

## Fundamentals of Life Science Lab Information

### Correspondence between BIOL2150/2160 and BIOL2170/2180

Please note that the lecture courses (BIOL2150 and BIOL2170) have a suggested list of topics determined in the department. Professors are free to arrange the topics in any order they choose. They may also include other material. The lab courses (BIOL2160 and BIOL2180) follow the suggested topics list. The lab may not correspond to lecture. However, over the course of the semester, the same topics will be covered. To this end, a list of readings is provided. You may find this helpful if your lecture instructor has not covered a particular topic.

### General Procedures

In many ways, working in a biology lab is like working in a kitchen. As some famous chefs have said, *Our years of teaching cookery have impressed upon us the fact that all too often a debutante cook will start in enthusiastically on a new dish without ever reading the recipe first. Suddenly an ingredient, or a process, or a time sequence will turn up, and there is astonishment, frustration, and even disaster. We therefore urge you, however much you have cooked, always read the recipe first, even if the dish is familiar to you... We have not given time of preparation as some people take half an hour to slice three pounds of mushrooms, while others take 5 minutes.*

- Child, Julia, L. Bertholle, and S. Beck. 1961. *Mastering the Art of French Cooking*. New York: Alfred A. Knopf, Inc.

1. Read the lab protocol BEFORE lab lecture and AGAIN before lab.
2. Plan your work. Listen to instructions on the sequence of procedures in the lab.
3. Use only the required amounts of materials. DO NOT take extra solutions or equipment.  
DO NOT start an experiment over without asking the TA first.
4. Always be familiar with the entire lab protocol, even when splitting tasks with a partner.
5. Keep accurate notes of your procedures. Good notes may explain unusual results long after the exact details would have been forgotten.

### Fundamentals of Life Science Lab Staff

The staff is organized into several levels. To clarify the role of staff members, a brief description of their role is outlined. The teaching assistant is in charge of the weekly wet lab. They are usually a Master's or Doctoral student in the Biological Sciences Department. You will contact the TA first with any questions or concerns. The Lab Coordinator, Brenda Leady, is responsible for all of the teaching labs in Biological Sciences including BIOL2160/2180. Please contact her if you are unable to contact your TA. Concerns unable to be resolved by the TA will go to the Lab Coordinator. The Instructor of Record is responsible for all final decisions and awarding of final grades. It is expected that you will contact your TA first to resolve questions or concerns before the Lab Coordinator or Instructor of Record become involved.

### Computers/ Software

The labs utilize Dell's to augment your lab experience. We use Microsoft Office products for most of our work. You can purchase full versions of these programs as a UT student through a link off the EIT website (<http://www.utoledo.edu/it/students.html>). UT has made a deal with Microsoft that brings you the latest products at a reduced cost.

The new computers require you to activate your UTAD and UT e-mail accounts. Every UT student has a UTAD account, 50MB of space and an e-mail account. You can activate your accounts by going to <http://myutaccount.utoledo.edu> and following the directions.

### Accessing files on your H: drive

When you log onto a PC while at UT you are logging onto a network. Some programs and files are housed on the specific machine you are sitting at and are not available at any other machines on campus. Other files are ones you have created or chosen to save to your desktop or another file on the H: drive. Your H: drive will appear at any computer you log onto at UT. It is attached to your username. You can also access these files from the web at <http://files.utoledo.edu>. You can access these files

anytime from anywhere. You can download and upload files to your H: drive. This is important because the Biological Sciences computers do not allow access to the disk drives (floppy or USB) and will not allow files to be stored anywhere other than your H: drive. Any changes made to programs or files will be erased and repaired using DeepFreeze. Only files saved to your H: drive will not be affected. Engineering students have 2 desktops. You should know which one you are saving files to.

## E-mailing Your TA

Your UT e-mail can be accessed over the web at <http://email.utoledo.edu>. Your username and password is from your UTAD account. The username is in the format UTAD\username. Using your UT account to e-mail to your TA is the only reliable method. Using any other e-mail account can and will cause problems. **We will not be responsible if you choose to e-mail the TA using an e-mail account other than the UT or if you e-mail the TA at an account that is not their UT account.** Your TA's e-mail automatically generates a reply saying that your e-mail has made it into their mail box. ***If you do not receive an auto reply, your mail did not get through.*** There are 2 e-mail addresses you must take out of your junk mail folder. One is your TA and the other is admin@biosciences2.utoledo.edu. If you do not do this, you will miss important e-mails.

