

**Class: Biology 3B**

**Email:** [zivn@wlab.edu](mailto:zivn@wlab.edu), best way to reach me

**Class Times:** M, T, W, Th 10:20 am - 12:25 pm in MSA 309

**Office Hours:** M, T, W, Th 12:30 - 1pm in MSA 309, or by appointment

**Instructor:** Nurit Ziv

**Semester:** Summer 2016

**Section #:** 0402

## BIOLOGY 3B LABORATORY

Welcome to Biology 3B! You have chosen to take biology during an intense 6-week session. This will require a lot of time and work on your part. Hopefully, this will also be an enjoyable experience. I wish you all an enjoyable and productive semester learning biology! The more you put into this class, the more you will get out of it.

### Course Description:

This is a course in general biology designed to fulfill a laboratory science requirement as well as provide a foundation for advanced courses in biology, such as anatomy, physiology, and microbiology. This course should be taken concurrently with Biology 3A, the lecture portion of the biology course. Bio 3A emphasizes the unity of living things, the basic principles in biology, cell structure and function, and the levels of organization in the human body. Lecture topics in Bio 3A include the scientific method, an introduction to biological chemistry, heredity, evolution, genetic control of cellular processes, ecology, and the organ systems of the body.

Bio 3B, the laboratory portion of the biology course, is intended to teach students basic biologic principles through hands on experience. Bio 3B emphasizes the diversity among types of organisms and their anatomy and physiology. Laboratory topics include an introduction to the microscope, study of the cell, study of enzyme activity, and a survey of various organisms. Students will learn the physical appearance common to various types of organisms and what features are used to classify them. Some of the organisms we will examine are: bacteria, protozoa, yeasts, molds, algae, plants, and animals. Students will also learn their habitat, how these organisms obtain nutrients, and how they reproduce. Lastly, we will perform dissections on an earthworm, grasshopper, and fetal pig.

Students will perform lab manual exercises which 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.

### Student Learning Objectives:

A student who completes this class will be able to describe:

- 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 light microscope.

- how to test for the presence of organic compounds such as carbohydrates and proteins.
- the mechanisms of transport of substances across membranes, such as diffusion and osmosis.
- the expression of solution concentration.
- the phases of mitosis and meiosis.
- the appearance of mammalian tissues in the light microscope.
- factors affecting enzyme activity, such as concentration, temperature, and pH.
- taxonomic classification.
- the key characteristics and classification of the bacteria, fungi, protists, plants, and animals.
- The structure and function of the major organs of the fetal pig

### **Student Learning Outcomes:**

West L.A. College has created a series of Student Learning Outcomes (SLOs). SLOs are general skills, knowledge, or masteries which students are expected to have after completing a course or program of study.

- **Biology Program SLOs:**

A student who completes this program will be able to:

1. explain how scientists investigate causes of natural biological phenomena.
2. utilize biological information to make informed decisions about environmental issues.
3. utilize biological information to make informed decisions about personal issues.

- **Bio 3B Course SLOs:**

A student who completes this course will be able to:

SLO 1: determine whether an unknown solution contains a sugar, a protein or starch using the Benedict's test, Biuret test and the Iodine test.

- As assessed by carrying-out a series of laboratory analytic tests and successfully completing a laboratory report, exercises, and examinations (multiple choice, short answer, fill-in-the blank, and/or matching).

SLO 2: understand the principles of taxonomy and apply those principles to classify organisms.

- As assessed by carrying-out laboratory activities and successfully completing a laboratory report, exercises, and/or examinations (multiple choice, short answer, fill-in-the blank, and/or matching).

