BIOLOGY 112 – General Zoology Laboratory
~ Fall Semester, 2008 ~

Note: This syllabus is subject to change at the instructor's discretion.

****

Lab Instructor: Kerri Mullen, M.S. ***E-mail address*:** kmullen@moravian.edu
Office: 212 Collier Hall of Science Building ***Office phone:*** 610-861-1506

Office hour: Wednesday @ 11:00a.m.–12:00p.m. [*or by advanced appointment*]

Class meeting times: Monday, Wednesday, Friday 9:10-10:00 a.m. in Memorial 302
Laboratory meeting times: Tuesdays & Thursdays 12:45 – 3:45 p.m. in Collier HOS 303

Course online sites: **Blackboard: Course ID: BIOL112.FA08**
Access Code: ZOOLOGY

Web Browsers for Blackboard (*keep as updated as possible*)**:**
- **PC Users:** use Explorer or Firefox
- **Mac Users:** use Firefox or Safari

Course text/ required books: Hickman et al., Integrated Principles of Zoology, 14th ed. McGraw-Hill Higher Education (New York, NY)

Note: You may also have a number of other readings that will be handed out in lab, made available as PDF, placed on reserve, or that you will find from print media and internet sources throughout the semester.

Course Description:
Introduction to the panorama of invertebrate and vertebrate animals, with attention to morphology, physiology, reproduction, and evolution of major animal groups. Laboratory emphasizes observation of structural-functional relationships of living and preserved representatives of major animal groups. Three 50-minute periods, one 3-hour laboratory. (F4)

Introductory comments:
The main focus of this course is to introduce you to the broad topic of zoology. My job will be to provide you with some scientific framework related to general zoology topics and help you to not only understand the comparative morphology, physiology, reproduction and evolution of animals, but also to explore the various relationships between organisms and their environment. The laboratory exercises are intended to compliment the lecture material.

I will try to provide laboratory outlines with expected outcomes for each lab to help keep us all organized. These outlines will highlight key topics covered in laboratory exercises. I will also provide a class schedule with a list of assigned readings, assignments and projects, including suggested study problems. I expect each of you to complete assigned readings and assignments in a timely manner, and be ready and willing to participate in laboratory discussions and exercises. You should get in the habit of checking the Blackboard site regularly as I will routinely post announcements, reminders, schedule changes, etc.

Course objectives: By the end of the semester, students should:

- Have an understanding the fundamental scientific concepts that underlie key topics in zoology;
- Have an appreciation for the complexity and value of ecosystems, biodiversity and the relationship between organisms and their environment;
- Understand the scientific process and be able to design and implement a semester-long experiment (i.e. collect and assess original data), culminating in a final written or oral presentation (TBD);
- Gain further experience in critical thinking, oral and written communication skills, and using technology to access important information.

Course policies, procedures, and expectations:

Academic integrity*:* Academic integrity is of utmost importance, and cheating or plagiarism will not be tolerated. Please read the **Academic Honesty Policy** that is included in the student handbook ***and*** the policy that I will distribute in class. I have attached a cover sheet to my policy that each of you will sign indicating that you have read and understand the policy and implications of violating it. If you have any questions about plagiarism or other forms of academic dishonesty, please ask. Assignments in this class may involve the use of internet resources, and it is my experience that students often do not realize that copyright violations and plagiarism policies still apply.

Attendance policy*:* As noted in the student handbook, students are expected to attend classes regularly. Due to emphasis on partner activities and group work in this lab, regular attendance from each of you is essential. Frequent unexcused absences will have a negative impact on your grade for the lab and ultimately the course. I will recognize legitimate excused absences such as when students are representing the university in an official capacity (e.g. for intercollegiate athletic competition, *but not practice*, off-campus music performances, etc.). Such activities are scheduled ahead of time; thus, I expect you to make arrangements with me ahead of time as well. In the event of an extended absence due to illness or other legitimate reasons, please notify me and a representative in the Learning Services Center as soon as possible. In the case of severe illness, accidents, etc., we will work out arrangements (e.g. for making up work, obtaining an incomplete or withdrawing from the course) on a case-by-case basis.

Please note that during the laboratory period, I will intersperse lectures, whole class and small group discussions and assignments, hands-on activities and exercises, and problem solving. The laboratory exercises cannot be learned simply by reading the text without coming to class and being an active participant. I am fond of spontaneous in-class assignments that are turned in before the end of the class period, and these cannot be made up if you are absent. In other words, if you miss lab, you miss out. Students who arrive late to class disrupt the flow of the session and distract their peers. Please be prompt! And please be sure to *TURN CELL PHONES OFF* during class time. If multiple interruptions are noted, you may be asked to leave the class.

*If class is canceled due to a campus emergency, inclement weather, or by the instructor, notification of the cancellation will be posted on the Moravian College web site and/or the BIOL 112 Blackboard site as early as possible. Please be prepared to discuss the missed material in the next class.