## Safety

Biology labs vary in the types and degree of hazards. Your teaching assistant will point out any necessary precautions. If you have a medical condition that prevents participation in a lab, please notify the instructor or teaching assistant as soon as possible.

### Lab Rules:

1. DO NOT ENTER THE LAB WITHOUT A TEACHING ASSISTANT PRESENT.
2. Correct attire is required for safety reasons. See dress code below.
3. No drinking, smoking, eating, gum/ tobacco chewing in lab.
4. Keep your lab bench clean and free of extra books, papers, coats, etc.
5. Clean your work area after use. Return equipment to proper location.
6. Follow directions for correct disposal of solutions and waste products.
7. Dispose of broken glass in the labeled glass disposal box.

## Dress Code

Due to safety concerns, you are required to dress appropriately for **EVERY** lab session. Shoes must have closed toes. No sandals. No rollerblades or roller skates. Pants/ shorts/ skirts must come at least to the knee to provide adequate protection. Tops must have a sleeve. Tops must cover the shoulder and midriff area. **You will be asked to leave the lab if you wear inappropriate clothing.** This is treated as an unexcused absence and may be a reason to deduct lab participation points.

## Teaching Assistant Office Hours

Each Teaching Assistant (TA) is required to keep 5 hours of office time per week. You will be given those hours within the first 2 weeks of the semester. Please remember that TAs are also taking classes and performing research. He or she will be free to meet with you during posted office hours. The TA may not be available at other times. Please make an appointment if the designated office hours do not fit your needs. Many TAs have office space in research labs. PLEASE ask before entering any lab areas. Many labs contain dangerous or sensitive materials. The TA may post a note directing you to a different location during office hours.

## Biological Sciences Help Center

The Department offers a biology help center staffed by graduate students. The hours are established early each semester but are generally Monday-Friday during the day. The staff can help you with general biology questions but may not have the details of assignments for each course. Note that you should ask your TA or the Lab Coordinator specific questions concerning lab or lab assignments.

## Grading

Teaching Assistants are not empowered to award final grades. They grade your materials and keep track of points. At the end of the semester, letter grades are established in a meeting with all TAs, the instructor and the Lab Coordinator present. The grades of DR, I and W are assigned as instructed in the University of Toledo Undergraduate Catalog.

## FERPA

The Family Educational Rights and Privacy Act of 1974 is a Federal law introduced to give students certain rights regarding the confidentiality of their educational records. We cannot leave student papers in a public area for drop off or pickup, inform a student of his or her grade or class standing via the phone, post grades using name or social security number, inform anyone outside of UT (including parents or spouse) of your grade, or allow anyone to pick up a graded assignment of another student. You may review the complete policy at [http://www.utoledo.edu/policies/students/main\\_campus/pdfs/3360\\_30\\_02.pdf](http://www.utoledo.edu/policies/students/main_campus/pdfs/3360_30_02.pdf).

## Attendance Policy

*PLEASE READ THE FOLLOWING INFORMATION CAREFULLY AND THOROUGHLY*

The lab attendance policy is based on the importance of participation in all lab sessions for the full class period. The TA takes lab attendance. A student will be given an F, regardless of point totals, upon the third missed lab period. Missed lab periods may consist of: failure to attend lab, failure to complete the lab, accumulated late arrivals, dismissal from lab for unacceptable behavior or inappropriate clothing. Students are held responsible for all material on the final.

Exceptions to the attendance policy are given only after consultation with the TA, lab coordinator or instructor. Medical emergencies accompanied by a doctor's note or a death in the family with proper documentation can be counted as excused absences. Note that documentation is required. In special cases, planned absences (including school activities and religious holidays) can be handled by consulting your TA before the absence for instructions. A total of 3 excused absences are allowed without specifically consulting with the Lab Coordinator.

