Moravian College

Department of Biological Sciences
Biology 112 – General Zoology Syllabus
Spring 2011

Instructor: Dr. Fran Irish **Office Phone**: 610-861-1427
e-mail: firish@moravian.edu **Office**: HOSCI Room 321
Office hours: Monday, Wednesday, and Friday 9 a.m. – 10:30 a.m.,
Monday, 1:00 pm - 2:30 pm, or by appointment.
Lecture: Monday, Wednesday, Friday 11:45 a.m. – 12:35 p.m., HOSCI 202

Lab instructor: Dr. Don Hosier
e-mail: medwh01@moravian.edu or turtole60@verizon.net
Lab: Section A: Tuesday 12:45 p.m. – 3:45 p.m., HOSCI 301
Section B: Thursday 12:45 p.m. – 3:45 p.m. HOSCI 301

Required Textbook: *Integrated Principles of Zoology, 14th. Edition,* by Cleveland Hickman, Jr. et al., McGraw-Hill, 2008.
Required Lab Manual: *Laboratory Exercises in Integrated Principles of Zoology, 14th. Edition,* by Cleveland Hickman, Jr. et al., McGraw-Hill, 2008.
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 familiar with 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 Monday, January 24th. For instructions, see the following link: http://home.moravian.edu/public/cit/_help/blackboard/bbstudent.asp
The course ID is BIOL112.SP11 and the enrollment code is "zoology". If you have difficulty with this, PLEASE E-MAIL ME IMMEDIATELY!

Lecture attendance: 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 by 8:00 pm 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. 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. 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 must be turned off during lecture (this means you cannot text your friends).

Study questions: I will post study questions every weekend covering the previous week's lectures. Because many of the essay questions on exams are taken from these study questions, I strongly suggest that you take the time to *write* the answers to these questions every weekend (but do not try to answer them all the night before the exam).

Lab attendance: Don't even consider missing a lab except in cases of dire emergency. Make-up labs will be offered at the discretion of the instructor. 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.

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 posted on Blackboard the evening before the lab). Please bring your lab manual and lab notebook to every lab. There will be a 5-point quiz toward the end of each lab covering the lab exercises for that day. The lowest two lab quiz scores will be dropped.

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 and drawings. 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 beginning of the second and fourth lab practicals (i.e., once in the middle of the semester, and again at the end), graded, and returned by the next lab period.

Lecture quizzes: At the beginning of class on Fridays, there will be a short quiz (10 points) covering all lectures since the previous quiz. This is not done to make your life miserable, but to encourage you to keep up with the class by reviewing the lectures each week. 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. The lowest two quiz grades will be dropped when computing your final grade.

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. ***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."

The final lecture exam is cumulative, but weighted toward the last quarter of the course (100 points drawn from the period since the third lecture exam; 100 points drawn from the entire semester).

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 encourage you to scan the relevant chapter before each lecture to get a feel for the material I will be covering. After class, read the sections covered in the lecture for clarification, and amplify your lecture notes in areas you don't understand (I don't want to discourage you from reading the entire chapter, but if your time is limited, you may opt to forego this pleasure). There is an excellent summary at the end of each chapter, and useful questions to test your understanding. I recommend that you also use the on-line study materials provided for the textbook (these include flashcards that are quite helpful for learning the vocabulary). The link is posted on Blackboard; just click on the link to go to the textbook website.

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. 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.

3 lecture exams (100 points each)	300 points	
Final lecture exam (cumulative)	200 points	
10 lecture quizzes (10 points each)	100 points	Lecture: 600 points
3 lab practicals	150 points	
Final lab practical	100 points	
10 Lab quizzes (5 points each)	50 points	
Lab notebook	50 points	Lab: 350 points
Attendance & participation*	20 points	
Final grade	**970 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 Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

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.
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 Friday 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.