Assignments: I utilize a variety of types of assignments including group projects (in and out of class), short writing assignments, internet-based assignments, etc. Timely completion of the work is expected; late submissions will be docked 10% of the evaluated grade per day. I expect all PRINTED assignments to be handed to me IN PERSON. Unless it is an emergency (accompanied by official document, such as a doctor's note), I will not accept electronic documents via email. This policy is in place because (1) I do not have a printer at home, and (2) it avoids issues that result from Mac / PC and software version differences. All printed documents should be done in Times New Roman 11 point font and double-spaced.

Please include a heading that contains not only your name, but the date, the class, and the assignment title.

Requirements: You are required to read and fully understand the Laboratory Safety Guidelines. During the first week of class, I will collect signatures of all students confirming that the safety guidelines have been read and are understood. If you do not comply with all safety procedures, you will be asked to leave the lab. Accordingly, you are required to purchase your own safety lenses / goggles, available at the campus bookstore. If you forget your goggles, you will not be allowed to participate in labs that require them. Lab coats and gloves and any other necessary protective equipment will be provided for you.

You are also required to keep a lab notebook. You should include in your notebook all oral introductory material given at the beginning of each lab, including notes on safety considerations. During each lab, you should record all protocols and deviations from the protocol, as well as any data and other notes. Please end each lab exercise with a discussion of the lab, what was learned, and any further questions or concerns you may want to explore. At the end of each class, you should have what is essentially a lab report in your notebook. Please see the handout on writing a lab report. I will check your notebooks periodically, and the contents will be included in your final lab grade.

Practicals & quizzes: Practicals and quizzes will cover material from lab exercises and discussions, and the assigned readings and problem sets. Please refer to outlines for review material. Quiz and practical questions will be based on written and oral information provided for each laboratory exercise, so be sure to review your lab notes. If you do not understand any of the assigned questions or problems, it is your responsibility to ask me about them in class, during office hours, or via email. Questions may also be based on class / lab discussion, so you must be present for ALL labs if you expect to be fully prepared for formal evaluation of your performance. You should expect at least a portion of each quiz and practical to be essay format. **No make-up quiz or practical** will be administered without an official medical or university excuse.

Grading:	**% of Total Grade**
Attendance & class participation	**5**
Assignments and lab exercises, including notebook	**20**
Semester-long research project & presentation	**15**
Quiz #1 ***(Week of September 22nd***)	**15**
Quiz #2 (***Week of October 13th***)	**15**
Quiz #3 (***Week of November 3rd***)	**15**
Final Practical (***to be scheduled during the last week of classes***)	**15**

Your laboratory grade is worth 50% of your total grade for the class (lecture = 50%).

I do look at trends in grades over the semester; improvement in test grades over the duration of the course will be favorably noticed! Participation in class / lab discussions, review periods, etc. is expected and will be a factor in the determination of final grades. Please note that it is within the instructor's purview to apply qualitative judgment in determining grades for an assignment or for a course.

** ***EXTRA CREDIT: You will have the opportunity to increase your final laboratory grade by up to 5 points by arranging an independent field trip. Examples include visiting the Lehigh Gap Nature Center (www.lgnc.org), one of our area zoos (Lehigh Valley, Bronx or Philadelphia), etc. Although the trip may be done later in the semester, you must arrange details with me BEFORE FALL RECESS. After this, you***

will have forfeited your opportunity for extra credit. In order to receive your credit, you must hand in your entrance ticket stub or a receipt, as well as your notes and summary of your experience, including how your field trip was relevant to the laboratory material in General Zoology. You will need to arrange your own transportation, and no reimbursement will be made for the entry fee.

The 1-5 points earned will be awarded at the discretion of the instructor, and will be applied to your final lab grade. For example, if you receive 2 extra credit points, and you finish with an 82% (B-), your grade will be an 84, and a B will be your official laboratory grade.

If you have concerns about your grade, please come talk with me about it early in the semester, and we can work together to improve your comprehension, study habits, test skills, etc. If you wait until the final weeks of the semester to express concern over a low grade, it will be too late.

Family Educational Rights and Privacy Act (FERPA) If you are over the age of 18, please be aware of your right to privacy. Student records are confidential and may not be released (even to your parents) without your written consent. Visit http://www.ed.gov/print/policy/gen/guid/fpco/ferpa/index.html for complete policy details.

Academic Integrity: Absolute academic integrity and honesty is expected in all of my classes. Copying, plagiarism, data fabrication, or other types of cheating will not be tolerated, and students caught violating the attached policy provisions will be dealt with severely. Penalties may include failure of a test or assignment or a failing grade for the entire course. I have the right to report any and all violations of academic integrity to the appropriate campus administrators.

Each student enrolled in my class / lab is required to read and sign off on the attached Academic Honesty Policy, as well as that which is contained in your student handbook: http://www.moravian.edu/studentLife/handbook/academic2.htm. Please read the policy and return the signed form (below) before the end of the second week. I will keep these signed forms on file in my office.

****

I have read the "Moravian College Academic Honesty Policy" for Kerri Mullen's General Zoology Laboratory (Fall semester, 2008) and the Moravian College Student Handbook section on Academic Honesty. I understand the policy and the consequences of engaging in academic dishonesty.

