

Mississippi Valley State University
Department of Natural Sciences & Environmental Health
BI 111-05 General Biology I
BI 111L-05 General Biology I Lab
Fall 2018

Instructor: DR. Julius. O. Ikenga

Lecture: MWF 10:00-10:50 a.m., STC 2203

Lab: R 8:00-10:40 a.m., STC 2207

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Office Hours: MWF 8:00 – 9:50 a.m. and
2:00-4:00 p.m.,
T 8:00 a.m. -3:40 p.m.

Required Text:

1. General Biology I and General Biology II. McGraw-Hill Create Book (2017).
<http://create.mheducation.com>
2. General Biology I and General Biology II Lab Manual. McGraw-Hill Create Book (2017).
<http://create.mheducation.com>

Course Catalog Description:

The fundamentals of animal life, with emphasis on anatomy, physiology, behavior, evolution and genetics; with special reference to animal contributions to ecosystems and to humans. Live animals handled in compliance with rules of the institutional Animal Care and Use Committee, are used in classroom and laboratory for instruction and to demonstrate ethical and appropriate care of living animals use for instructional purposes. 4 credit hr.

Prerequisite: None.

Purpose. BI 111 is required for all Biology, Chemistry, Biochemistry, and Environmental health majors. It is designed to teach students the basic concepts of animal life with emphasis on anatomy, physiology, behavior, evolution and genetics, plus special reference to animal contributions to ecosystems and humans. The course also is developed around a Holistic Transformer Model (HTM). Students are expected to demonstrate and relate understanding of the basic concepts of animal life, methods of scientific research, animal organization: growth, functions, and classification.

The laboratory component of the course enables students to learn hands-on application, testing, skill development, and data collection and analysis. Students are expected to demonstrate knowledge of each lab exercise, identify, and relate lab results to animal life.

General Course Goals:

The overall course goals for BI 111 include:

1. Providing opportunity for all students to become familiar with the concepts and principles of natural sciences;
2. Demonstrating the use of technology in the study of animal biology; and
3. Demonstrating basic concepts of animal life and organization.

Student Learning Outcomes:

Upon completion of this course the student should be able to:

1. Discuss Principles of biology and Levels of Biological Organizations;
2. Give and apply steps of scientific method to a research project;
3. List and apply lab safety precautions and techniques; and
4. Communicate the impact of living things to their natural environment.

Course Requirements.

Each Student is required to:

1. Attend class regularly on scheduled class days, unless there is a death in the family, or that he/she is under the care of a physician. In either case, a signed excuse from the VP of Student Affairs is required.
2. Complete all assigned readings from course text.
3. Turn in each homework on the announced due date & time.
4. Demonstrate knowledge of course content on each examination.
5. Type ALL assignments before submission.

Technology Infusion.

Technology is integrated into the course to enhance and facilitate learning and understanding.

Type of technology used includes but not limited to:

1. **Dissecting and light compound microscopes with color monitor;**
2. **Color transparencies and overhead projector;**
3. **Computer and LCD projector, videos, and charts;**
4. **Computerized library search with EBSCO Host Databases;**
5. **Use of Internet searches for aspects of lecture & lab materials and for homework assignments; virtual lab projects, and**
6. **Computer applications for collecting, analyzing, and displaying data.**

Teaching & Learning Strategies .

The main instructional model for this course is collaborative learning. The instructor will set course content, course objectives, and methods of classroom assessment. The course will incorporate the following instructional strategies: **class discussion, online activities, assigned readings, and/or individual projects.** *Students are encouraged to actively participate in activities, ask questions, and contribute comments for discussion.* Students are also encouraged to engage and participate in class discussions and offer inputs. *Most importantly, students are expected to be active learners and to ask questions for clarification, when in doubt.* In order to be successful in the class, it is important that students, read the assigned material, and submit assignments and be prepared to discuss what they have read. The goal of this approach is to develop active learning environment that addresses a variety of learning styles, promotes critical thinking, and fosters creativity.

Make-up Policy . Makeup examination will not be given unless the student has a legitimate excuse for failing to take the exam on the scheduled day and time. Such a student must make arrangements with Dr. Ikenga for a makeup examination within 5 days from the missed exam date.