### **Required and Recommended Textbooks & Materials: (Required in bold)**

- **Books:**

- **S.A. Fink; Biology Laboratory; BioBooks Pub.; 2014 [ISBN 978-2-900351-18-5]**
- S.S. Mader and M. Windelspecht; Inquiry Into Life; McGraw-Hill Publishers; 2014 (14<sup>th</sup> ed) [ISBN 978-0-07-352552-5] (required for Bio 3A)

- **Materials to Bring to Class:**

You will be expected to bring **your own lab manual**, small stapler, paper, a number 2 pencil, and colored pencils to each laboratory. Drawings are to be done in **pencil or colored pencil**. For quizzes and exams: 8 Scan-trons (form 882-E), sharpened no. 2 pencils, and a good eraser. **\*Rubber gloves (for earthworm, grasshopper (Lab P) and pig dissections (Lab U).**

### Laboratory Resources:

PowerPoints will be posted on Dropbox.

<http://www.professorfink.com>

For a virtual fetal pig dissection and information:

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

[http://www.mhhe.com/biosci/genbio/maderbiology7/student\\_index.mhtml](http://www.mhhe.com/biosci/genbio/maderbiology7/student_index.mhtml)

### Special Accommodations:

If you require any accommodations (religious or disability), you must inform me in writing **within the first week of class** and provide me with appropriate documentation. 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@wlaac.edu](mailto:dsps@wlaac.edu) to enquire about eligibility for special accommodations such as tutoring, test proctoring, extended exam hours, or other accommodations. I must receive documentation from DSPS regarding what accommodations you require. You must meet with me to discuss any arrangements during the first week of class.

### Tutoring:

The Learning Resource Center offers tutoring in Bio 3B. They are located on the first floor of the HLRC. For more information, you can contact them at: 310-287-4404. Please refer to their website for the tutoring schedule:

<http://www.wlaac.edu/Library/LearningCenter.aspx>.

### Cheating/ Academic Dishonesty:

Each student is expected to do his/her own work on all assignments, reports, examinations, etc. Cheating on an exam/quiz/assignment will result in an **"F" on the exam/quiz/assignment** in question and may be referred for disciplinary action in accordance with the Los Angeles Community College Student Discipline Procedures as stated in Board Rule 91101. For more information on college policies regarding student conduct, see

[http://www.wlaac.edu/academics/pdf/WLAC\\_Catalog\\_Policies.pdf](http://www.wlaac.edu/academics/pdf/WLAC_Catalog_Policies.pdf).

Some actions that are considered cheating are:

- talking during an exam
- failing to keep your eyes on your own paper
- **having identical or similarly worded answers on quizzes/lab activities/lab reports to a classmate**
- using unauthorized notes of any kind
- using any electronic device – **cell phone use during an exam constitutes cheating.**
- showing a fellow student your exam or passing information in any way

- using translation dictionaries
- turning in someone else's work
- exiting the room during the exam before its completion
- plagiarism
- providing your work for someone else to copy

To guard against cheating during an exam/quiz you should:

- place your answer sheet directly in front of you
- keep your eyes on your own exam/quiz and your answers covered
- keep both hands on the table
- have your cell phone turned off and in your bag
- raise your hand if you have any questions and I will come to you

### **Behavioral Policies:**

Students are expected to adhere to the "Rules, Regulations & Policies of Student Conduct" (pp. 40-44 in the West Los Angeles College 2014-2016 Catalog; see: [http://www.wlac.edu/academics/pdf/WLAC\\_Catalog\\_Policies.pdf](http://www.wlac.edu/academics/pdf/WLAC_Catalog_Policies.pdf)).

Violators of these rules are subject to disciplinary action under Board Rule 9803.15 of the Los Angeles Community College District.

Some basic rules to follow in class:

1. Be honest and ethical.
2. Behave respectfully and considerately towards your classmates and the instructor.
3. Arrive on time. If you must come late, please enter the classroom quietly.
4. Please refrain from talking or leaving the classroom during the lecture portion of the class.
5. Cell phones should be turned off during class. If you must have a phone on, set it to vibrate and take the call outside. **Absolutely no cell phone use is permitted during an exam or quiz.** There is no exception to this rule and using a cell phone during an exam will be considered cheating!
6. No food or beverages are allowed in class except for water. If you spill, clean up the mess.
7. **You may not leave the classroom during a quiz or exam (even to use the restroom).**
8. Please clean up after yourselves and follow appropriate lab clean-up procedures at the end of each lab.