It is the STUDENT'S responsibility to contact their TA, Lab Coordinator or instructor as soon as possible with any problems. Do not wait until the next session to inform the TA of your absence. Messages can be left at the TA's office number or the department office (419-530-2065) or with the Lab Coordinator (419-530-2181).

In the event that a student interferes with another student's learning experience through unsafe lab practices or disruptive behavior, the teaching assistant will give a verbal warning. If the action continues, the teaching assistant may dismiss the disruptive student. Dismissal from lab is treated as an unexcused absence.

## Attending Another Section

In emergencies, you may attend another lab section. You are allowed to attend another section a total of 3 times total and ONLY if there is an open seat in that lab section (you cannot be the 25<sup>th</sup> student in lab). If you exceed 3 times, additional missed labs are unexcused absences. If your work schedule changes, we can permanently move you into another lab that has an open seat. You are expected to attend your regular section unless there is the RARE emergency that you need to go to another section. Web for students lists ALL sections but does NOT indicate which are actually running. We may have 32 sections on the web but only 22 were opened. You can find open sections by calling your TA, calling the Biological Sciences office, calling the lab coordinator, or checking on the course web site or by the door outside your lab.

If you attend another lab section, tell the TA supervising the section that you are making up a lab. Make sure they write down your name and the section you normally attend to ensure your attendance is recorded. Check that your TA has received your quiz/ worksheet the following week to avoid problems. Any assignment is due when you go to your regular section the following week. If you miss your regular

Monday night lab and go to a Thursday morning section, your assignment is due when you walk into your Monday night lab.

You must notify your TA immediately if you miss a lab write up lab and are unable to attend an alternate section. Your TA will tell you what to do. Do not use data provided by your lab partner or another student. Only your TA can give you instructions on making up a lab report. There are absolutely NO excused lab write ups. Lab write ups as a makeup may be another experiment. Makeups must be completed within 2 weeks (or the end of the semester) of the original lab write up lab.

Students are expected to arrive promptly to lab. Labs are designed to take the full time period. Students are expected to arrive BEFORE the lab period begins. Students arriving late to lab will receive a notice from the TA. Three accumulated lates during the semester counts as an unexcused absence. Students arriving more than 30 minutes late will be asked to attend another lab section later in the week (note the limit of 3 times for attending another section). If this is not possible, the lab will count as a missed lab. Lab will proceed as scheduled. Students are not to leave until dismissed by the TA. Leaving before the lab ends is treated the same as a late arrival. **There are no make up quizzes or labs.** Assignments are due at the beginning of the lab period. Late assignments drop 10% every 24 hours they are late.

For example, your lab meets Wednesdays at 9AM. You have a worksheet due when you walk into lab. If you go to lab and do not hand in your worksheet, it will drop 10% or 5 points every 24 hours it is late. Turning it in anytime up to 9AM on Thursday is 10% off. 20% is deducted between 9AM Thursday and 9AM Friday. Weekend days DO count because you can drop off your lab write up at ANYTIME in the mail slot cut in BO1005.

### **Late Assignments**

Assignments due on a day a student is absent for any reason will be counted late if not turned in within 24 hours of the absence. Assignments not turned in during lab are accepted ONLY by the following routes:

- 1) Assignments turned in to your TA must be handed directly to them to avoid being misplaced or lost. Do not hand it to someone in their lab or leave it on a desk. Please make a specific appointment with your TA to drop off assignments.
- 2) Assignments can also be dropped off under Lab Coordinator's door (BO1005). Make sure it is stapled together and slides all the way under the door. Assignments can be dropped off anytime Bowman-Oddy is open. Use the time date stamp outside the door to mark your work and include the section number or your TA name. If your section number or TA name is not on your work, it will go in an unclaimed work box.

**If the above procedures are not followed and work is lost, it will count as zeroes.**

**Follow the instructions!**

**DO NOT take late assignments to the Biological Sciences office (BO1025).**

### **Inclement Weather**

There are 4 possible outcomes during inclement weather:

- 1) The University remains open
- 2) The University delays classes
- 3) The University maintains operations but cancels classes
- 4) The University closes entirely

The Office of Public Relations will relay a message to local radio and television stations if the university alters operations. You can also check the UT web site at [www.utnews.utoledo.edu](http://www.utnews.utoledo.edu) or call the hotline at (419) 530-SNOW for a recorded message.

