

Biology 1441 Lecture + Lab Syllabus Template

Biology 1441: Cell and Molecular Biology Lecture and Laboratory Syllabus Fall 2013 Semester, Lecture Section 002

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Office Hours: MWF 1:50 pm -2:50 pm (i.e., right after class)

Time and Place of Class Lecture Meetings: MWF 1:00 pm - 1:50 pm

Description of Course Content (BIOL 1441): The first of a three-part introductory biology sequence, this course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function, and genetics. Laboratory experiments are designed to complement theory presented in lecture. Formerly listed as BIOL 1449; credit will not be given for both.

This course satisfies the University of Texas at Arlington core curriculum requirement in life and physical sciences. The italicized student learning outcomes required of core courses below will be assessed for each student in the laboratory portion of the course. The final lab report will be assessed to determine how a student has mastered critical thinking, communication, and empirical and quantitative skills. A teamwork assessment (peer evaluation) will be completed by each student in lab to determine how students work together in lab groups to achieve the student learning outcomes described below.

Student Learning Outcomes:

- understand the essential details of cell and molecular biology at an introductory level and gain a basic knowledge of the scientific method.
- gain hands-on knowledge of cellular and molecular aspects of biology through demonstration and experimentation
- learn the scientific process by designing and conducting experiments, collecting and analyzing data, and presenting results, in both written and oral formats
- learn essential laboratory procedures and protocols
- *Critical Thinking Skills:* to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
- *Communication Skills:* to include effective development, interpretation and expression of ideas through written, oral and visual communication
- *Empirical and Quantitative Skills:* to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- *Teamwork:* to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Course Components and Syllabus Structure: This syllabus describes policy, procedures, and content for both the lecture and laboratory components of this course. Lecture information is given first, and then a description of how your final grade will be calculated based on your lecture and lab grades. This is followed by the Laboratory Syllabus, and finally, general rules and requirements for the entire course (lecture plus lab).

I am not responsible for the labs. If you have a laboratory-related issue, you should speak with your Graduate Teaching Assistant, and then if necessary the Laboratory Coordinator. Refer to the Laboratory Syllabus below for details.

Lecture Requirements: You are responsible for material covered in lectures, plus anything else that I specify, from the textbook or other sources. [Other instructors may have additional or slightly different requirements]

Required Textbook for Lecture: Campbell Biology, 9th Edition, by Reece and coauthors (Publisher: Benjamin-Cummings; ISBN number: 0321558235).

Studying: UTA recommends that for courses such as these, students should expect to spend about 3 hours per week studying for each course credit hour. Including lab, this is a 4-credit course -- so the University's recommendation is 12 hours per week outside of class. This is the foundation for all other Biology classes that you will take, and if you get the basics straight here, it will make your entire degree program easier. Given the fast pace and range of facts and concepts that we cover, this course is pretty much guaranteed to take a lot of time. There is no way to avoid this, and it is essential that you keep up with the material or you will get behind very quickly.

Lecture Attendance: I do not take attendance. However, students who attend class regularly almost always perform better on exams than those who do not. Attendance at lab is required (see Laboratory Syllabus below).

Supplemental instruction (SI): You will have access to Supplemental Instructor(s) for 1441 who will hold sessions outside lecture to help you understand the material. This is totally separate from the regular class, and I do not oversee it. For general information on SI, see the website: www.uta.edu/utsi.

Lecture Schedule (topics and exams): Timing of exams and material covered is approximate and may be adjusted according to our progress. You will be notified of upcoming exams at least two weeks in advance. There is no excuse for "not knowing" that an exam is coming up!

Chapter 2: The Chemical Context of Life
Chapter 3: Water and the Fitness of the Environment
Chapter 4: Carbon and Molecular Diversity
Chapter 5: The Structure and Function of Macromolecules
Chapter 6: A Tour of the Cell
Chapter 7: Membrane Structure and Function

Lecture Exam 1 = about 16.3% of lecture grade

Chapter 8: An Introduction to Metabolism
Chapter 9: Cellular Respiration
Chapter 10: Photosynthesis
Climate change
Chapter 12: The Cell Cycle
Chapter 13: Meiosis and Sexual Life Cycles

Lecture Exam 2 = about 16.3% of lecture grade

Chapter 14: Mendel and the Gene Idea
Chapter 15: The Chromosomal Basis of Inheritance
Chapter 16: The Molecular Basis of Inheritance
Chapter 17: From Gene to Protein
Epistemology, critical thinking, the scientific method.
Evolution.

