

Moravian College
Department of Biological Sciences
Biology 112 – General Zoology Syllabus
Spring 2014

Instructor: Dr. Fran Irish **Office Phone:** 610-861-1427
e-mail: frish@moravian.edu **Office:** HOSCI Room 321
Office hours: Monday 1:00-3:00 pm, Tuesday 9:00-11:00, or by appointment.
Lecture: Monday, Wednesday, Friday 11:45 a.m. – 12:35 p.m., HOSCI 202
Lab: Section A: Tuesday 12:45 p.m. – 3:45 p.m., HOSCI 303
Section B: Thursday 12:45 p.m. – 3:45 p.m. HOSCI 303

Required Textbook: *Integrated Principles of Zoology, 16th Edition*, by Cleveland Hickman, Jr. et al., McGraw-Hill, 2013.

Required Lab Manual: *Laboratory Exercises in Integrated Principles of Zoology, 16th Edition*, by Cleveland Hickman, Jr. et al., McGraw-Hill, 2013.

Other required equipment: Goggles (available at the book store; if you don't mind used ones, we can also provide them in lab), lab coats (provided), and dissection kits (also provided), loose-leaf binder 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 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 daily* for news about quizzes, exams, review sessions, etc. You must register yourself for this course on Blackboard *as soon as possible*--- your opportunity to register will expire on Tuesday, January 21st. For instructions, see the following link: <http://home.moravian.edu/public/cit/help/blackboard/bbstudent.asp>
The course ID is BIOL112.SP14 and the enrollment code is “zoology”. If you have difficulty with this, PLEASE E-MAIL ME IMMEDIATELY!

LECTURES: My lectures will 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 after the previous lecture (two days before each class). It is your responsibility to download the lectures 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. HOWEVER, 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 still have to take notes). THUS, tempting though it may be, you cannot sleep in and skip the lectures without jeopardizing your grade, either directly (by lowering your class participation grade) or indirectly (by leaving you behind in the dust).

Lecture attendance: I expect you to attend class, arrive on time, and be prepared (see above). Students may miss class three times with no penalty (this includes illness, athletic activities, field trips, etc.). If you miss more than three classes, I will deduct 10 participation points for each day missed. If you anticipate missing more than three classes, *contact me as soon as possible*.

Policy on electronic devices: Cell phones and ipods must be turned off during lecture (this means *no texting*). You may bring a laptop or tablet to class to take notes, but if the temptation to play games, chat with friends, etc., appears to be irresistible, I will ask you to put the device away. Engaging in ancillary activities is distracting to you and those around you.

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 to on-line materials can be found in the textbook.

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

Lecture quizzes: At the beginning of class on most Fridays, there will be a short quiz (10 points) covering the preceding 3 lectures (generally, the 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. Quiz days are marked in the lecture schedule. I will announce any changes---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. 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 each lab to have short student presentations and discussion of current research articles on an assigned topic.

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 in class on Fridays). 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 YOUR 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 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. Your lab notebooks will be graded during each lab period.

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. In case of illness, IT IS YOUR RESPONSIBILITY to contact the instructor BEFORE the missed exam, provide a written excuse from the health center, 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 (80 points drawn from the period since the third lecture exam; 80 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. Simply divide your score by the total number of possible points to get a percentage, and compare this number with the grading scale (which 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 (80 points each)	240 points	
Final lecture exam (cumulative)	160 points	
Journal Club presentation	10 points	
lecture quizzes & homework (10 points each)	90 points	Lecture: 500 points
<i>Stentor</i> lab write-up	50 points	
2 lab practicals (75 points each)	150 points	
Final lab practical	100 points	
Lab notebook	100 points	Lab: 400 points
Attendance & participation*	30 points	
Final grade	930 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. Scan the assigned pages in the textbook before coming to class.
2. Download the lectures and scan the material for each lecture before coming to class.
3. ***Come to class***
4. Do not fall behind---after each lecture, 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.
5. *Write out complete* answers to the study questions posted after each lecture. *Think* about these questions as you answer them.
6. Review the lectures and your answers to the study questions for each Friday quiz.
7. You are responsible for knowing the material I present *in lecture*---you should be reading 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 T.A. and I are there to help you!
4. If you finish a lab early, spend your extra time wisely---review the material, look at your neighbor's dissection, check your lab notebook, quiz your lab partner, etc.
5. Learn the regional and directional terms listed on the last page of your lab manual.
6. 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 13	M	1. Introduction: The big questions	Chapter 1
	W	2. Chemistry of life	Chapter 2
quiz	F	3. The cell & mitosis	Chapter 3
January 20	M	<i>NO CLASSES---Martin Luther King Day</i>	
	W	4. Meiosis & Reproduction	Chapter 7
quiz	F	5. Development	Chapter 8
January 27	M	6. Body architecture	Chapter 9
	W	7. Origin & early evolution of living systems; Protozoa	Chapters 2 & 11
quiz	F	8. Protozoa	Chapter 11
February 3	M	LECTURE EXAM 1 (80 points)	
	W	9. Porifera	Chapter 12
	F	10. Porifera & Cnidaria	Chapters 12 & 13
February 10	M	11. Cnidaria & Platyhelminthes	Chapters 13 & 14
	W	12. Platyhelminthes	Chapter 14
quiz	F	13. Mollusca	Chapter 16
February 17*	M	14. Mollusca & Annelida	Chapters 16 & 17
	W	15. Annelida	Chapter 17
	F	16. Systematics & Nematoda	Chapters 10 & 18
February 24	M	LECTURE EXAM 2 (80 points)	
	W	17. Introduction to arthropods	Chapter 19
	F	18. Arthropoda: chelicerates, myriapods	Chapter 19
March 3		<i>NO CLASSES—SPRING BREAK</i>	
March 10	M	19. Arthropoda: crustaceans	Chapter 20
	W	20. Arthropoda: Hexapoda (Insecta)	Chapter 21
quiz	F	21. Echinodermata	Chapter 22
March 17	M	22. Introduction to chordates	Chapters 22 & 23
	W	23. Vertebrate origins	Chapter 23
quiz	F	24. Fishes	Chapter 24
March 24*	M	25. Amphibians & non-avian reptiles	Chapters 25 & 26
	W	26. Non-avian reptiles & birds	Chapters 26 & 27
	F	27. Birds & Mammals	Chapters 27 & 28