LECTURE SCHEDULE

Week	Lecture topic	Relevant reading
January 17	Introduction: The big questions	Chapter 1
	Chemistry of life	Chapter 2
	Origin & early evolution of living systems	Chapters 2 & 3
January 24	The cell, mitosis	Chapter 7
	Meiosis & development	Chapter 8
	Development & body architecture	Chapters 8 & 9
January 31	Protozoa	Chapter 11
	Protozoa & systematics	Chapter 11
	Systematics	Chapter 10
February 7	**EXAM** (100 points)	
	Porifera	Chapter 12
	Porifera & Cnidaria	Chapters 12 & 13
February 14	Cnidaria	Chapter 13
	Platyhelminthes	Chapter 14
	Platyhelminthes: tapeworms	Chapter 14
February 21	Rotifera, Mollusca	Chapters 15 & 16
	Annelida	Chapter 17
	Nematoda, introduction to arthropods	Chapter 18 & 19
February 28	**EXAM** (100 points)	
	Arthropoda: chelicerates	Chapter 19
	Arthropods: myriapods & crustaceans	Chapters 19 & 20
March 7	*NO CLASSES—SPRING BREAK*	
March 14	Arthropods: hexapoda (Insecta)	Chapter 21
	Insecta	Chapter 21
	Echinodermata	Chapter 22
March 21	Introduction to chordates	Chapter 23
	Cephalochordates & vertebrate origins	Chapter 23
	Fishes	Chapter 24
March 28	Fishes & Amphibians	Chapters 24 & 25
	Amphibians & non-avian reptiles	Chapter 25 & 26
	Snakes & birds	Chapter 26 & 27

April 4	**EXAM** (100 points)	
	Birds & mammals	Chapters 27 & 28
	Evolution	Chapter 6
April 11	Support, protection, & movement	Chapter 29
	Homeostasis	Chapter 30
	Homeostasis & Internal fluids	Chapters 30 & 31
April 18	Internal fluids & respiration	Chapter 31
	Respiratory & Digestive systems	Chapters 31 & 32
	NO FRIDAY LECTURE---EASTER RECESS	
April 25	*NO MONDAY LECTURE---EASTER RECESS*	
	Nervous coordination	Chapter 33
	Sense organs	Chapter 33

MONDAY, MAY 2nd., 8:30 am------FINAL LECTURE EXAM

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.

EXAM SCHEDULE

February 1, 3	Lab practical 1 (30 points)
February 7	Lecture exam 1 (100 points)
February 22, 24	Lab practical 2 (60 points)---Lab notebooks due
February 28	Lecture exam 2 (100 points)
March 29, 31	Lab practical 3 (60 points)
April 4	Lecture exam 3 (100 points)
April 26, 28	Final lab practical (100 points)
May 2	Final exam (200 points)

LABORATORY SCHEDULE

Week	Laboratory topic	Laboratory exercise
January 18, 20	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
January 25, 27	Meiosis, Development	Exercise 3
February 1, 3	**LAB PRACTICAL** (30 points) Protozoans	 Exercise 6
February 8, 10	Sponges Cnidarians	Exercises 7, 8
February 15, 17	Flatworms Molluscs	Exercises 9, 11
February 22, 24	**LAB PRACTICAL** (60 points) Nematodes, Rotifers	 Exercise 10
March 1, 3	Annelids, Myriapods, Chelicerates	Exercise 12, 13, 15A
March 7	***NO LABS---SPRING BREAK***	
March 15, 17	Crustaceans, Insects	Exercises 14, 15B, C
March 22, 24	Echinoderms, protochordates	Exercises 16, 17
March 29, 31	**LAB PRACTICAL** (60 points) Vertebrate skeletal diversity	 Handout in lab, Exercise 22A
April 5, 7	Vertebrate tissues Begin skinning fetal pig	Exercise 4 Exercise 22B
April 12, 14	Fetal pig: finish skinning, identify muscles	Exercise 22B
April 19, 21	Fetal pig: digestive, circulatory, urogenital systems	Exercises 22C-E, G
April 26, 28	**FINAL LAB PRACTICAL** (100 points) Lab clean-up	