

Corrected Course Syllabus: General Biology Laboratory I
BIO 121, Sec. 02, 03 & 04; Term I, 2003/04; 2 credits

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Lab: M(01), T(02), W(03), R(04)
 2:00 PM to 5:00 PM
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 5:30 PM to 6:20 PM, R
 4:30 PM to 5:20 PM, F
 (Additional hours by appointment, or **just drop by**)

Text: Vodopich, D. and D. R. Moore. 2002. Biology Laboratory Manual, 6th ed. McGraw-Hill, (Boston). ISBN: 0-07-303121-6. <http://www.mhhe.com>

Optional: Van der Graaf, K.M., J. Crawley 2001. A Photographic Atlas for the Biology Laboratory, 4th ed. Morton Publishing (Englewood, Colorado). ISBN: 0-89582-586-6 <http://www.morton-pub.com> (Highly recommended)

Description:

A laboratory course designed to survey the forms of life on Earth and to introduce the experimental basis of biological concepts. This will be accomplished by a combination of experimental exercises and observation of biological specimens. Upon completion of this course, a student will be able to:

- use a microscope
- use basic statistic (confidence intervals) to evaluate data
- analyze and graphically present data originating from experimental observations
- design and execute an experiment of ones own design and analyze the data
- describe the major physical factors responsible for diffusion and osmosis
- describe how enzymes work and identify major physical factors that affect them
- describe mitosis and meiosis, and relate their roles in inheritance and development
- describe major concepts in taxonomy including creating evolutionary trees
- describe the major characteristics of the kingdoms and phyla including their life cycles, morphologies and anatomies (Kingdom Animalia during Term II)

Laboratory Schedule:

Week	Exercise	Title
1	handout	Statistics
2	2	The microscope: Basic skills of light microscopy
3	8	Diffusion and osmosis
4	10	Enzymes
5	12	Photosynthesis Sow <i>Arabidopsis</i> seeds
6 EXAM	Blackboard	Classification
7	13 & 14	Mitosis and Meiosis
8	23	Survey of the bacteria Start cold acclimation experiment
9 EXAM	Handout	Molecular basis of inheritance and gene technology: (Download this assignment from Blackboard: http://knowledge.udmercy.edu/courses/1/BIO121.02/content/_31067_1/DNALAB.pdf GUS staining, perform freezing tolerance test
10	24	Kingdom Protista: The algae Observe results of cold acclimation experiment and design experiment

Week	Exercise	Title
11	25	Kingdom Protista: Protozoa and slime molds Perform your own cold acclimation experiment
12 EXAM	26	Kingdom Fungi (Sec. 4: Ex29, Gymnosperms) Continue cold acclimation experiment
13 LAB REPORT	29 & 30	Plant kingdom: Gymnosperms and Angiosperms (No class for Section 4, Lab report due Wednesday, Nov. 26 at 2:00 PM, Thanksgiving Break) Turn in formal lab report on cold acclimation
14	31	Plant anatomy (Sec. 4: Ex 30: Angiosperms)*
15 EXAM	Final	Non-comprehensive exam, (Sec. 1, Thur., Dec. 11, 2:00 - 2:50. Sec. 2: Fri., Dec. 12, 11:00-11:50 AM; Sec. 3: Thur., Dec. 11, 3:00-3:50 PM; Sec. 4: Fri., Dec. 12, 12:00-12:50 PM)

* Section 4: Be prepared to take two different quizzes, one on Exercise 31 and one on Exercises 29 and 30.