Lecture Exam 3 = about 16.3% of lecture grade

Final Lecture Exam (comprehensive) = about 45% of lecture grade

Mastering Biology = about 2.5% of lecture grade
Chapter outlines = about 2.5% of lecture grade

Exams will be mostly multiple-choice. On occasion I may include short answer questions. You are required to bring #2 pencil and a form 882E Scantron to each exam. Mark answers firmly on the Scantron. Erasures should be called to the attention of the professor at the time the Scantron is turned in on the exam day. Scantrons are copied immediately after the exam. You **MUST** circle the answers on the test paper as well as filling in the Scantron. If there is any question about your Scantron grade, your circled answers on the exam paper will be used to determine your grade.

NO ELECTRONIC DEVICES MAY BE USED IN ANY LECTURE EXAM.

Grading Policy: Biology 1441 is a four-credit class that includes a lecture and a laboratory. For grading purposes, the lecture comprises 2/3 of your grade while other 1/3 is your lab grade. Therefore, you can multiply your final lecture grade by 0.66 and your lab grade by 0.33 and add them together to get your complete class grade.

- You are not permitted to drop/withdraw from the lecture OR laboratory separately. Drops and withdrawals will be applied to both (= lecture and lab are parts of the same course).
- University policy prohibits extra credit in any form for lecture or lab.
- Your lecture grade will be determined as follows:
 - Midterm exams (3 total), ~17% each
 - Comprehensive Final Exam, 50%
- Your laboratory grade will be determined as follows:
 - 50% Lab Reports (2 reports, 25% each) *To be completed individually*
 - 20% Final Exam
 - 20% Assignments (peer review, group proposals) and quizzes
 - 10% Group Presentation

Determination of Final Grade (Lecture + Lab):

89.5+ = A
79.5-89.4 = B
69.5-79.4 = C
59.5-69.4 = D
Less than 59.5 = F

There are no make-up exams. Grades for exams missed with a verifiable excuse will be replaced by the final exam grade. Otherwise, the grade for a missed exam is zero.

BIOL 1441 LABORATORY SYLLABUS

Contacting your lab Graduate Teaching Assistant (GTA):

GTA: (refer to your schedule)	Email Address: (Provided by your GTA)
Office Number: (Provided by your GTA)	Office Hours: (Provided by your GTA)

Time and Place of Class Meetings:

- Labs will be held in LS 201, 205, and 207.
- Check MyMav for the exact room number, time, and day of your section.
- Labs begin the week of August 26, 2013

Expectations

Attend every lab and participate in experiments and exercises. Show up prepared by reading the upcoming laboratory exercise and reviewing the lab from the past week. Turn in all assignments on time. Failure to do so will result in a reduced course grade.

In addition, it is expected that all students will:

1. Be respectful of GTAs, undergraduate TAs, and peers at all times.
2. Turn off and put away all electronic devices during class. Be attentive to the information and instructions that your GTA provides.
3. Abide by all rules and regulations regarding safety conduct in the lab. This includes wearing proper attire (long pants, closed-toe shoes) and safety equipment as instructed (goggles, gloves, aprons). Failure to do so will result in dismissal from lab for the day and may affect your grade.
4. Place all belongings such as bags, coats, and electronic devices in the coat area upon arrival to lab.
5. By enrolling as a student at UTA, you have agreed to abide by the University's Honor code. Ultimately, it is your responsibility to ensure that you abide by this promise and uphold the integrity of UTA. If you are unsure if your assignment contains plagiarism, it is your responsibility to meet with your GTA to get help, prior to submitting the assignment.

Required Textbooks and Other Course Materials

TEXTBOOK

Biology 1441 Laboratory: Cell and Molecular Biology.

This manual is available for purchase ONLY THROUGH A REPRESENTATIVE OF PHI SIGMA. This manual cannot be purchased through the bookstore or online.