Name: _____

Date: _____

(Actual policy distributed in lab the week of 8/25/08)

Biology 112 – General Zoology Laboratory Schedule
~Fall Semester, 2008 ~

Note: This schedule is subject to change at the instructor's discretion.

****

Lab Number	**Week of:**	**Topic(s)**
1	**August 25**	**Introduction, syllabus, laboratory safety**
2	**September 1**	**Microscopy & Field Trip to collect pond invertebrates**
		Object: to become familiar with using the microscope & note diversity of pond invertebrates • Microscopy worksheet due at the end of class • Sketch drawings of collected inverts in your lab notebook Assignments: Read "Look at Your Fish" by S. H. Scudder & background information on rearing *Tribolium* beetles
3	**September 8**	**Protozoans, Planaria, Hydra, Daphnia** Object: to learn how to observe & record observations of live organisms, while taking note of diverse forms, motility & behavior **Set up *Tribolium spp.* Population experiment** Objects: to gain experience in maintaining a culture of organisms; to plan and implement a long-term experiment to learn about populations and competition using the scientific method • Decide on a maintenance schedule for your group Assignment: Read selected excerpts from Park 1968
4	**September 15**	***QUIZ! ~ Lab Safety, Microscopy, Diversity of Inverts*** **Animal Diversity: dissections** Object: to gain an appreciation for diversity in the animal kingdom with respect to structure and function Assignment: once you have completed your dissection,

put together a group poster on the form and function of your group's organism. Be prepared to teach other members of your class about your organism by labeling your organism and using the information in your poster. [*You may come in during the evening to work on your dissections and posters.*]

5 **September 22** **Animal Diversity: poster presentations (posters will be graded)**

Object: to gain an appreciation for diversity in the animal kingdom with respect to structure and function

- Be sure you become sufficiently familiar with each organism during class. The form and function of *ALL* specimens will be included on the final practical.

6 **September 29** **Animal Behavior: termite, ethograms & basic statistics**

Object: to observe and manipulate behavior of termites; to learn about basic statistical tests and relevance; to understand what an ethogram is and how it is constructed; to plan a behavioral study to be done over the next 2 weeks (this can be done independently or with a partner)

Assignment: termite worksheet due at the end of class; collect behavioral data in an ethogram, perform basic statistics on your data using Excel, and type a full lab report according to the guidelines provided on the first class (purple paper).

Extra credit field trip proposals (typed) due TODAY in LAB!

October 6 **FALL RECESS – No Lab – *Collect Behavior Study Data***

7 **October 13** **Raptor Predation & Ecology: video & pellet dissections**

Object: to explore regional variation in a classic predator-prey relationship model; to reconstruct small animal skeletons (save for Structure & Movement lab)

Assignment: worksheet due at the end of class

DUE IN LAB: Results of your Ethogram, including

statistical

analysis, plus a typed report answering discussion questions

(group). Plan on giving a 3-5 minute summary of your study and

results; begin with general information on your study organism.

8	**October 20**	***QUIZ! ~ Animal Diversity Dissections, Behavior***
		Cells & Tissues: histology
		Object: to become familiar with cell structure & division; to visualize different cellular arrangement, i.e. tissues
		Assignment: worksheet with drawings due at the end of lab
		Reproduction & Ontogeny (development): chicks & sea urchins
		Objects: to understand the basic pattern of reproduction, following fertilization through development of an embryo and fetus; to gain an appreciation for recapitulation theory "ontogeny recapitulates phylogeny"
		• Agree on a rotating schedule within your group to check on the development of your urchins and chicks
9	**October 27**	**Reproduction & Ontogeny continued;**
		Structure & Movement: skeletons (cat, turtle, human, bird, owl pellets)
		Object: to learn how structure supports function in living systems; to explore the diversity and adaptations of organisms
10	**November 3**	***QUIZ! ~ Raptor Ecology, Histology, Reproduction & Ontogeny***
		Movement & Circulation: begin fetal pig dissections;
		Observe goldfish tail capillary circulation
		Object: to become familiar with muscle groups and the

circulatory system		
11	**November 10**	**Respiration, Digestion & Reproduction: fetal pig dissections** Object: to become familiar with respiratory, digestive & reproductive systems
12	**November 17**	**Digestion continued: cockroach dissection & enzyme analysis** Object: to determine the presence & distribution of digestive enzymes in the cockroach gut **Oral Presentations: Summary of *Tribolium* Experiment** (5min) *If time allows, you should finish any remaining pig dissection.*
	November 24	**THANKSGIVING BREAK - No Lab – *Study for Practical!!!*** ***Tribolium* report (as a group, typed according to syllabus guidelines) is due at my office this week:** • **Tuesday Lab: Monday by 4pm** • **Thursday Lab: Wednesday by 4pm** **Any papers not received by 4pm will be considered *LATE*. I will not accept emailed copies.** *You will be allowed to come into the lab during the evenings to study for the final practical.*
13	**December 1**	**Final Lab Practical *(in class) ~ Cumulative***