Moravian College

Department of Biological Sciences
Biology 112 – General Zoology Syllabus
Fall 2015

Instructor: Dr. Fran Irish **Office Phone**: 610-861-1427
e-mail: firish@moravian.edu **Office**: HOSCI Room 312
Office hours: Tuesday 9:00 – 11:00 am, Wednesday 1:00 – 3:00 pm, or by appointment.
Lecture: Monday, Wednesday, Friday 11:45 am – 12:35 p.m., HOSCI 204
Lab: Section B: Thursday 12:45 pm – 3:45 pm HOSCI 300

Tuesday Lab instructor: Ms. Marie Hosier **Phone**: 610-703-6045
e-mail: hosierm@moravian.edu **Office:** HOSCI 321, phone ext. 1674
Office hours: Tuesday 10:00 am –12:00 pm and Wednesday 2:30 – 4:30 pm, or by appointment.
Lab: Section A: Tuesday 12:45 pm – 3:45 pm HOSCI 300

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. Following the instructions on the last page of this syllabus, you must register yourself for this course on Blackboard *as soon as possible*---your opportunity to enroll will expire at midnight on Tuesday, September 8th. The course ID is BIOL112.FA15 and the enrollment code is "zoology". If you have difficulty, 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 class 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 must be on silent mode during lecture, and I ask that you refrain from texting during class. 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, as engaging in ancillary activities is distracting to you and those around you and rude to the instructor.

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. It is a good idea 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 *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, you will search the primary literature for a research article on a zoology topic of your choice, and write a 2-page summary. Further instructions will be handed out later in the semester.

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.
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 (see below). *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 paper	20 points	
lecture quizzes & homework (10 points each)	90 points	Lecture: 510 points
Stentor lab write-up	50 points	
2 lab practicals (75 points each)	150 points	
Final lab practical	100 points	
Lab notebook (10 points per lab)	120 points	Lab: 420 points
Attendance & participation*	50 points	
Final grade	**980 points**	

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

Grading scale:

A	93-100	B-	77-80	D+	61-64
A-	89-92	C+	73-76	D	56-60
B+	85-88	C	69-72	D-	51-55
B	81-84	C-	65-68	F	0-50

Policy on honesty: Students are expected to abide by the college policy on intellectual honesty (see Student Handbook).
Academic support: The Academic Support Center houses Disability Support and Greyhound Tutoring on the first floor of Monocacy Hall and can be reached at 610-861-1401. Greyhound Tutoring provides course-specific tutors to Moravian students, free of charge. If you would like to work with a Greyhound Tutor to boost your academic success, please request a tutor through http://bit.ly/NeedTutorMC (case-sensitive). Please email Dana Wilson (wilsond@moravian.edu), Tutor Coordinator, for more information about tutoring.
Disability support: Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located on the first floor of Monocacy Hall (extension 1401). 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 and read them before coming to class.
2. ***Come to class***
3. 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.
4. *Write out complete* answers to the study questions posted after each lecture. *Think* about these questions as you answer them.
5. Review the lectures and your answers to the study questions for each Friday quiz.
6. 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. Prepare for each lab by reading the lab handout and appropriate lab exercise *before* you walk into the lab.
2. 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!
3. 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.
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	Reading assignment
August 31	M	Introduction: The big questions	Chapter 1
Week 1	W	Chemistry of life	Chapter 2
quiz	F	The cell & mitosis	Chapter 3
September 7	M	Meiosis & Reproduction	Chapter 7
Week 2	W	Development	Chapter 8
quiz	F	Body architecture	Chapter 9
September 14	M	Origin & early evolution of living systems;	Chapters 2 & 11
Week 3		Protozoa	
	W	Protozoa	Chapter 11
quiz	F	Multicellularity & Porifera	Chapter 12
September 21	M	**LECTURE EXAM 1** (80 points)	
Week 4	W	Porifera	Chapter 12
	F	Cnidaria	Chapter 13
September 28	M	Cnidaria & Platyhelminthes	Chapters 13 & 14
Week 5	W	Platyhelminthes	Chapter 14
quiz	F	Mollusca	Chapter 16
October 5	M	Mollusca & Nematoda	Chapters 16 & 18
Week 6*	W	Systematics	Chapter 10
	F	Annelida	Chapter 17
October 12	M	***NO LECTURE---FALL BREAK***	
Week 7	W	Annelida	Chapter 17
quiz	F	Introduction to arthropods	Chapter 19
October 19	M	**LECTURE EXAM 2** (80 points)	
Week 8	W	Arthropods: crustacea	Chapter 20
quiz	F	Arthropods: hexapoda	Chapter 21
October 26	M	Echinoderms	Chapter 22
Week 9	W	Hemichordates & Protochordates	Chapters 22 & 23
quiz	F	Chordates	Chapter 23
November 2	M	Origin of vertebrates	Chapter 23
Week 10	W	Fishes	Chapter 24
quiz	F	Amphibians & non-avian reptiles	Chapter 25 & 26