MATERIALS

Goggles. Goggles may be purchased from a Phi Sigma representative. Chemistry or microbiology goggles are acceptable. Wearing eyeglasses in place of goggles is not allowed. Basic calculator. Graphing calculators and cell phone or other calculators are not permitted. Laptops [*recommended*]. Students will benefit from having a laptop with Microsoft Excel and internet access for labs that require data analysis.

SUPPLEMENTARY COURSE MATERIALS

Additional materials can be accessed through Blackboard. It is your responsibility to check Blackboard regularly for assignments, lecture materials, pre-labs, and other materials. Your laboratory GTA will use Blackboard to communicate information related to the course and important announcements. You are required to utilize Blackboard for this course.

A LATE LAB REPORT WILL NOT BE GRADED AND A PLAGIARIZED LAB REPORT CAN BE GIVEN A 0.

Assignments	Number	Points Each	Total	Due Date
Quizzes	4	10	40	GTA will provide details
Group Proposals	2	10	20	GTA will provide details
Experimental Design				
Group Worksheet	1	10	10	End of Lab 1
Hand-eye exp. results	1	20	20	Week of Sept. 9
Cells group worksheet	1	10	10	End of Lab 4
Peer Evaluation	1	20	20	Week of Sept. 30
Osmosis Figures and				
Conclusions	1	20	20	Week of Oct. 7

Lab Reports	2	50	100	Week of Sept. 30 and Oct. 28
Report Improvement Worksheet	1	10	10	Week of Oct. 28
Presentation	1	50	50	Week of Nov. 11
Final Exam	1	50	50	Week of Nov. 18
Total:			350	

THERE WILL BE NO EXTRA CREDIT, SO DO NOT ASK.

Attendance Policy

1. Attendance in laboratory is mandatory. You will be required to sign in at the beginning of class.
2. *There will be no make-up assignments to take the place of lab exercises* and you must be present to gather the data for lab reports. If you miss a lab where data are collected, any associated assignments will be subject to a 10% grade reduction. For example, if you are absent for Proteins and Enzymes Week 2, your lab report grade will be reduced by 10%.
3. Pre-labs are due at the start of lab. If you miss a lab, you will receive a grade of 0 for that pre-lab.
4. Quizzes will be given at the start of lab. If you arrive late to lab you will not be allowed to take the quiz. Make-up quizzes will not be given in the case of tardiness.
5. If you must miss a lab, contact your instructor prior to the absence. You will be permitted to attend a different lab section ONE TIME PER SEMESTER with a legitimate, documented excuse (such as a medical excuse in the form of a physician's note, death in the immediate family, illness of a family member for which you are the primary care provider). Extreme circumstances will be considered on a case-by-case basis and will be subject to review by the Lab Coordinator.
6. If you do not receive approval from your GTA or the Laboratory Coordinator to miss a lab, you will not be given the opportunity to make-up quizzes or assignments and will receive a grade reduction on other lab-associated assignments.
7. Should you receive permission to attend a different lab section, all assignments are still due by the original date/time indicated by your instructor. For example, if your section meets on Tuesday at 9am, and you are given permission to attend a section meeting on Thursday at 11, your pre-lab will still be due Tuesday at 9 am *unless otherwise indicated by your instructor or the lab coordinator, as determined on a case-by-case basis*. A make-up quiz must be taken prior to, or within 1 week of the excused absence.
8. Should you miss the practical, there will be a one-time make-up scheduled during Final Review Week (time TBD). You will only be permitted to take the make-up practical in the case of a documented excused absence (see #3 above).

General Assignment Submission Policies

1. You must follow submission guidelines in order to receive full credit.
2. Late assignments, or those incorrectly submitted, will not be accepted and will receive a reduced grade or a grade of 0.
3. It is your responsibility to submit all assignments correctly and on time. Except in the case of documented campus technical difficulties, you will not be given extra time to submit electronic assignments in the case of computer-related issues. In other words, don't wait until the last minute to submit assignments! Plan to submit all electronic assignments the day *before* they are due.
4. Do not submit assignments via email. They will not be accepted.

Scientific Writing Assignments

Scientific writing is a vital component of this laboratory course. As such, you will spend considerable time learning about the process of scientific writing. Each laboratory report is worth 50 points and together these account for 50% of your grade. As such, you should plan to dedicate significant time to

developing your writing skills over the course of the semester. The following are the rules and expectations for submitting scientific writing assignments.