Important Dates

- New Student Convocation, Tuesday, September 9, 2003, Chemistry Building Rm. 114, 12:45 p.m.
ATTENDANCE IS MANDATORY FOR ALL NEW E&S STUDENTS (FRESHMEN & TRANSFER)
- The University's calendar can be found at the following web address:
http://www.udmercy.edu/academics/acad_cal.htm
- Exam and laboratory schedule can be found in the table entitled, "Laboratory Schedule".
- **UDM Academic Calendar**

Term I - Fall 2003	
Classes begin	Sept. 2
Last day to add a class	Sept. 9
(Celebrate Spirit!)	Sept. 11
Last day to drop a class	Sept. 26
Deadline for "I" grades	Oct. 3
Mid-term grades due	Oct. 21
Advising for Winter/Summer begins	Oct 27
Registration for Winter Summer begins	Nov. 3
Last day to withdraw ("W")	Nov. 17
(Thanksgiving recess – Univ. Closed)	Nov. 27-28
Final exam week	Dec. 8-13

Computer Requirements and Resources

By being a student at the University of Detroit Mercy (UDM) you have Internet access through the university's computer labs. You are required to have an active Email account (either a university account or a private account). I also assume you know how to use internet browsers, such as Tucows Opera™, Netscape Navigator™ or Microsoft Explorer™. If you do not know how to use these programs, please feel free to talk to the instructor. The following resource are available to you:

Internet Resource	URL	Enrollment password
Course web page on Blackboard™:	http://knowledge.udmercy.edu/	gotitans

You are required to enroll during the first week of school.

Evaluations

There will be three components in determining grades: weekly quizzes, weekly laboratory exercises and four practical examinations.

QUIZZES:

For the laboratory exercises to be effective, you will need to study the laboratory manual in advance. To evaluate your readiness, the laboratory period will begin with a 10 point quiz covering that week's material. You will be expected to know (1) the objectives of the exercises, (2) the terms presented in the manual (**in bold type**), and (3) the terms in the titles and headings. **The top 10 quizzes will count toward your grade.**

LABORATORY EXERCISES:

Each week's laboratory exercises will require you to answer a series of questions presented in your laboratory manual which will count 5 points toward your final grade. Incomplete lab reports will receive a proportionally lower grade. The reports are to be handed in at the end of the laboratory period. Late laboratory reports will NOT be accepted. **The top 10 will count toward your grade.**

The laboratory exercises are not a competition. Thus, you will receive credit for attempting to answer the questions, even if it is incorrect. However, many of the exam questions will be derived from the questions in the laboratory. Thus, I expect you to make a concerted effort to answer all the questions, and review the corrected reports. You may have discussions with your lab partner pertaining to the assigned questions. **HOWEVER, you** are responsible to **UNDERSTAND** the question and answer. To this end:

1. Assignments containing answers that are word-for-word identical (either by seeing or hearing) to someone else's answer will receive a grade of zero (0). This is considered plagiarism. If you can paraphrase an answer, then you understand the answer.
2. Questions on the practical exams will be formulated to test your understanding of the material.
3. Students may be asked to present explanations to the whole class.

Lab Reports

1. Laboratory reports are to be written on the answer sheets provided. Please write clearly and neatly* When you hand in the laboratory reports, please staple the sheets together, and fill in a cover sheet with the following information:
 - a. Your name
 - b. Laboratory partner's name
 - c. Laboratory bench number
2. The experiment on cold acclimation will have a formal written laboratory report. A separate handout describing the formal write-up will be handed out. This report will be handed-in during your laboratory period the 13th week of classes (see schedule on pages 1 and 2). Late reports will be penalized 20 points for the first day late, and 10 points per day after that. It is worth 50 points.

Attendance

Because of the extensive setup required to run the laboratory, a missed laboratory session cannot be made up. However, you are still responsible for the material covered in that laboratory period. Please see the instructor about examining specimens and examples of the results of experiment (if available).

PRACTICAL EXAMS:

There will be four practicals (see schedule above, "EXAM"), each worth 100 points. In these tests you will need to answer questions relating to the experiments you performed, performed laboratory task that you have learned, and identify features of the biological specimens you have examined. They will include written question, calculation,

activity questions (e.g., focusing microscopes), and observation questions (e.g., identify materials under the microscopes).

To prepare for these practical examinations, you may want extra time to study the materials presented during class. You may enter the laboratory during non-class periods:

Monday through Thursday: 9:00 AM to 1:00 PM
 Friday: 9:00 AM to 4:30 PM

Ask Mrs. Jackman, the department secretary (Rm. 101, Ford Life Sciences Building) to let you into the laboratory.