March 31	M	LECTURE EXAM 3 (80 points)	
	W	28. Mammals & Evolution	Chapters 28 & 6
	F	29. Evolution	Chapter 6
April 7	M	30. Support, protection, & movement	Chapter 29
	W	31. Homeostasis	Chapter 30
quiz	F	32. Homeostasis & Internal fluids	Chapters 30 & 31
April 14	M	33. Internal fluids & Respiration	Chapter 31
	W	34. Respiratory & Digestive systems	Chapters 31 & 32
	F	<i>NO FRIDAY LECTURE---EASTER RECESS</i>	
April 21*	M	<i>NO MONDAY LECTURE---EASTER RECESS</i>	
	W	35. Digestive system	Chapter 32
	F	36. Nervous system	Chapter 33

* lab practicals will be held during the weeks marked with an asterisk

TUESDAY, APRIL 29TH, 1:30 p.m.-----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

Monday, February 3	Lecture exam 1 (80 points)
T-Th, February 18, 20	Lab practical 1 (75 points)
Monday, February 24	Lecture exam 2 (80 points)
T-Th, March 25, 27	Lab practical 2 (75 points)
Monday, March 31	Lecture exam 3 (80 points)
Thursday, April 24	Final lab practical (100 points)
Monday, April 29	Final exam (160 points)

LABORATORY SCHEDULE

Week	Laboratory topic	Laboratory exercise
<i>Lab 1.</i> January 14, 16	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
<i>Lab 2.</i> January 21, 23	Meiosis, Development	Exercise 3
<i>Lab 3.</i> January 28, 30	Protozoa	Exercise 6
<i>Lab 4.</i> February 4, 6	Porifera & Cnidaria	Exercises 7, 8
<i>Lab 5.</i> February 11, 13	Platyhelminthes & Mollusca	Exercises 9, 11
<i>Lab 6.</i> February 18, 20	LAB PRACTICAL for labs 3-5 (75 points) Nematodes	Exercise 10
<i>Lab 7.</i> February 25, 27	Systematics	Exercise 5
March 4, 6	<i>NO LABS---SPRING BREAK</i>	
<i>Lab 8.</i> March 11, 13	Annelids, Myriapods, Chelicerates	Exercise 12, 13, 15A
<i>Lab 9.</i> March 18, 20	Crustaceans, Insects, Echinoderms	Exercises 14, 15B, 16
<i>Lab 10.</i> March 25, 27	LAB PRACTICAL for labs 6, 8-9 (75 points) Vertebrate skeletal diversity	Handout in lab, Exercise 22A
<i>Lab 11.</i> April 1, 3	Vertebrate tissues Begin skinning fetal pig	Exercise 4 Exercise 22B
<i>Lab 12.</i> April 8, 10	Fetal pig: finish skinning, identify muscles	Exercise 22B
<i>Lab 13.</i> April 15, 17	Fetal pig: digestive, circulatory, respiratory, urogenital systems	Exercises 22C-E, G
<i>Lab 14.</i> April 22 24	Review for final lab practical FINAL LAB PRACTICAL for labs 10-13 (100 pts.) Lab clean-up (clean & dry dissection instruments, trays, etc.)	