To frame this information in terms of BIOL2160 and BIOL2180 labs...

1) The University remains open- All of you are expected to be in class on time. The University has made the decision that the conditions are not severe enough to close. Lab will be held as scheduled. Quizzes will be given as scheduled. Assignments are due as scheduled. Inclement weather will not be accepted

as an excuse for not attending lab. Work turned in late will be treated as late work. If a student does not attend lab, work is not late if turned in less than 24 hours from the due date and time. If a lab is missed, a student can attend another lab section later in the same week with permission of the Instructor of Record, Lab Coordinator or TA. It is the student's responsibility to contact their TA as soon as possible if a lab is missed. A student should NOT wait until the following week to find out what to do for missed material.

2) The University delays classes- Follow instructions given as to when classes begin. This alternative is not used often.

3) The University maintains operations but cancels classes- The timing and length of a closure determines what the response will be. If lab is cancelled, labs will resume with the next scheduled lab experiment the following week. Outside of the period of cancelled classes, labs will meet as scheduled. Materials due during a cancelled lab are due within 24 hours of the University reopening. TAs are not expected to be present during a cancelled lab.

4) The University closes entirely- same procedure as #3.

If UT does cancel classes or closes entirely, please do the following. If your lab was scheduled to begin during the time that UT is closed, your lab will go to the next lab scheduled when you meet next. You will not make a lab up that was cancelled. Any worksheet you would have done will be dropped and that lab will not appear on your lab final. Any work that was due has an extended deadline of 24 hours after UT reopens.

Regardless of the situation, the student should contact their TA as soon as possible if they have ANY question what is expected of them.

## **UT Red Alert System**

We would like to encourage you to sign up for the UT Red Alert System. In case of emergency, including UT closing, a message is sent by text, voice mail or e-mail. This is simple to set up and free to students. Sign up at MyUT. <https://stuweb00.utoledo.edu/redalert/>

## **Quizzes**

A quiz will be given each lab starting the second week of lab. The lowest 2 quiz grades will be dropped. There are no makeup quizzes. If you miss a quiz because of an unexcused absence or arrive late to lab, it is a zero. Quizzes with the lowest earned score or a zero for not taking the quiz are dropped first. To be excused from a quiz, you must be excused from the entire lab period. Please note the limit of 3 excused absences.

## **Lab Write Ups**

Lab write ups test your ability to analyze and convey the results of your experiments. Very specific required formatting is expected. Follow directions given to you. Lab write ups are due promptly one week from the date the lab is performed. Each lab write up has a handout that specifies what information is expected. See your TA during office hours or make an appointment for help before the write up is due. Please refer to **Appendix A** for further information. Handwritten reports will not be accepted.

Lab write ups cannot be excused. If you miss a lab write up lab you will have to do a makeup lab session to write a report. Contact your TA as soon as possible for instructions. If you miss a write up lab it is NOT permissible to get the data from another student and turn in a report. Make up lab write up must be completed within 2 weeks of the original lab write up lab.

## **SafeAssign**

Built into BlackBoard is a tool to detect plagiarism in submitted work. SafeAssign compares your document to other students, information on the internet, and a large database of published work (books, papers, etc.). Your paper will receive a score. Your TA will look over your paper to determine if that score represents plagiarism or not. Some parts of an assignment are given to you so copying is OK. If

you cite information correctly, that's also OK. Taking word-for-word passages without citation is plagiarism. Paraphrasing or changing a word or 2 is also considered plagiarism without a correct citation.

Penalties for plagiarism range from a zero for the specific item that was not cited to a zero on the paper to failing the course. The Instructor of Record has the option to indicate that a grade was received for academic dishonesty. In that case, you cannot take the course again and grade delete. This is serious.