Assessment Methods: For lecture, students will be assessed on attendance, assignments, Journal article review, syllabus quiz, lecture quizzes, and lecture exams. For the lab, students will be assessed on Portfolio of lab exercises, lab worksheets and questions, Oral Presentation with Powerpoint, lab midterm and lab final. The lecture grade will be determined by dividing the total lecture points earned by the student by the total semester lecture-points (600) and then multiply by 100. The

lab grade will be determined by dividing the total lab-points earned by the student by the total semester lab-points (370) and then multiply by 100.

Points Breakdown

Assessments	Points
Attendance	20
Assignments (10)	100
Online Quizzes on Covered Chapters	200
Critical Review/Analysis of Journal Articles	25
Paper: <i>Optional</i>	25
Syllabus Quiz (1)	30
Exams: Midterm & Final	200
Lab Reports (12)	120
Portfolio	25
Power-point Oral Presentation	25
Lab Tests (1 & 2)	200
Total	970

Grading Scale: A = (90 and above), B = (80-89), C = (70-79), D = (60-69), and F = (below 60).

Cheating & Plagiarism: Cheating in any fashion is not be tolerated, including but not limited to plagiarizing another's words, work or ideas on individual class assignments. To address the situation of plagiarism, the University has implemented *Turnitin* to fight plagiarism and improve reading, writing, and research skills. *Turnitin* is a comprehensive plagiarism prevention system that lets faculty quickly and effectively check all students' work. Results are based on exhaustive searches of billions of pages from both current and archived instances on the Internet. Plagiarism will result in at least a failing grade for the assignment(s) and/or course. Cheating of any kind is absolutely NOT allowed. Students caught cheating run the risk of losing several points to all the points allowable for that particular examination or quiz.

Attendance Policy.

Each Student is required to:

1. Attend class regularly on scheduled class days, unless there is a death in the family, or the student is under the care of a physician. In either case, a signed excuse from the VP of Affairs is required.
2. Complete all assigned readings from course text.
3. Turn in each homework & worksheets on announced due date & time.
4. Demonstrate knowledge of course content on each examination.
5. TYPE ALL ASSIGNMENTS before submission.

Office Hours: The office hours on this syllabus are reserved for you. You should come in and ask questions on lecture or lab materials that you have not already mastered, or use the time to explore aspects of science, careers, academic advisements, etc., that may be of particular interest to you.

Students with Special Needs.

Students having any special needs (i.e., disabilities, handicaps, problems, or any other factors that may affect their performances in class) or who require special instructional strategies should make these special needs known to the instructor during the first week of the course. The instructor will meet with the student to insure access to resources in the University and make appropriate instructional modifications as required.

Tentative Course Outline:

**Test Yourself Questions at the End of Each Chapter are Due One Week After Completion of the Chapter in Class.*

- I. An Introduction to Biology (Ch. 1)
- II. The Chemical Basis of Life I (Ch. 2)
- III. The Chemical Basis of Life II (Ch. 3)
- IV. General Features of Cells (Ch. 4)
- V. Membrane Structure, Synthesis & Transport (Ch. 5)
- VI. Cellular Respiration and Fermentation (Ch. 7)
- VII. Animal Bodies & Homeostasis (Ch.40)
- VIII. Nutrition and Animal Digestive Systems (Ch.45)
- IX. Circulatory Systems (Ch.47)
- X. Respiration Systems (Ch.48)
- XI. Animal Reproduction (Ch.51)
- XII. Animal Development (Ch.52)
- XIII. An Introduction to Animal Diversity (Ch.32)

1. LABORATORY ACTIVITIES WILL INCLUDE:

Writing and Submitting a Lab Report (LR) for each Laboratory Exercise Completed. LR is DUE one week after its completion in the lab. A late Submission will Cost you points.

LABORATORY EXERCISES

DATES

Ex. i Lab safeties & precautions; Common laboratory equipment	08/23
Ex. ii How to Write a Lab Report, p15	08/23
Ex. 1 Scientific Method: The Process of Science, p19	08/30
Ex. 2 Measurements in Biology, p29	08/30
Ex. 3 The Microscope, 39	09/06
Ex. 4 The Cell: Structure & Function, p51	09/11
Ex. 5 Solutions, Acids, Bases, & pH, p67	09/20
Ex. 6 Biologically Important Molecules and Lab MT Review, p65	10/27
LAB EXAM #1	10/04
Ex. 9 Diffusion & Osmosis, p89	10/11
Ex. 10 Cellular Membranes, p101	10/18
Ex. 41 Vertebrate Animal Tissues, p109	10/25
Ex. 42 Human Skeletal System, p123	11/01
Ex. 44 Human Biology: Breathing, p131	11/08
Ex. 45 Circulation & Blood Pressure, p141	11/15
Lab Review	11/29
LAB EXAM #2 (Portfolio of Lab Exercises Due)	12/06

