devices will be allowed during exams (this includes cell phones and ipods).*** If you are seen using one of these devices for any reason during an exam, you will receive a "0."

GRADING: Your scores for all assignments and exams will be posted on Blackboard, so you can see how you are doing at any time (check the percentage in the "total points" column). The grading scale will be posted following the first lecture exam. There will be no extra credit options beyond the occasional extra question on exams and lab practicals, so please focus your energy on what we are doing in class and lab.

3 lecture exams (75 points each)	225 points	
Final lecture exam (cumulative)	150 points	
quizzes/presentations/homework (10 points each)	100 points	Lecture: 475 points
1 100-point lab practical	100 points	
Final lab practical	150 points	
Lab write-ups	150 points	
Lab notebook	50 points	Lab: 450 points
Project (Design-an-animal)	75 points	
Attendance & participation*	50 points	
Final grade:	1050 points	

*This grade includes attendance, preparation, participation in discussions, and completion of all assignments. Please note that the instructor may exercise qualitative judgment in determining your final grade.

Policy on honesty: Students are expected to abide by the college policy on intellectual honesty (see Student Handbook).

Disability support: Students who wish to request accommodations in this class for a disability should contact Elaine Mara, assistant director of learning services for academic and disability support at 1307 Main Street, or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.

TIPS FOR DOING WELL IN THIS COURSE:

Lecture exams:

1. Download the lectures, print them out, and scan the material for each lecture before coming to class. (Alternatively, bring your laptop and take notes directly on the lecture slides).
2. ***Come to class.***
3. Do not fall behind---review and annotate your lecture notes, using the text to clarify things you do not understand. If the text cannot help you, please ask me. My opinion of you will not plummet if you ask a question, so don't be shy.
4. Review for each Monday quiz.
5. *Write out* the answers to the study questions posted each weekend. *Think* about these questions as you answer them.
6. You are responsible for knowing the material I present *in lecture*---I encourage you to read relevant sections of the textbook, but *do not try to memorize the textbook*.

Lab practicals:

1. Attend all labs.
2. Prepare for each lab by reading the lab exercise *before* you walk into the lab.
3. Do not try to race through the lab exercises---be sure you understand what you are supposed to see, and be sure you actually see it before you leave. If you are confused, ask questions---the instructor is there to help you!
4. Come to the "open lab" review sessions before the lab practicals, and prepare by making a list of the things you need to review. Listen to the other students---they may ask things you didn't think about.

Vocabulary:

1. The single greatest barrier to learning zoology is the vocabulary, which may seem like a foreign language. Do whatever you need to do to learn the terminology---flashcards, glossaries, diagrams, study groups, etc.

Help:

1. If you find yourself falling behind, or you are struggling to learn the material, *please contact me right away*. I am here to help you.

LECTURE SCHEDULE

Week		Lecture topic	Reading assignment
August 27	M	Introduction: The big questions	Chapter 1
	W	Chemistry of life	Chapter 2
	F	The cell & mitosis	Chapter 3
September 3	M	<i>NO LECTURE---LABOR DAY</i>	
	W	Meiosis & Reproduction	Chapter 7
	F	Development	Chapter 8
September 10	M	Body architecture	Chapter 9
	W	Systematics	Chapter 10*
	F	Origin & early evolution of living systems; Protozoa	Chapters 2 & 11*
September 17	M	LECTURE EXAM 1 (75 points)	
	W	Protozoa	Chapter 11*
	F	Porifera	Chapter 12*
September 24	M	Porifera & Cnidaria	Chapters 12 & 13
	W	Cnidaria & Platyhelminthes	Chapters 13 & 14*
	F	Platyhelminthes	Chapter 14*
October 1	M	Mollusca	Chapter 16
	W	Mollusca & Annelida	Chapters 16 & 17*
	F	Annelida	Chapter 17*
October 8	M	<i>NO LECTURE---FALL BREAK</i>	
	W	Nematoda	Chapter 18*
	F	Introduction to arthropods	Chapter 19*
October 15	M	LECTURE EXAM 2 (75 points)	
	W	Arthropods: crustacea	Chapter 20*
	F	Arthropods: hexapoda	Chapter 21*
October 22	M	Echinoderms	Chapter 22
	W	Hemichordates & Protochordates	Chapters 22 & 23*
	F	Chordates	Chapter 23*
October 29	M	Origin of vertebrates	Chapter 23
	W	Fishes	Chapter 24
	F	Amphibians & non-avian reptiles	Chapter 25 & 26

