

**Moravian College**  
Biology Department  
Biology 112 – General Zoology  
Fall 2010

**Instructor:** Dr. Fran Irish  
**e-mail:** [frish@moravian.edu](mailto:frish@moravian.edu)

**Office Phone:** 610-861-1427  
**Office:** Room 321, Collier Hall of Science

**Office hours:** Monday, Tuesday, and Thursday 9 a.m. – 11 a.m., or by appointment.

**Lecture:** Monday, Wednesday, and Friday 11:45 a.m. – 12:35 p.m.  
Memorial Hall – Room 302

**Lab:** Section A: Tuesday 12:45 p.m. – 3:45 p.m.  
Section B: Thursday 12:45 p.m. – 3:45 p.m.  
Section C: Monday 1:15 p.m. – 4:15 p.m.  
Collier Hall of Science – Room 303

**Required Textbook:** *Integrated Principles of Zoology, 14<sup>th</sup> Edition*, by Cleveland Hickman, Jr. et al., McGraw-Hill, 2008.

**Required Lab Manual:** *Laboratory Exercises in Integrated Principles of Zoology, 14<sup>th</sup> 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---syllabus, assignments, power point lectures, lab handouts, useful web links, cumulative grades---will be posted on Blackboard. You must register yourself for this course on Blackboard *as soon as possible*---your opportunity to

register will expire on Tuesday, September 7<sup>th</sup>. For instructions, see the following link:  
[http://home.moravian.edu/public/cit/\\_help/blackboard/bbstudent.asp](http://home.moravian.edu/public/cit/_help/blackboard/bbstudent.asp)

The course ID is BIOL112.FA10 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 the evening before each class 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. The lectures will be posted until the second exam; then they will be removed to make room for the next set of lectures. It is your responsibility to download the lectures and print them for your use in the classroom. 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, 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. I strongly suggest that you take the time to write down the answers to these questions every week---do not try to answer them all the night before the exam.

**Lab attendance:** Don’t even consider missing a lab unless you are ill or have some other 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 quiz or 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 day before the lab). If you habitually come unprepared, you will not be able to participate in class discussions, and you will be scrambling to keep up (and your grade will suffer). Please bring your lab manual and lab notebook to every lab.

**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.

**Quizzes:** At the beginning of class on Fridays, there will be a short quiz (10 points) covering the previous 2 or 3 lectures (all lectures since the last 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. If you have a good reason for missing a quiz, please let me know. The lowest quiz grade 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. If you miss a lab practical, you will be required to take an oral practical. 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, blackberries, 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 lecture quizzes, exams, lab practicals, and the lab notebook will be posted on Blackboard, so you can see how you are doing at any time (see below). Note that the lab will be one third of your final grade. There will be no extra credit options beyond the occasional extra question or two on exams, 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	
12 lecture quizzes (10 points each)	110 points	<u>Lecture: 610 points</u>
3 lab practicals	150 points	
Final lab practical	100 points	
Lab notebook	50 points	<u>Lab: 300 points</u>
Class participation*	20 points	
<b>Final grade</b>	<b>930 points</b>	

\*Class participation includes attendance, preparation, participation in discussions, and completion of all assignments.

**Grading scale:** The grading scale will be posted following the first lecture exam.

To compute your grade at any time, find the total number of points you have earned (on Blackboard) and divide by the total number of points possible (also on Blackboard) to get a percentage. Use the posted grading scale to find your grade. 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 have actually seen it before you leave. If you are confused, ask questions---I am 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
August 30	Introduction: The big questions Chemistry of life Origin & early evolution of living systems	Chapter 1 Chapter 2 Chapters 2 & 3
September 6	<b><i>NO LECTURE---LABOR DAY</i></b> The cell, mitosis, meiosis Development	Chapter 7 Chapter 8
September 13	Development & body architecture Protozoa Protozoa	Chapters 8 & 9 Chapter 11 Chapter 11
September 20	<b>EXAM</b> (100 points) Systematics Porifera	Chapter 10 Chapter 12
September 27	Cnidaria Cnidaria & Platyhelminthes Platyhelminthes	Chapter 13 Chapters 13 & 14 Chapter 14
October 4	Rotifera, Mollusca Mollusca Annelida	Chapters 15 & 16 Chapter 16 Chapter 17
October 11	<b><i>NO LECTURE---FALL BREAK</i></b> Annelida & Nematoda Arthropods: chelicerates, myriapods	Chapters 17 & 18 Chapter 19
October 18	<b>EXAM</b> (100 points) Arthropods: crustacea Arthropods: hexapoda	Chapter 20 Chapter 21
October 25	Echinoderms Hemichordates & Protochordates Origin of vertebrates	Chapter 22 Chapter 22 & 23 Chapter 23
November 1	Fishes Amphibians & reptiles Snakes & birds	Chapter 24 Chapter 25 & 26 Chapter 26 & 27

November 8	Birds & mammals Evolution Support, protection, & movement	Chapters 27 & 28 Chapter 6 Chapter 29
November 15	<b>EXAM</b> (100 points) Homeostasis Homeostasis & circulatory system	Chapter 30 Chapters 30 & 31
November 22	Circulatory & Respiratory systems <b><i>NO LECTURE---THANKSGIVING</i></b>	Chapters 31
November 29	Respiratory & Digestive systems Nervous system Special senses	Chapters 31 & 32 Chapter 33 Chapter 33
December 6	Animal ecology Review	Chapter 38

**MONDAY, DECEMBER 13<sup>th</sup>, 1:30 pm-----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.*

## LABORATORY SCHEDULE

<b>Week</b>	<b>Laboratory topic</b>	<b>Laboratory exercise</b>
August 30	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
September 6*	Meiosis, Development	Exercise 3
September 13	<b>LAB PRACTICAL</b> (30 points) Protozoans	Exercise 6
September 20	Sponges Cnidarians	Exercises 7, 8
September 27	Flatworms Molluscs	Exercises 9, 11
October 4	<b>LAB PRACTICAL</b> (60 points) Nematodes, Rotifers	Exercise 10
October 11	<b><i>NO LAB---FALL BREAK</i></b>	
October 18	Annelids, Myriapods, Chelicerates	Exercise 12, 13, 15A
October 25	Crustaceans, Insects, Echinoderms	Exercises 14, 15B, 16
November 1	<b>LAB PRACTICAL</b> (60 points) Vertebrate skeletal diversity, Vertebrate tissues	Handout in lab Exercise 4
November 8	Fetal pig: skinning and muscles	Exercises 22A,B
November 15	Fetal pig: digestive, circulatory, urogenital systems	Exercises 22C-E, G
November 22	<b><i>NO LAB---THANKSGIVING</i></b>	
November 29	<b>FINAL LAB PRACTICAL</b> (100 points) Lab clean-up	
December 6	<b><i>NO LABS</i></b>	

\*Because of Labor Day, the Monday lab section will meet on Wednesday evening, September 8<sup>th</sup> , 7-10 pm.