

Biology 3B (Section 0404) Summer 2015

Instructor: Dr. Bernice Filerman, Ph.D.
M,T,W,Th 10:20 - 12:25 pm
Office Hrs. 1:00 - 2:00pm M,T,W,Th

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Room: MSA 203

COURSE DESCRIPTION: This is a course in general biology designed to fulfill a laboratory science requirement and will also provide a foundation for advanced courses in biology, including human anatomy, physiology, and microbiology. The lecture portion of the course emphasizes the basic principles in biology, cell structure and function, and the levels of organization in the human body. Lecture topics include the scientific method, an introduction to biological chemistry, heredity, evolution, the genetic control of cellular processes, ecology, and the organ systems of the body. **This laboratory portion of the Biology course emphasizes** the diverse types of organisms and their anatomy and physiology. Laboratory topics include an introduction to the microscope, study of the cell, study of enzyme activity, a survey of the microorganisms, plants, and animals that comprise the 5 Kingdoms of life, and the anatomic study of the earthworm, grasshopper, and fetal pig.

Students will perform lab manual exercises that incorporate completion of brief lab reports, mathematical computation, analytic techniques, and laboratory skills. Completion of the laboratory manual exercises requires written short answer observations, logical analysis of experimental results, and careful preparation of drawings to document observations.

INSTRUCTIONAL METHODS: Most classes will begin with a pre-quiz followed by an approximately 10 minute overview of the current lab. Next we will do the hands-on activities or experiments as prescribed by Prof. Fink's Lab Manual. Finally, you will correct your pre-quiz (now called a post-quiz) if necessary and complete any worksheets accompanying the lab. **Cooperative learning strategy.**

STUDENT LEARNING OBJECTIVES: Students will be able to explain:

- how to measure using the metric system
- the parts, use and care of the light microscope
- the appearance of prokaryotic and eukaryotic cells when viewed through the microscope
- how to test for sugars, starch and protein
- diffusion and osmosis and expression of solution concentration
- the phases of mitosis and meiosis
- the appearance of mammalian tissues in the microscope
- how concentration, temperature and pH affect enzymes
- taxonomic classification
- the key characteristics and the classification of bacteria, fungi, protista, plants and animals
- the structure and function of the major organs of the fetal pig

INSTITUTIONAL STUDENT LEARNING OUTCOMES (SLOS)

- **Critical Thinking:** analyze problems by differentiating fact from opinions, using evidence, and using sound reasoning to specify multiple solutions and their consequences
- **Quantitative Reasoning:** identify, analyze and solve problems that are quantitative in nature
- **Technical competence:** utilize the appropriate technology effectively for informational, academic, personal and professional needs

PROGRAM STUDENT LEARNING OUTCOMES

- Explain how scientists investigate causes of natural biological phenomena.
- Utilize biological information to make informed decisions about environmental issues.
- Utilize biological information to make informed decisions about personal issues.

BIOLOGY 3B COURSE STUDENT LEARNING OUTCOMES

At the end of the semester a student should be able to

- determine whether an unknown solution contains a sugar, a starch or a protein using the Benedict's test, the Biuret test or the Iodine test.
- measure using the metric system
- use the microscope and estimate sizes of objects
- identify the stages of mitosis and compare and contrast the differences between mitosis and meiosis

REQUIREMENTS:

1. Attendance: Roll will be taken. THERE IS A STRONG CORRELATION BETWEEN POOR ATTENDANCE AND POOR GRADES. **You are responsible for information, exam announcements, date changes, etc. presented in class , whether or not you are present.**

Roll will be taken; must take final; all exams are returned to the student in person. Students who are adding the class must complete the process by the 3rd class meeting.

2. Grading Policy: 88-100% A; 77-87% B; 62-76% C; 50-61% D. Below 50% F.

Computation of the Course Grade:

1 midterm = 200 pts.

1 final = 250 pts.

Lab Report: = 50 pts.

14 drawings/worksheets/exit slips/

pre and post quizzes..... = 280pts. [10 pts. each]

Class Contribution:.....= 20pts. [**consistent quality participation including asking questions, carrying out the lab, collecting experimental data, making accurate and understandable diagrams and engaging in class discussions about the lab**]

The total points for determining the course grade are 800 pts. If any of the listed categories end up with more points than those indicated, then those extra points are always used as a **credit** toward your final grade. **Your personal total points will be divided by 800** regardless of how many additional total points are available.

Examinations consist of objective questions (matching, true -false and identifying pictures and/or real lab materials.

3. Books and Materials:

S.A. Fink: Biology Laboratory; BioBooks Pub;2014

S. Mader Biology: Inquiry into Life; McGraw- Hill Publishers

#2 PENCIL; #882 SCANTRONS; 884-E

Gloves (for pig dissection)

Pencil and/or colored pencils

4. Laboratory Resources:

Etudes: <http://www.wlac.edu/online/login.asp>

<http://www.professorfink.com>

Virtual fetal pig dissection and review

<http://www/www.biologycorner.com/pig.review.html>

<http://mhhe.com/biosci/genbio/maderbiology7/studentindex.mhtml>

5. Interpersonal Skills: Collaboration

6. Personal Skills: Organization and Communication

7. Lab Rules

- Cell phones/beepers must be on a silent mode (off would be nice).
- No food or beverages in the room except water. This is an OSHA regulation
- Do not talk during formal presentations (no side-bar conversations)
However, asking clarifying questions directed toward me is very much appreciated

8. Recommendations for Succeeding in the Class:

1. Work hard
2. Get to class on time every time
3. Find a contact buddy in the class
4. Be organized. Study by reviewing previous work and then look forward to the upcoming lab work
5. Hi-lite appropriate sections in the lab manual
6. Make study guides that organize the content covered in lab, quizzes and midterm

9. Standards of Student Conduct

http://www.wlac.edu/academics/pdf/WLAC_Catalog_Policies.pdf

Board Rule 9803.10: Willful disobedience to directions of college officials acting in the performance of their duties.