1. All assignments must be submitted through Safe Assign. A paper that is not submitted through Safe Assign will not be accepted and may receive a grade of zero.
2. You will be required to submit highlighted sources and/or primary references with your paper.
3. You must follow your GTA's submission instructions for reports and supporting documents in order to receive full credit.
4. Plagiarized papers will receive a reduced grade and may receive a zero and be reported to the Office of Student Conduct.

Final Laboratory Exam

Final exam will consist of a written portion as well as a practical. This exam will be held during the last week of labs (see the schedule). Your GTA will provide further details.

Laboratory Quizzes

Quizzes will be given at the start of lab. Material covered will include the current prelab as well as previous labs' prelabs, protocols, and conclusions. Question format: short answer, fill-ins, definitions. You should plan to spend time studying for these quizzes as they will also assist you in preparing for your final exam.

E-mail Communication Policy

Your GTA will make every effort to respond to your inquiry within a reasonable time, no longer than 24 hours. Do not email your GTA at the last minute expecting help with an assignment. Plan ahead!

Before you email your GTA, ask yourself the following questions:

1. *Is this email professional, polite, and detailed?* If you would not speak those words to the President of the University, do not send them in an email to your GTA. Rude or aggressive emails will be reported to the Laboratory Coordinator and possibly to the Associate Chair of the Department. Threatening emails will be reported to campus police.
2. *Can I find this information in my syllabus or on Blackboard?* Check available resources BEFORE emailing your GTA. GTAs will not respond to emails regarding policies or dates that are set forth in the syllabus or on Blackboard.
3. *Was this information made available during a lab I missed?* If so, it is your responsibility to ask a classmate.
4. *Do I need to discuss my grades?* University policy prohibits discussion of grades over email. Make an appointment or see your GTA during office hours.
5. *Do I need help with an assignment?* Email is NOT intended to take the place of meeting with your GTA during office hours. If you need help with an assignment, attend office hours or make an appointment with your GTA.

Conflict Resolution

If you are experiencing an issue in lab, you should **first** arrange a meeting with your Graduate Teaching Assistant (the instructor of your lab). After you have met with your GTA and if the issue remains unresolved, you may then consult the laboratory coordinator. If the issue still requires attention, you may then consult the Associate Chair of the Department of Biology (Dr. J. Robinson). None of the listed personnel will discuss the issue with you until you have first consulted all of those preceding him/her. The Associate Chair has final authority regarding any issue short of a filing a formal complaint with the University.

LAB SAFETY INFORMATION

The following safety rules will be enforced at all times. Failure to follow safety regulations or instructions regarding safety attire (goggles, long pants, etc.) or procedures (waste disposal), may result in dismissal from lab or grade reduction.

1. There is absolutely no food, drink, gum, cosmetics permitted in the lab at any time.
2. You must wear appropriate safety attire as instructed. This may include goggles, gloves, closed-toe shoes, long pants.
3. All personal materials, other than your lab manual and a pen/pencil must be stowed in the coat closet area. This includes all bags, coats, electronic devices, and other personal belongings.
4. Electronic devices are prohibited during lab and must be turned off and stowed with your belongings. Using electronic devices during lab may result in your dismissal from lab that day and will affect your grade. If you have an extenuating circumstance during lab one day (e.g. sick child) notify your GTA prior to the start of lab that you need to have your phone.

Mandatory University Online Safety Training:

1. Go to <http://www.uta.edu/training>.
2. Log on using your network log-on ID and password (what you use to access email). If you do not know your NetID or need to reset your password, visit <https://webapps.uta.edu/oit/selfservice/>.
3. The available courses for completion will be listed under “Training I’m Enrolled In”. Complete the course entitled ‘Student Lab Safety Training – General.’ ***NOTE: If you completed Wet, Dry or Biology Lab Safety Training course last semester for another class, that training is still applicable until the end of this academic year. Please follow instructions in #4 to print the certification page for your TA.
4. Go to ‘Training I’ve Completed’ and print the displayed page for your GTA. Verify that it shows clearly your name, and that ‘General, Wet, Dry or Biology’ training is completed/passed and the date when the training was completed. If you have just completed the training but it is not updated on the ‘Training I’ve Completed’ page, please log out of the system and log back in. If the training still does not show up on this page, call the Helpline at 817-272-5100.
5. If you were enrolled in a course with a lab last semester and did not complete the training or if you do not see training for this academic year listed, email compliance@uta.edu providing your name, a contact phone number, NetID and course (e.g. BIOL 1441-005) and request the appropriate training for your course.
6. Students who have not completed the training by census date may be dropped from the lab (and consequently the lecture).
7. Lab Safety Training is required to be completed once every academic year. Training completed in the Fall semester is valid for the Fall, Spring and Summer sessions. It is your responsibility to print your training certification page and turn it in each semester to your TA for each course with a lab you are enrolled in.

