Moravian College

Department of Biological Sciences
Biology 112 – General Zoology
Fall 2013

Instructor: Dr. Fran Irish **Office Phone**: 610-861-1427
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Office hours: Monday, Wednesday, and Friday 9 a.m. – 10:30 a.m. and Wednesday, 1:00 pm - 2:30 pm, or by appointment.
Lecture: Monday, Wednesday, and Friday 11:45 a.m. – 12:35 p.m., HOSCI 204
Lab: Section B: Thursday 12:45 p.m. – 3:45 p.m., HOSCI 303

Tuesday Lab instructor: Ms. Marie Hosier **Phone**: 610-703-6045
e-mail: mhosier01@moravian.edu **Office:** HOSCI 307, phone ext 1674
Office hours: Wednesday 9:00 am – noon and Thursday 1:00 – 4:00 pm, or by appointment.
Lab: Section A: Tuesday 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 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 3rd. For instructions, see the following link:
http://home.moravian.edu/public/cit/_help/blackboard/bbstudent.asp
The course ID is BIOL112.FA13 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 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. 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 do 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 arrive on time and prepared for class. 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 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 is posted on Blackboard under "course information;" click on the link to go to the textbook website.

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* the answers to these questions (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 Fridays, 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. 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.

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 the Friday 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 to lab (I will provide unlined paper for drawings). This binder will hold all lab handouts, plus your notes, drawings, and any written work assigned for the labs. The goal of the notebook 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. Each exercise will be graded in lab; if you are running behind, you may have until the next lab period (one week) to complete all required exercises.

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 (80 points each)	240 points	
Final lecture exam (cumulative)	160 points	
quizzes/homework (10 points each)	100 points	Lecture: 500 points
2 lab practicals (75 points each)	150 points	
Final lab practical	100 points	
Stentor lab write-up	50 points	
Lab notebook	100 points	Lab: 400 points
Attendance & participation*	50 points	
Final grade:	**950 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 ar struggling to learn the material, *please contact me right away.* I am here to help you.

LECTURE SCHEDULE

Week		Lecture topic	Reading assignment
August 26	M	Introduction: The big questions	Chapter 1
Week 1	W	Chemistry of life	Chapter 2
	F*	The cell & mitosis	Chapter 3
September 2	M	***NO LECTURE---LABOR DAY***	
Week 2	W	Meiosis & Reproduction	Chapter 7
	F*	Development	Chapter 8
September 9	M	Body architecture	Chapter 9
Week 3	W	Origin & early evolution of living systems; Protozoa	Chapters 2 & 11
	F*	Protozoa	Chapter 11
September 16	M	**LECTURE EXAM 1** (80 points)	
Week 4	W	Porifera	Chapter 12
	F	Porifera & Cnidaria	Chapters 12 & 13
September 23	M	Cnidaria & Platyhelminthes	Chapters 13 & 14
Week 5	W	Platyhelminthes	Chapter 14
	F*	Mollusca	Chapter 16
September 30	M	Mollusca & Nematoda	Chapters 16 & 18
Week 6	W	Systematics	Chapter 10
	F*	Annelida	Chapter 17
October 7	M	Annelida	Chapter 17
Week 7	W	Introduction to arthropods	Chapter 19
	F	**LECTURE EXAM 2** (80 points)	
October 14	M	***NO LECTURE---FALL BREAK***	
Week 8	W	Arthropods: crustacea	Chapter 20
	F*	Arthropods: hexapoda	Chapter 21
October 21	M	Echinoderms	Chapter 22
Week 9	W	Hemichordates & Protochordates	Chapters 22 & 23
	F*	Chordates	Chapter 23
October 28	M	Origin of vertebrates	Chapter 23
Week 10	W	Fishes	Chapter 24
	F*	Amphibians & non-avian reptiles	Chapter 25 & 26

November 4	M	Non-avian reptiles & birds	Chapter 26 & 27
Week 11	W	Birds & mammals	Chapters 27 & 28
	F*	Mammals & Evolution	Chapters 28 & 6
November 11	M	**LECTURE EXAM 3** (80 points)	
Week 12	W	Evolution	Chapter 6
	F	Support, protection, & movement	Chapter 29
November 18	M	Homeostasis	Chapter 30
Week 13	W	Homeostasis & Internal fluids	Chapters 30 & 31
	F*	Internal fluids & Respiration	Chapters 31
November 25-29 Week 14		***NO CLASSES---THANKSGIVING***	
December 2	M	Respiration & Digestion	Chapters 31 & 32
Week 15	W	Nervous coordination	Chapter 33
	F*	Sense organs	Chapter 33

* Friday quiz

WEDNESDAY, DECEMBER 11TH. , 8:30 AM------FINAL LECTURE EXAM (160 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 16	**Lecture exam 1** (80 points)
September 17, 19	*Stentor* lab first draft due (50 points)
October 1, 3	***Lab practical 1*** (75 points)
October 11	**Lecture exam 2** (80 points)
November 5, 7	***Lab practical 2*** (75 points)
November 11	**Lecture exam 3** (80 points)
December 3, 5	***Final lab practical*** (100 points)
December 11	**Final exam** (160 points)

LABORATORY SCHEDULE

Lab Week	Laboratory topic	Laboratory exercise
Lab 1. August 27, 29	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
Lab 2. September 3, 5	Meiosis, Development	Exercise 3
Lab 3. September 10, 12	Protozoa	Exercise 6
Lab 4. September 17, 19	Porifera & Cnidaria	Exercises 7, 8
Lab 5. September 24, 26	Platyhelminthes & Mollusca	Exercises 9, 11
Lab 6. October 1, 3	**LAB PRACTICAL** for labs 3-5 (75 points) Nematodes	 Exercises 10, 12, 13,
Lab 7. October 8, 10	Systematics	Exercise 5
October 15, 17	***NO LAB---FALL BREAK***	
Lab 8. October 22, 24	Annelids,Myriapods, Chelicerates	Exercise 15A
Lab 9. October 29, 31	Crustaceans, Insects, Echinoderms	Exercises 14, 15B, 16
Lab 10. November 5, 7	**LAB PRACTICAL** for labs 6, 8-9 (75 points) Vertebrate skeletal diversity	 Handout in lab, Exercise 22A
Lab 11. November 12, 14	Fetal pig: finish skinning, identify muscles	Exercise 22B
Lab 12. November 19, 21	Fetal pig: digestive, circulatory, urogenital systems	Exercises 22C-E, G
November 26, 28	***NO LAB---THANKSGIVING***	
Lab 13. December 3, 5	**FINAL LAB PRACTICAL** for labs 10-12 (100 points) Lab clean-up	