Board Rule 9803.12: Dishonesty such as cheating

Board Rule 9803.15: Disruption or interruption of classes, administration, disciplinary procedures, or authorized college activities

Cheating/Academic dishonesty:

Here is a list of some actions that you should do so as not to be considered cheating during a test:

- No talking during midterm and final
- Keep your eyes on your own exam
- Place your answer sheet(s) directly in front of you and keep them covered
- Do not use any kind of notes (unless directed by me) on cards, strips of paper, desk top, on eraser, etc.
- Do not show your exam to a fellow student or pass information(unless directed by me) in any way to a fellow student
- Translation dictionaries are not permitted
- If you have a question during the exam quietly come to the front to ask me
- Do not change answers on a returned exam in order to claim it was scored wrongly

10. Withdrawal from Class:

You are responsible for your credit and enrollment status. Any student withdrawing from class must inform the admissions office of this decision.

Drop classes with a refund/no fee owed...June 19
 Drop classes w/o a W.....June 19
 Drop classes w/a W.....July 6

Students failing to follow the correct procedure for withdrawals will receive a grade of "F" for the semester

11. Special Accommodations:

Students with special needs due to physical, communication, or learning challenges need to contact the DSPS office located in the Student Services Building (SSB 320), 310-287-4450, or dsps@wlac.edu to enquire about eligibility for special accommodations such as tutoring, test proctoring, extended exam hours, or other accommodations.

TENTATIVE LAB TOPIC SCHEDULE

WEEK 1	6/15	6/16	6/17	6/18
6/15-6/18	Lab Orientation LAB A	Measurement in Biology LAB A Scientific Notation Metric Conversions Using the Tools Appendix C	The Microscope & Its Uses LAB B Proper Care and Handling Magnification Field of View (Diameter of Field of View) Depth of Focus Estimating Real Size Mader p.53	The Cell LAB D Mader Ch.3 Ch.12 [227-231 (blood cells)] Introduction to Cell Structure
WEEK 2	6/22	6/23	6/24	6/25
6/22-6/25	CELL DIVISION MITOSIS LAB F Mader Ch.5 (esp. pgs 85-87; 94-96)	CELL DIVISION MEIOSIS LAB F Mader Ch.5 (esp. pgs 85-87; 94-96)	IDENTIFICATION OF ORGANIC MOLECULES Begin Experimental Design: Start Lab Report LAB C Mader Ch. 2	Introduction to Graphing, Diffusion, Osmosis LAB X, LAB E Mader Ch.3 (71-74)
3	6/29	6/30	7/1	7/2
6/29-7/2	Enzymes LAB CC Mader Ch.2 (37-39); Ch. 6 (104-107)	MIDTERM Experimental Design Revisited/culmination of lab report	Classification of Organisms; introduction to Bio 3B part 2; Viruses; Kingdom Monera Kingdom Protista LABS: G, H, I, J, K Ch.2(37-39);Ch.6(104-197) 596-601 576-583	Classification of Organisms; Kingdom Protista Kingdom Fungi; Kingdom Plants Symbiosis How organisms are organized (single celled vs. multicellularity and tissues) 585-590 CH.28 (591-596) 703-704 CH.11 (198-204)

BIOLOGY3B SUMMER 2015 TENTATIVE SCHEDULE CONTINUED

week 4	7/6	7/7	7/8	7/9
7/6-7/9	Kingdom Plants LAB L The Algae: aquatic nonvascular Bryophytes: terrestrial nonvascular Ch.29 The Algae CH.28 (528-586); CH.29 (610-618; 619-621; 176-183)	Kingdom Plants LAB L CH.28 (528-586); CH.29 (610-618; 619-621; 176-183)	Tracheophytes vascular plants (includes trees) Vegetative Organs & Reproduction in Angiosperms and Gymnosperms Dichotomous Key M, N, MM	Vegetative Organs & Repro in Angiosperms, M, N, MM CH.9 (612-618) 618-621; CH.10 (171-180)
week 5	7/13	7/14	7/15	7/16
7/13-7/16	Animal Kingdom: Invertebrate Animals O, P Ch.30 (629-645) 626-651 652-663 373	Invertebrate Animals O, P 629-648	Vertebrate Animals, Histology R, S, T 650-660	Vertebrate Animals, Histology R, S, T 194-200;222-225
week 6	7/20	7/21	7/22	7/23
7/20-7/23	Vertebrate Animals, Histology R, S, T	Fetal Pig U ch.11 202;207-209]Ch.14 216-220;396-397	Fetal Pig 416-419; 420-421;3371;379	FINAL EXAM PERIOD (No lab exercise class meetings)(emphasis on everything not covered on the midterm. Some revisiting of basics from first part.)