### **Attendance Policy:**

**Missing any class during the first week of the summer session without notifying the instructor may result in exclusion from the class.** Since this is a laboratory class, attendance is crucial. Roll will be taken. **In order to be considered present, you must be present for the entire duration of the lab.** If you leave before the duration of the lab, you are considered absent for that lab.

Three cases of tardiness may be considered equivalent to one absence. Students, who are absent for **3 consecutive class meetings or 6 class meetings throughout the course**, without informing the instructor of a valid excuse **may be dropped.**

Your participation grade is based on active class participation and performance of laboratory work and thus will be affected by attendance. There is a strong correlation between attendance and performance.

**You are responsible for all information, exam announcements, date changes, etc. covered in class whether or not you are present.** In the event you must miss a class, find a classmate from whom you can obtain missing information!

#### **Missed Labs:**

There are no make-up labs.

#### **Adding Class:**

The last day to add a class in person is **Friday, June 17, 2016**. It is **your responsibility to submit your Add slip to Admissions and make sure you are registered in the class.**

#### **Withdrawal from Class:**

**You are responsible** for your credit and enrollment status. Any student withdrawing from class **must drop officially through the Admissions office**. **Students failing to drop officially, who simply stop showing up to class, may receive an "F" for the semester.**

- The last day to drop a class **without** a "W" is **Friday, June 17, 2016**.
- The last day to drop a class **with** a "W" is **Thursday, July, 14 2016** (See Spring 2016 Class Schedule, P. 1 [http://www.wlac.edu/wlac2schedule/pdf/SPR\\_wlac\\_classes.pdf](http://www.wlac.edu/wlac2schedule/pdf/SPR_wlac_classes.pdf)).

#### **Class Format:**

Each class will begin with a brief lecture of the laboratory exercise for that day, followed by the laboratory exercise and a brief review at the end if time permits. On quiz days, the class will begin with the quiz which will take ~10-20 min., followed by the lecture and lab exercise. Taking notes is strongly encouraged as you will be tested on all information covered in lab (including PowerPoint lectures, information in the lab manual, and lab activities).

You are expected to **read the appropriate lab exercise before you come to class**. For most labs, you will work in groups of 2-4 students. To answer a question, you are highly encouraged to first try to find the answer on your own and then work collaboratively with your lab group to figure out the answer. You must write your own original answer in the lab notebook in your own words, even if you came to the conclusion collaboratively with your lab partners. If you are unclear about the material or my explanation, please ask me for clarification.

#### **Grade Components:**

Your grade will be calculated from 4 components: 1. quizzes, 2. lab activities and reports, 3. participation, and 4. examinations: a midterm and a final.

##### **1. Quizzes: (30%)**

There will be 6 short quizzes (the 4 highest will count) at the start of class on days indicated on the lab schedule. They will cover the information in the lab manual and PowerPoint. **Note:** To accommodate for uncontrollable life circumstances, I drop the **TWO** lowest quizzes. **There are no make-up quizzes. If you have an emergency and**

**miss a quiz, this will be one of the quizzes you drop. You cannot drop more than two quizzes.** That is why it is strongly recommended to attend **all** quizzes for the case of unforeseen circumstances.

- Format of Quizzes: quizzes will be short and based on the previous 1-2 lab exercises. They will consist of objective-type questions (multiple choice, true/false, matching) and may contain short answers and fill-in-the-blank. You will need scan-trons for quizzes.
- Arriving late: if you arrive late to a quiz, you will only have the amount of time remaining for the rest of the class. **If you arrive after the quiz is over, you are considered late and cannot take the quiz.**

## 2. Lab Activities/Reports (18.75%)

A total of 12 activities/reports will be collected on select labs. There are **no make-up labs** which is why **the two lowest activities will be dropped**. Lab activities will consist of worksheets, drawings, review questions, and lab reports. Each activity will be worth 15 points. To receive credit: 1. your writing must be legible, 2. drawings must be detailed, accurate and understandable, and 3. **you must get my signature on each completed lab before you leave**. You can not receive credit for a lab activity if you were absent from that lab or do not have my signature. Due dates will be announced. The activities are due during the first 10 minutes of class on the days they are due. **Late lab activities/reports** can only be handed in in-person **at the start of the next lab following the due date** or the first day you return from an absence. Five points will be deducted for late work unless you provide documentation (i.e., doctor's note).

