

Biology 1A Lab Exam I, Spring 2008

Bring a photo ID to the lab exam.

When: Wednesday, 3/19 from 6:40-8:20 PM, in various rooms (see below). BE ON TIME. The exam will begin EXACTLY AT 6:40 PM (If you can not make the exam time, and only if you have arranged with Mike Meighan, then your exam will be scheduled earlier on Wednesday). **Be seated by 6:30 PM** in your assigned room so that we can start handing out scantron forms (which we will provide).

Where: See below.

What: The 100-point exam (note some past exams were worth only 90 pts) will cover Labs 1-6. For more information see below and the backside. Note that this exam will include the Chordate Diversity which is not covered in previous Lab Exam 1 examples.

Level: Challenging! See the past exams in the exam reader.

Studying: Read the manual. For each lab, be able to complete each objective. Be familiar with results and why they occurred. Look at your worksheets and pre-labs. Answers to these sheets are posted outside of 2084 VLSB. There are three samples of Lab Exam #1 in the Exam Reader (available at Replica Copy, 2040 Oxford).

Format: The exam will take the full 100 minutes and will begin at 6:40 PM sharp. Do not be late. The exam will include multiple choice, short answers, essays, diagrams and fill-in-the-blanks. Be familiar with the equipment that you have used and why you performed certain procedures.

Reviews: Webcast reviews from fall 2004 are available on-line from our webpage (towards the bottom) **Check our website for resources under Lab Exam 1 study resources.**

Office Hours: M 2-4, T 8:30-9:30, 1-2, 5:30-6:30, W 1-2, 5:15-6:15, Th 8:30-9:30, 1-2, 5:30-6:30, F 1-2.
Extra office hours Th (3/13) 3-5 Paul, F (3/14) 2-3:30 Cat, M (3/17) 10-12 Ed, T (3/18) 10-12 Mike, 1:30-4:30 Melissa. W (3/19) 9-1 Mike.

	GSI Name	Room #		GSI Name	Room #
101	Kevin	2040 VLSB	112	Edward	155 Dwinelle
102	Gary	2050 VLSB	113	Helen	1 Pimentel
103	Melissa	145 Dwinelle	114	Gary	2050 VLSB
104	Gary	2050 VLSB	115	Helen	1 Pimentel
105	Melissa	145 Dwinelle	116	Cat	2060 VLSB
106	Dan	1 Pimentel	117	Paul	2050 VLSB
107	Kevin	2040 VLSB	118	Edward	155 Dwinelle
108	Christian	155 Dwinelle	119	Helen	1 Pimentel
109	Cat	2060 VLSB	120	Christian	155 Dwinelle
110	Christian	155 Dwinelle	121	Helen	1 Pimentel
111	Paul	145 Dwinelle	122	Dan	1 Pimentel

Seating diagrams on the backside.

General Sample Questions/Guideline. This list is only a **guide**.

- 1) Any of the objectives in the lab manual. (Any safety questions will be very easy.)
- 2) Microscope Lab--Determine the size of field of view, calibrate a microscope, discuss what happens when you change magnification--depth of focus, amount of light, etc.
- 3) Cells & cell theory. Pro- vs. eukaryotes. Features of various kingdoms.
- 4) Monerans--cell morphology, cell wall structure and Gram-staining. Cyanobacteria--heterocyst vs. photosynthetic cell.
- 5) Discuss the locomotion and classification of protists.
- 6) Chordate Diversity. The focus should be on lab lecture, the boxed comments in the manual, the list of traits, and the worksheet questions. This will cover 90% of the diversity questions. I reserve the option to have 10% on other things but it will not exceed that and most likely will be closer to 0%. I would not reread all of the posted "Lab Sheets" on our website. That basically contains almost all of the text we had out in lab. **CONTINUED**

- 7) Sample chordate questions. "What is the smallest group that contains --- (I would probably list some features)." Approximately when did the X group evolve? How many chambers of hearts in X?, etc. Which of these two or more closely related?, etc.
- 8) Enzyme stuff: Kinetics, substrate concentration and varying enzyme concentration. How to affect enzyme activity. Why is it affected? Isozymes. Determine K_m . Why have different blanks? Role of DNS? How to measure the rate of a reaction--disappearance of substrate, appearance of product. How do you make dilutions? How do you determine enzyme activity of "spit"?
- 9) Photosynthesis--light-dependent vs. -independent reactions. How to measure each? In various conditions? What are uncouplers? Inhibitors? How do they work? What is the role of an osmoticum? Explain osmotic pressure. What is the difference between a blank and a control? What is DCPIP? How is DCPIP functioning? What are pigments? What wavelengths are reflected/absorbed by a pigment of a given color? How could you isolate pigments and purify them? How could you make an absorption spectrum of a solution of pigments? Of purified samples?
- 10) What are restriction enzymes (RE)? Their role in the bacterium? How can we use them in experiments? What are the role of buffers? When would you add them? What is meant by restriction digestion? What sizes of DNA would be produced by a given RE (given the RE sequence and the % base composition)?
- 11) How does electrophoresis work? What sort of predictions can you make about how various samples might migrate? How would you generate a standard curve and then apply the knowledge? What results would you get from specific digests, etc.? Generate a map of a piece of DNA from the restriction digestion. Is the DNA circular or linear? How could you clone in a given piece of DNA? What results would you predict if you transformed a certain type of bacteria with a given plasmid?
- 12) Be able to analyze crosses and make predictions. Be able to recognize recombinants and parental types. Use correct genetic notation for fruitflies.
- 13) What is a ligation reaction? What is transformation and what are some of the steps? Identify various types of colonies--why are they blue, white, etc. on AMP X-gal plates? What would happen if you used a given plasmid and were given different types of plates, etc. ?
- 14) Experimental design. What are controls? Which would you use in a given experiment? What data would you collect? Why? Advantage?
- 15) Define complementation. How could you determine the number of genes in a given pathway? How would you determine the order of steps of a given pathway?
- 16) Understand how sequencing reactions work. What is the difference between deoxy and dideoxy nucleotides?

Seating is assigned by section #, within each room, by row #. There should be at least 2 empty seats between each student (1,4,7, etc.)