2. Preparing a Lab Portfolio.

Your Portfolio should have in it:

- | | |
|--|---|
| a) A cover page with a title. | e) All course Handouts |
| b) A table of content with page #s | f) All Assignments |
| c) Labeled Drawings with dates completed | g) All Lab Worksheets with dates Completed. |
| d) All completed End of Lab Exercise Questions | |

3. Making an Oral Presentation:

- ☺ It should be on any Animal Species of Your Choice, Except the Domesticated Animals!
- ☺ Check your species with teacher before working on it to avoid duplication of species.
- ☺ Your Presentation should address 5 criteria: (*A Grading Rubric Will be provided to you*)
 1. The common name of your species
 2. The scientific name of your species
 3. Description of the Ecology of your species?
 4. The importance of your species to human community
 5. The importance of your species to the environment.

References.

- Audesirk, T. G. Audesirk, and B. E. Byers (2017). *Biology: Life on Earth with Physiology*, 11th ed., Pearson Publishing, N.Y.**
- Bauman, R. (2017). *Microbiology with Diseases by Body System*, 5th ed., Pearson Publishing, N.Y.**
- Brooker, Robert J., Eric P. Widmaier, Linda E. Graham, and Peter D. Stiling (2017). *Biology*, 4th ed., McGraw-Hill Higher Education, NY, NY.**
- Friis, R. H. (2019). *Essentials of Environmental Health*, 3rd ed., Jones & Bartlett Learning, MA.**
- Klug, W. S., M. R. Cummings, C. A. Spencer, and M. A. Palladino (2012). *Concepts of Genetics*, 10th ed., Pearson Benjamin Cummings, N.Y.**
- Leboffe, J. M. (2013). *A Photographic Atlas of Histology*, 2nd ed., Morton Publishing, Englewood, CA.**
- Mader, S. S. (2017). *Inquiry Into Life Laboratory Manual*, 15th ed., McGraw- Hill Publishing, N.Y.**
- Mader, S. and L. Smith-Staton (2014). *Laboratory Manual: Inquiry into Life*, 15th ed., McGraw-Hill Publishing, N.Y.**
- Mader, S. S. and M. Windelspecht (2017). *Inquiry Into Life, Relevancy update*, 15.1th ed., McGraw-Hill Publishing, N.Y.**
- Madigan, M. T., J. M. Martinko, K. S., Bender, D. H. Buckley, and D. A. Stahl (2014). *Brock Biology of Microorganisms*, 14th ed., Pearson Publishing, Boston, MA.**
- Pendarvis, P. M. and J. L. Crawley (2016). *Exploring Biology in the Laboratory, Core Concepts*, Morton Publishing, Englewood, CA.**
- Robers, L. S., J. Janovy, and S. Nadler (2013). *Gerald D. Schmidt & Larry S. Roberts' Foundations of Parasitology*, 9th ed., McGraw-Hill Publishing, NY, NY.**
- Sanders, M. F. and J. L. Bowman (2012). *Genetic Analysis: An Integrated Approach*, Pearson/Benjamin Cummings, N.Y.**
- Shuster, M., J. Vigna, M. Tontono, and G. Sinha (2014). *Biology for a Changing world with Physiology*, 2nd ed., Freeman and Company, N. Y.**
- Stilling, P. (2012). *Ecology, Global Insights & Investigations*, McGraw-Hill Publishing.**
- Urry, L. A., M. L. Cain, S. A. Wasserman, P. V. Minorsky, and J. B. Reece. (2017). *Campbell Biology*, 11th ed., Pearson Publishing, N.Y.**
- Vodopich, D. S. and R. Moore (2017). *Biology: Laboratory Manual*, 11th ed., McGraw-Hill Publishing, NY, NY.**

As the instructor, I reserve the right to make any changes to this syllabus as found necessary. Note that this document does NOT constitute a contract with the University. It contains only guidelines for this course.