In the event of extenuating circumstances, you must email me as soon as possible to let me know your situation.

## 4. Participation Grade: (6.25%)

Your participation in class activities, including: active performance of lab activities, asking questions, and contribution to class discussions, will be taken into account to calculate this grade. Active performance of lab activities includes performing experiments, collecting data, drawing diagrams, observing specimens in microscope & around the room, answering review questions, etc. This grade takes into account the quality of your participation, not just being physically present. In the cases of borderline grades, this grade will be considered.

## 5. Exams: (45%)

**Note: the midterm and final exams CANNOT be dropped. There are no late or make-up exams! Please note the dates for the exams and make sure you attend all exams.**

- Format of exams: objective-type questions (i.e. True/False, Multiple Choice, Identification, and Matching questions; scan-trons will be used).
- The midterm will cover all material prior to the midterm.
- The final exam is **comprehensive for the entire semester**. It will **emphasize** material covered **after the midterm**. It will contain a practical component.

**If you arrive late**, you will only have the amount of time remaining for the rest of the class.

### Computation of Course Grade:

4 of 6 highest Quizzes @ 60 pts each	240 pts (30%)
10 of 12 Lab Activities/Reports @ 15 pts each	150 pts (18.75%)
Participation @ 50 pts	50 pts (6.25%)
Midterm @ 180 pts	180 pts (22.5%)
Final Exam (comprehensive) @ 180 pts	180 pts (22.5%)
<hr/> Total	<hr/> 800 pts (100%)

Calculation of your percentage in the class: your total points in class/800 points x 100.  
For example, if by the end of the semester your total points in class is 616, your grade in class is  $616/800 \times 100 = 77\%$ , resulting in a 'B' in the class.

### Grading Policy:

A: 88-100%      B: 77-87%      C: 62-76%      D: 50-61%      F <50%

### Recommendations for Succeeding in Class:

- Expect to work!
- **Focus on understanding "why" and "how" rather than on rote memorization.**
  - **If you don't understand a concept, ask! I encourage questions as science is all about asking questions. ☺**
- Come on time, attend all classes in their entirety, and take good notes.
- Come to office hours!
- Devote at least one hour outside of class for each hour of lab.
- Study daily to keep up with the material rather than cramming the night before an exam/quiz.
- **Form a study group: ask each other questions.**
- Pre-read the lab manual section prior to lab and review your notes following each lab.
- Be organized!
- Actively listen, read, and ask questions.
- **Find someone in the class from whom to get information in case you do miss a class or lose material.**
- **Make it fun!** Find inventive ways to study.
- Use mnemonic devices such as acronyms and word associations.
- Use websites and animations provided in your textbook.
- Prepare flash cards and review them regularly.
- Anything you turn-in (lab exams, reports, etc.) should look neat and be legible.

