

**Corrected Course Syllabus: General Biology Laboratory I
 BIO 121, Sec. 01, 02, & 03; Term I, 2006/07; 2 credits**

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Lab: M(01), T(02), W(03), R(04), F(05) **Office Hours:** 12:00 PM to 1:00 PM, MWF
 2:00 PM to 5:00 PM 11:00 AM to 12:00 PM, TR
 Room 103, Ford Life Sciences Building (Additional hours by appointment, or **just drop by**)

Text: Vodopich, D. and D. R. Moore. 2002. Biology Laboratory Manual, 7th ed. McGraw-Hill, (Boston). ISBN: 0072552875. <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 statistics (e.g., 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 (Sec. 01 does this lab as a take-home assignment)
2 (9/11)	2	The microscope: Basic skills of light microscopy
3 (9/18)	8	Diffusion and osmosis
4 (9/25)	10	Enzymes (Sec. 01, Statistics lab due; Sec. 04, class starts at 2:30 PM) Sow <i>Arabidopsis</i> seeds
5 (10/2)	12	Photosynthesis
6 EXAM (10/9)	23	Survey of the bacteria Instructor starts cold acclimation experiment
7 (10/16)	Blackboard	Molecular basis of inheritance and gene technology Observed freezing stressed plants: GUS staining, perform freezing tolerance test
8 (10/23)	Blackboard Appendix III Appendix II	Finish gene technology lab Designing and executing your own experiment Conversion of Metric Units to English Units How to Write a Scientific Paper or Laboratory Report Observe growth of stressed and non-stressed plants
9 EXAM (10/30)	Blackboard	Classification Hand in research proposal for critique Start experiment
10 (11/6)	13 & 14	Mitosis and Meiosis Continue cold acclimation experiment

Laboratory Schedule continued:

Week	Exercise	Title
11 (11/13)	24 & 25	Kingdom Protista: The algae: Protozoa and slime molds (Sections 04, and 05: Start Exercise 26, Fungi) Continue cold acclimation experiment
12 EXAM (11/20)	26	Kingdom Fungi (Sections 04 and 05, No class, Thanksgiving break) Continue cold acclimation experiment
13 (11/26)	29 & 30	Plant kingdom: Gymnosperms and Angiosperms (Sections 04 and 05: Finish Exercise 26) Turn in formal lab report on cold acclimation
14 (11/27)	31	Plant anatomy (Sections 04 and 05, Finish Exercise 30: Angiosperms)
15 EXAM (12/4)	Final	Non-comprehensive exam Sections 1, 3 and 5: Thursday, Dec. 14, 2:00 PM to 4:00PM Sections 2 and 4: Friday, Dec. 15, 11:00 AM to 1:00 PM

Important Dates

- 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 1, 2006/07**

Classes begin	Sept. 5
Last day to add a class	Sept. 12
Celebrate Spirit!, Class starts at 2:30 PM (sec. 04)	Sept. 28
Last day to drop a class	Sept 29
Mid-term grades due	Oct. 24
Last day to withdraw ("W")	Nov. 20
(Thanksgiving recess – University Closed)	Nov. 23-26
Final exam week (see table above for exam time)	Dec. 11-16

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 Microsoft Explorer[™]. If you do not know how to use these programs, please feel free to talk to the instructor. The following resource is available to you:

Internet Resource	URL
Course web page on Blackboard [™] :	http://knowledge.udmercy.edu/

Knowledge account information is now pulled from Registrar's Office records. Your username will be your firstname.lastname (all lowercase) and your password will be your student ID. For example, Tommy Titan's username would now be tommy.titan. If you are unsure of your student ID or how your name is listed in Weblink, contact your advisor, the Registrar's Office, or look on any official documents from the University, such as a grade report.

- All users **MUST** update their password and email address upon login. To edit this information, click **Personal Information** at the bottom of the box labeled **Tools** on your **My Knowledge** page.
- Since four course sections will be using the same web site, the instructor will need to enroll you. Thus, your account might not be ready the first day of class. If you are not enrolled by the second week of the course, it is your responsibility to inform the course site director, Stokes Baker, by Email: bakerss@udmercy.edu.

Evaluations

There will be five components in determining grades: weekly quizzes, weekly laboratory exercises, four practical examinations, research project with laboratory report.

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.**

IN-CLASS RESPONSE SESSIONS:

Periodically, the instructor will have question response sessions. Students will be asked to answer questions related to the current classroom instruction. At the instructor's discretion, these questions may be open book or student discussion question. Each posed question will be worth 1 point. You may drop 10% of your lowest scores. There are no make-ups for these assignments. At the end of the terms, the scores will be normalized to a 50 point scale.

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; labeled "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 Friday: 9:00 AM to 1:50 PM

Ask Mrs. Jackman, the department secretary (Rm. 101, Ford Life Sciences Building) to let you into the laboratory. She has a key to the microscope cabinet.

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 scheduled 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:

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

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

Quizzes (10 pts. each):	100 pts.
In class response questions	50 pts.
Lab reports (5 pts. each):	50 pts.
Cold acclimation report (50 pts.):	50 pts.
Practical exams (100 pts. each):	400 pts.
Grand total:	650 pts

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 issue. 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 anti-graft-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 pipetting 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 and pagers will be off or on vibrate mode. If you receive an emergency phone call, leave the laboratory and take the phone call in the hallway out outdoors.

Special Needs Accommodations

Students with special needs due to disabilities should contact University Academic Services / Disability Support Services (UAS/DSS) located on the ground floor of the Student Center (578-0310) to make arrangements. If you have emergency medical information, or need accommodations in case of building evacuation, inform the instructor as soon as possible.

Academic Integrity

You will follow the norms of academic conduct. You will adhere to the policies outlined in Appendix A of the 2006/07 Student Handbook of Policies and Procedures. I recommend that you read this appendix. Students caught plagiarizing or cheating will receive a grade of zero for that assignment. Students caught twice will fail the course. The following activities are considered cheating:

1. Looking at someone else's exam or quiz
2. Looking at notes, books, or electronic data storing devices during an exam or quiz.
3. Looking at an answer on another student's calculator.
4. Giving information to another student during an exam or quiz.
5. **Talking** during an exam or quiz.
6. Telling students enrolled in different sections of the course what you observed on the exams or quizzes.
7. Turning in work that is not your own.

Transgenic Plants

Transgenic plants are plants that are genetically engineered with genes from another organism. To protect the environment, their use is restricted to laboratory settings.

- Under no circumstances are these plants to be removed from designated laboratories.
- All plants, pots and seeds are to be deposited in plastic bag lined containers labeled "Biohazard". The instructors will be destroying these materials by autoclaving (i.e., pressure cooking).
- Removal of plants, pots or seeds from instructor designated laboratories will result in a student receiving a failing course grade. (Institutional Biosafety Committee requirement)