November 9	M	Non-avian reptiles & birds	Chapter 26 & 27
Week 11*	W	Birds & mammals	Chapters 27 & 28
	F	Mammals & Evolution	Chapters 28 & 6
November 16	M	**LECTURE EXAM 3** (80 points)	
Week 12	W	Evolution	Chapter 6
	F	Support, protection, & movement	Chapter 29
November 23	M	Homeostasis	Chapter 30
Week 13	W	25-29 ***NO CLASSES---THANKSGIVING***	
November 30	M	Homeostasis & Internal fluids	Chapters 30 & 31
Week 14	W	Internal fluids & Respiration	Chapters 31
quiz	F	Respiration & Digestion	Chapters 31 & 32
December 7	M	Digestion	Chapter 32
Week 15*	W	Nervous coordination	Chapter 33
	F	Sense organs	Chapter 33

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

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TUESDAY, DECEMBER 15TH. , 1:30 PM------FINAL LECTURE EXAM (160 points)

EXAM SCHEDULE

September 21	**Lecture exam 1** (80 points)
October 6, 8	***Lab practical 1*** (75 points)
October 19	**Lecture exam 2** (80 points)
November 10, 12	***Lab practical 2*** (75 points)
November 16	**Lecture exam 3** (80 points)
December 8, 10	***Final lab practical*** (100 points)
December 15	**Final lecture exam** (160 points)

LABORATORY SCHEDULE

Week	Laboratory topic	Exercise in manual
Lab 1. September 1, 3	Introduction, Safety Microscopy, the cell, mitosis	Handout Exercises 1, 2
Lab 2. September 8, 10	Meiosis, Development	Exercise 3
Lab 3. September 15, 17	Protozoa	Exercise 6
Lab 4. September 22, 24	Porifera & Cnidaria	Exercises 7, 8
Lab 5. Sept 29, Oct 1	Platyhelminthes & Mollusca	Exercises 9, 11
Lab 6. October 6, 8	**LAB PRACTICAL** for labs 3-5 (75 points) Nematodes	Exercises 10, 12, 13,
October 13, 15	***NO LAB---FALL BREAK***	
Lab 7. October 20, 22	Systematics	Exercise 5
Lab 8. October 27, 29	Annelids, Myriapods, Chelicerates	Exercise 15A
Lab 9. November 3, 5	Crustaceans, Insects, Echinoderms	Exercises 14, 15B, 16
Lab 10. November 10, 12	**LAB PRACTICAL** for labs 6, 8-9 (75 points) Vertebrate skeletal diversity	Handout in lab, Exercise 22A
Lab 11. November 17, 19	Fetal pig: skin pig, identify muscles	Exercise 22B
November 24, 26	***NO LAB---THANKSGIVING***	
Lab 13. December 1, 3	Fetal pig: digestive, circulatory, urogenital systems	Exercises 22C-E, G
Lab 14. December 8, 10	**FINAL LAB PRACTICAL** for labs 10-12 (100 points) Lab clean-up	

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.

Process for Enrolling Students in Blackboard Course Site

Your class has a Web-based component on our Blackboard site. To enroll in Blackboard and your course shell, please do the following:

Go to http://blackboard.moravian.edu

Type in your **username**, (**example: stxxx01**) and your **initial password**. Your initial password is the **same as your network account password**. Press LOGIN.

Click on the **Home** tab at the top of your screen**.**

To enroll in a course shell, you will need the course ID or name, and an enrollment code that your professor will provide if he/she is using one.

Course ID: BIOL112.FA15	Enrollment Code: zoology

To enroll in a course shell:

- Click on the **'Courses**' tab at the top of the screen.
- Under '**Course Search'** type in the course ID
- Select '**Go**'

OR

- Use the '**Browse Course Catalog'** hyperlink on the '**Course Catalog'** module
- Fill in the information in the 'Search Catalog" dialog boxes
- Select '**Go'**

Locate the chevron to the right of the course name---BIOL112.FA15

- Select '**enroll**' from the pull-down menu (*Do not select the course hyperlink if one is available.)*
- Type in the **enrollment code** (**zoology**) for this class.
- Select the **'Submit'** button at the bottom or top of the page

Repeat this process for any course your professor has told you there is a Blackboard shell.

After enrolling in your course site(s), a complete list of course sites in which you are enrolled will appear on the upper right of your screen each time you log in to the Blackboard site. Simply click on the link to enter that course site.