Missed practical exam

Since laboratory practical exams require elaborate setup, these evaluations cannot be made up. If you miss a practical due to a legitimate excuse (i.e., illness, death in the family, etc.), then the three remaining exams will be worth 133 points each. You cannot miss the final exam. If you have a legitimate excuse (see above), you must contact the instructor within 24 hours of the examination date. Otherwise, you will receive a zero for that exam.

Class Cancellation Policy

Class will only be canceled if the President’s office closes the university. If a lab practical exam was schedule for that date, the exam will be given the following week’s class session. Be prepared to take the **following week’s** quiz during the next class session. Missing lab material will be made up the following weeks of the course.

Grades

You are guaranteed the following minimum grades based upon the following percentile scale:

A = 95 to 100%	A- = 94 to 90%	
B+ = 89 to 85%	B = 84 to 80%	B- = 79 to 75%
C+ = 74 to 70%	C = 69 to 65%	C- = 64 to 60%
D+ = 59 to 55%	D = 54 to 50%	
F = 49 to 0%		

To calculate your grade, use the following formula:

$$\text{percent score} = \frac{\text{the sum of points received}}{\text{total possible points}} \times 100$$

The final grade will be based on a possible 600 points. They break down as follows:

Quizzes (10 pts. each):	100 pts.
Lab reports (10 pts. each):	50 pts.
Cold acclimation report (50 pts.):	50 pts.
Practical exams (100 pts. each):	<u>400 pts.</u>
Grand total:	<u>600 pts</u>

Laboratory Safety

- 1) Eating, drinking, and the application of cosmetics or medications are not permitted in the laboratory.
- 2) You must wear shoes that completely cover you feet (i.e., no sandals). Canvas shoes are not permitted.
- 3) You will be using some chemicals that are potentially dangerous. When instructed to, you will be required to wear laboratory safety equipment (i.e., chemical splash goggles and aprons).
- 4) Lab cleanliness is a safety issues. No trash is permitted in the sinks. In the past, people have been cut due to hidden glass. Additionally, paper is a fire hazard. You will not be allowed to leave the room until all lab tables and work areas are clean.
- 5) All glass is to be thrown in a designated glass bucket. NEVER place glass in the regular trash. The janitors may cut themselves when emptying the canisters.
- 6) Whenever you work with microorganisms, the work area is to be washed with disinfectant when you are finished.
- 7) Many normally safe microorganisms are potential pathogens to people with seriously compromised immune systems. For your own safety, any student with **seriously** compromised immune systems (being treated for cancer, taking antigrft-rejection drugs, HIV positive, taking steroidal drugs [antihistamines are OK], etc.) should inform the instructor, though you do not need to disclose the nature of the condition. Alternative laboratory activities will then be assigned. Any such information will be kept in strict confidence. (NOTE: By law, you are not obligated to disclose this information to the instructor.)
- 8) No pipeting by mouth.

Courtesy

1. You must be courteous to your fellow classmates, teaching assistant and instructor. To this end, talking during lectures is not permitted. If you are disturbing others in class, the instructor will require you to leave the laboratory.
2. You will place materials back in their proper places. It is disrespectful to expect the teaching assistant or instructor to clean up after you.
3. Place microscope slides in their proper slide trays. All the trays are labeled on the front. If you are not sure in which tray a slide belongs, please ask the instructor.
4. Cellular phones will not be on. Pagers will be off, or on vibrate mode.

Academic Integrity

I expect you to follow the norms of academic conduct. You will adhere to the policies outlined in Appendix A of the 2003/04 Student Handbook of Policies and Procedures. I recommend that you read this appendix. Students caught plagiarizing or cheating will received a grade of zero for that assignment. The following activities are considered cheating:

1. Looking at someone else's exam.
2. Looking at notes, books, or electronic data storing devices during an exam.
3. Looking at an answer on another student's calculator.
4. Giving information to another student during an exam.
5. Talking during an exam.
6. Telling students enrolled in different sections of the course what you observed on the exams or quizzes.