**Tentative Schedule (Subject to Change)**

Week	Date	Laboratory Topic	Lab	Mader Textbook
1	Jun. 13	Laboratory Orientation & Scientific Method		Ch. 1
	Jun. 14	Measurement in Biology	A	Metric System page
	Jun. 15	The Microscope & Its Uses	B	P. 51
	Jun. 16	<b>Quiz 1: labs A + B (bring Scantron 882-E)</b> The Cell	D	Ch. 3
2	Jun. 20	Cell Division	F	Ch. 5 (esp. pp. 86-87; 89-93)
	Jun. 21	Identification of Organic Compounds	C	Ch. 2 (pp. 29-40); pp. 264-265
	Jun. 22	<b>Quiz 2: labs F + C (bring Scantron 882-E)</b> Introduction to Graphing; Diffusion & Osmosis	X E	pp. 68-70
	Jun. 23	Enzymes	CC	pp. 104-107
3	Jun. 27	<b>Midterm (bring Scantron 882-E): covers labs A, B, D, F, C, X, E, and CC</b>		
	Jun. 28	Taxonomy (Classification of Organisms); Viruses	G H	pp. 6-7 & 555-557; pp. 574-579
	Jun. 29	Domain Bacteria	I	pp. 567-574
	Jun. 30	<b>Quiz 3: lab I (bring Scantron 882-E)</b> Domain Eukarya: Kingdom Protista	J	pp. 584-592
4	July 4	<b>Independence Day. No class!</b>		
	July 5	Kingdom Fungi	K	pp. 593-601
	July 6	The Plant Kingdom	L	Ch. 30 (pp. 604-616)
	July 7	<b>Quiz 4: lab L (bring Scantron 882-E)</b> The Plant Kingdom	L	Ch. 30 (pp. 604-616)
5	July 11	Angiosperm Vegetative Organs; Reproduction in Angiosperms; Dichotomous Keys	M N MM	Ch. 9 & pp. 616-619; Ch. 10 (pp. 169-182)
	July 12	The Animal Kingdom: Invertebrates (lower Invertebrates)	O	Ch. 31
	July 13	The Animal Kingdom: Invertebrates (higher Invertebrates) <b>(bring gloves!)</b>	P	Ch. 31
	July 14	<b>Quiz 5: labs O + P (bring Scantron 882-E)</b> Vertebrate Animals	R	Ch. 32
6	July 18	<b>Quiz 6: lab R (bring Scantron 882-E)</b> Histology	S	pp. 190-195
	July 19	Introduction to Hematology	T	pp. 212-216
	July 20	Fetal Pig Dissection & Organ Systems <b>(bring gloves!)</b> -Digestive System -Heart & Circulation -Hormones -Urinary System -Male Reproductive System -Female Reproductive System	U	Ch. 14 (pp. 253-262); pp. 196-198; pp. 218-223; pp. 393-398; pp. 296-297; pp. 409-412; pp. 413-418
	July 21	<b>Final Exam (bring Scantron 882-E): regular class time; cumulative</b>		

**Grade Tracker**

<b>Grade Component</b>	<b>Score</b>	<b>Worth</b>	<b>Current Total (Add scores)</b>	<b>Total Possible</b>	<b>Current % (Current Total/Total Possible * 100)</b>
Quiz 1		60		60	
Activity 1		15		75	
Activity 2		15		90	
Quiz 2		60		150	
Activity 3		15		165	
Activity 4		15		180	
Activity 5		15		195	
Midterm		180		375	
Quiz 3		60		435	
Activity 6		15		450	
Activity 7		15		465	
Activity 8		15		480	
Quiz 4		60		540	
Activity 9		15		555	
Quiz 5		60		615	
Activity 10		15		630	
Quiz 6		60		690	
Activity 11		15		705	
Activity 12		15		720	
<b>Top 4 Quizzes</b>		<b>240</b>		<b>240</b>	
<b>Top 10 Activities</b>		<b>150</b>		<b>390</b>	
<b>Midterm</b>		<b>180</b>		<b>570*</b>	
<b>Final</b>		180		<b>750</b>	
<b>Participation</b>		50		<b>800</b>	
<b>Total Grade</b>		<b>800</b>		<b>800</b>	

\* Your grade out of 570 points is your grade going into the final exam.

**Grading Policy**

A: 88-100%

B: 77-87%

C: 62-76%

D: 50-61%

F: <50%

Minimum Points for an 'A': 704 out of 800

Minimum Points for a 'B': 616 out of 800

Minimum Points for a 'C': 496 out of 800

Minimum Points for a 'D': 400 out of 800