### **Lab Write Up Re-writes**

Lab write ups follow very specific rules and expectations. In order to allow for students to benefit from lessons learned in their first lab write up, we offer a re-write of the first write up. You may re-write the first write up of the semester. The scores of the original and re-written write up will be averaged together. You cannot regain points lost for turning your work in late. This encourages a student to do their best on the first write up but allows you to learn from any mistakes. ONLY the first write can be rewritten. If you choose not to do a re-write or did not do the first lab write up, no other write up is eligible for re-writes. If there is evidence of inadvertent plagiarism, both parties will be asked to re-write their write ups.

### **Turning in Assignments**

Assignments are due on specific days for each section. Please read the syllabus carefully and pay attention to the announcement of assignment due dates. Make sure to plan ahead. Transportation problems or computer/ printer problems will not be accepted as valid excuses.

### **Lab Performance**

Your teaching assistant will assess your lab performance at midterm and finals. Arriving late, being unprepared, poor lab skills, etc., will count against your score. Arriving on time, being prepared, and demonstrating knowledge and competence will all improve your score.

### **Lab Practical**

The lab practical is given the last week of the semester. It consists of 25 stations with questions covering the entire semester. You may be asked to analyze data, draw a graph, explain a concept or use a piece of equipment. All will be things you did during the semester. If your entire lab section missed a lab due to holiday or weather emergency, that lab does not appear on the final. If you missed the lab (excused or unexcused absence), you are responsible for the material on the practical. It is very important that even when working with a partner you yourself are familiar with all terms and procedures. A review sheet with specific information will be provided later in the semester.

## Academic Dishonesty Policy

The Biological Sciences Department follows the University policy on academic dishonesty. The specific department statement follows.

Academic dishonesty by students enrolled in undergraduate or graduate courses and programs offered by the Department of Biological Science will not be tolerated. Academic dishonesty includes, but is not limited to:

1. Obtaining assistance from another individual during an examination.
2. Giving assistance to another individual during an examination.
3. The unauthorized use of study material or textbooks during an examination.
4. Changing answers on an examination after it has been returned and then submitting it for regrading.
5. Plagiarizing written assignments. Plagiarizing includes: (a) copying laboratory reports from previous years, (b) copying or paraphrasing reports, term papers, or theses prepared by other students, (c) unauthorized collaboration in the preparation of reports, term papers, or theses, and (d) use of another author's materials without appropriate acknowledgment through quotation and citation.
6. Attempting to bribe or otherwise induce an instructor to alter either a grade or examination score.
7. Obtaining or attempting to obtain a copy of an examination prior to its administration.

In accordance with policy outlined in the Student Handbook and the University Catalog, instructors have the responsibility and right to bring cases of alleged dishonesty to departmental, college, and university administrative units. Students involved in academic dishonesty may expect to receive a grade of F on specific assignments as well as in the course where the assignment was made. In addition, disciplinary action may be recommended through appropriate college and university disciplinary committees.

## Syllabi for Fall 2011

There are 2 one day holidays in Fall 2011 and 2 week long holidays. Please read the syllabus carefully and know what you are expected to do.

\* Monday holiday. No lab on Monday only. Labs Tuesday- Friday will meet as scheduled.

# Friday holiday. No lab on Friday only. Labs Monday- Thursday will meet as scheduled.

Week	Week of...	BIOL2160	BIOL2180
1	August 22	1: Scientific Method Case Study	15: Scientific Method Case Study
2	August 29	2: Diversity: Bacteria, Protists, Plants, Fungi, and Viruses W	16:Macromolecules W
3	September 5*	3: Flowering Plant Structure and Transport W	17: Exploring Cells W
4	September 12	4: Animal Diversity I: Sponges to Nematodes W &LW	19: Transport W
5	September 19	5: Animal Diversity II: Arthropods W	18:Membranes W
6	September 26	6: Animal Diversity III: Echinoderms to Vertebrates W	20:Enzymes Part 1 W
7	October 3	7: Vertebrate Anatomy I: Rat Dissection W	21:Enzymes Part 2 LW
8	October 10	8: Vertebrate Anatomy II: Osteology and Histology W	22:Metabolism W
	October 17	No Lab All Week- Fall Break	
9	October 24	9: Urine Formation and Urinalysis W	23:Photosynthetic Pigments W
10	October 31	10: Nervous and Sensory Systems W	24:Photosynthesis Investigative Lab LW
11	November 7 #	12: Animal Behavior: Brine Shrimp Taxes LW	25: Onion Root Tip Mitosis W
12	November 14	11: Digestion W	26: Replication, transcription, translation, and mutation W
	November 21	No Lab All Week- Thanksgiving	
13	November 28	13: Mercury Biomagnification and Bioaccumulation W	27:Bioinformatics W
	December 5	Lab Practical	Lab Practical
	December 12	No Lab- Final Grade Meeting for Staff	