November 5	M	Non-avian reptiles & birds	Chapter 26 & 27
	W	Birds & mammals	Chapters 27 & 28*
	F	Mammals & Evolution	Chapters 28 & 6*
November 12	M	LECTURE EXAM 3 (75 points)	
	W	Evolution	Chapter 6 *
	F	Support, protection, & movement	Chapter 29*
November 19	M	Homeostasis	Chapter 30
	W	<i>NO LECTURE---THANKSGIVING</i>	
November 26	M	Homeostasis & Internal fluids	Chapters 30 & 31
	W	Internal fluids & Respiration	Chapters 31*
	F	Respiration & Digestion (Design-an-animal project due; 100 points)	Chapters 31 & 32*
December 3	M	Digestion	Chapter 32
	W	Nervous coordination	Chapter 33
	F	Sense organs	Chapter 33

THURSDAY, DECEMBER 13TH, 8:30 AM-----FINAL LECTURE EXAM (150 points)

Please note: Lecture and lab syllabi outline the topics I hope to cover in the order I hope to cover them, but I may make changes as we progress through the semester.

ASSIGNMENT AND EXAM SCHEDULE

September 11, 13	Mitosis & meiosis lab write-up due (50 points)
September 17	Lecture exam 1 (75 points)
September 25, 27	Protozoan lab write-up due (50 points)
October 15	Lecture exam 2 (75 points)
Oct 30, Nov 1	<i>Lab practical 1</i> (100 points)
November 12	Lecture exam 3 (75 points)
November 30	Design-an-animal project due (75 points)
December 4, 6	<i>Final lab practical</i> (150 points)
December 13	Final exam (150 points)

LABORATORY SCHEDULE

Lab Week	Laboratory topic	Laboratory exercise
Lab 1. August 28, 30	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
Lab 2. September 4, 6	Meiosis, Development <i>(Write-up for labs 1 & 2 due at next lab; 50 points)</i>	Exercise 3
Lab 3. September 11, 13	Systematics <i>(Hand in results at end of lab; 50 points)</i>	Exercise 5
Lab 4. September 18, 20	Protozoans <i>(Write-up due at next lab; 50 points)</i>	Exercise 6
Lab 5. September 25, 27	Porifera & Cnidaria	Exercises 7, 8
Lab 6. October 2, 4	Platyhelminthes & Mollusca	Exercises 9, 11
October 9, 11	<i>NO LAB---FALL BREAK</i>	
Lab 7. October 16, 18	Annelids, Nematodes, Myriapods, Chelicerates	Exercises 10, 12, 13, 15A
Lab 8. October 23, 25	Crustaceans, Insects, Echinoderms	Exercises 14, 15B, 16
Lab 9. October 30, Nov 1	LAB PRACTICAL for labs 5-8 (75 points) Vertebrate skeletal diversity	Handout in lab, Exercise 22A
Lab 10. November 6, 8	Vertebrate tissues Begin skinning fetal pig	Exercise 4 Exercise 22B
Lab 11. November 13, 15	Fetal pig: finish skinning, identify muscles	Exercise 22B
November 21	<i>NO LAB---THANKSGIVING</i>	
Lab 12. November 28	Fetal pig: digestive, circulatory, urogenital systems	Exercises 22C-E, G
Lab 13. December 5	FINAL LAB PRACTICAL for labs 9-12 (150 points) Lab clean-up	