Lab Write Up Labs are indicated by a LW

Worksheet Labs are indicated by a W

Grading	#	points each	total points
Lab Write-Ups	2	50 pts.	100 pts.
Quizzes	12	5 pts.**	50 pts.
Worksheets	11/10	10 pts.	110 pts. (2160) 100 pts (2180)
Lab Practical	1	100 pts.	100 pts.
Lab Performance	2	5 pts.	10 pts.
			370 pts. (2160) 360 pts (2180)

\*\* The 2 lowest scoring quizzes will be dropped. Missed quizzes without an excused absence will count as a zero and will be dropped first.



## Syllabi for Spring 2012

\*\* There is 1 Monday only holiday in Spring 2012 and 1 week long holiday. Please read the syllabus carefully and know what you are expected to do.

\* Monday holiday. No lab on Monday only. Labs Tuesday- Friday will meet as scheduled.

Week	Week of...	BIOL2160	BIOL2180
1	January 9	1: Scientific Method Case Study	15: Scientific Method Case Study
2	January 16*	2: Diversity: Bacteria, Protists, Plants, Fungi, and Viruses <b>W</b>	16: Macromolecules <b>W</b>
3	January 23	3: Flowering Plant Structure and Transport <b>W&amp;LW</b>	17: Exploring Cells <b>W</b>
4	January 30	4: Animal Diversity I: Sponges to Nematodes <b>W</b>	22: Metabolism <b>LW</b>
5	February 6	5: Animal Diversity II: Arthropods <b>W</b>	18: Membranes <b>W</b>
6	February 13	6: Animal Diversity III: Echinoderms to Vertebrates <b>W</b>	19: Transport <b>W</b>
7	February 20	7: Vertebrate Anatomy I: Rat Dissection <b>W</b>	20: Enzymes Part 1 <b>W</b>
8	February 27	8: Vertebrate Anatomy II: Osteology and Histology <b>W</b>	21: Enzymes Part 2 <b>W</b>
	March 5	No Lab All Week- Spring Break	
9	March 12	9: Urine Formation and Urinalysis <b>W</b>	23: Photosynthetic Pigments <b>W</b>
10	March 19	10: Nervous and Sensory Systems <b>W</b>	24: Photosynthesis Investigative Lab <b>LW</b>
11	March 26	11: Digestion <b>W</b>	25: Onion Root Tip Mitosis <b>W</b>
12	April 2	12: Animal Behavior: Brine Shrimp Taxes <b>LW</b>	26: Replication, transcription, translation, and mutation <b>W</b>
13	April 9	13: Mercury Biomagnification and Bioaccumulation <b>W</b>	27: Bioinformatics <b>W</b>
14	April 16	14: Conservation Ecology <b>W</b>	28: Diagnosis of FH <b>W</b>
	April 23	Lab Practical	Lab Practical
	April 30	No Lab- Final Grade Meeting for Staff	

Lab Write Up Labs are indicated by a **LW**

Worksheet Labs are indicated by a **W**

Grading	#	points each	total points
Lab Write-Ups	2	50 pts.	100 pts.
Quizzes	13	5 pts.**	55 pts.
Worksheets	12/11	10 pts.	120 pts. (2160) 110 pts (2180)
Lab Practical	1	100 pts.	100 pts.
Lab Performance	2	5 pts.	10 pts.
			385 pts. (2160) 375 pts (2180)

\*\* The 2 lowest scoring quizzes will be dropped. Missed quizzes without an excused absence will count as a zero and will be dropped first.