For training specific questions, contact the Environmental Health and Safety office at 817-272-2185.

For technical assistance with the training, please contact the Office of Institutional Compliance at 817-272-5100 or email compliance@uta.edu

1441 Fall 2013 - Lab Schedule

Week	Date	Topic	Exercise(s)	Assignment(s) Due	Safety?
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1	26-Aug	Lab 1: Scientific Method	Hand-eye coordination experiment Design an experiment	Group assignment worksheet	
2*	2-Sep	Lab 2: Scientific Writing	Data analysis and presentation Scientific writing		
3	9-Sep	Lab 3: Photosynthesis Respiration	Elodea/Goldfish experiment Proposal writing	Group Proposal 1 Lab 1 Results Write-up	
4	16-Sep	Lab 3 Week 2: Photosynthesis Respiration	Elodea/Goldfish perform experiment Begin Lab Report		
5	23-Sep	Lab 4: Microscopes Peer Review	Microscopes and Cells Peer review	Report Draft Cells Group Worksheet	
6	30-Sep	Lab 5: Osmosis and Diffusion	Elodea and Dialysis tubing experiments	Lab Report 1 and Peer Evaluation	
7	7-Oct	Lab 6: Macromolecules	Food testing	Osmosis Figures and Conclusions	
8	14-Oct	Lab 7: Proteins and Enzymes	Tyrosinase and bromelain experiments	Group Proposal 2	
9	21-Oct	Lab 7 Week 2: Proteins and Enzymes	Tyrosinase/bromelain perform experiments Begin Lab Report		
10	28-Oct	Lab 8: DNA	Gel electrophoresis	Lab Report 2, Report Improvement worksheet	
11	4-Nov	Lab 8 Week 2: DNA Analysis	Gel electrophoresis- Analysis and Conclusions		
12	11-Nov	Lab 9: Scientific Presentations	Group PPT Presentations	Group Presentations	
13	18-Nov	Final Exam			

*Labor Day 9/2; Monday labs will complete on their own

POLICIES THAT APPLY TO LECTURE AND LAB

Grade Grievance Policy: Students have *one week* from the time a grade is posted on Blackboard or provided otherwise to dispute the grade. Grades cannot be contested after this deadline has passed.

Academic Integrity: It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2

Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

CHEATING IN ANY FORM WILL NOT BE TOLERATED. IF YOU ARE CAUGHT, YOU WILL NOT RECEIVE CREDIT FOR THAT EXAM OR ASSIGNMENT AND MAY BE DISMISSED FROM LECTURE OR LAB. ALL CASES OF PLAGIARISM OR OTHER CHEATING WILL BE REFERRED TO THE OFFICE OF STUDENT CONDUCT WITHOUT EXCEPTION.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance** (= if you stop showing up, taking exams, going to lab, etc. you will receive a grade of zero for everything you missed and a final grade that includes these zero grades). Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information. Payment must be received by the term due date or your registration will be cancelled. If your registration is cancelled for non-payment, you may reregister for classes but only if seats are available.

Grade Replacement Policy: Students enrolling in a course with the intention of replacing a previous grade earned in the same course must declare their intention to do so at the Registrar's office by Census Date of the semester in which they are enrolled. Grade replacement will not be allowed if the above procedure is not followed.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. In order to receive accommodation, students must present this letter to their lecturer AND GTA or the Laboratory Coordinator **by the end of the second week of lecture AND second week of labs, and prior to any assignments, exams, quizzes or other activities that require accommodation.** Only those students who have officially documented a need for an accommodation will have their request

honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Student Support Services Available:

The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Electronic Communication Policy

The University of Texas at Arlington has adopted the University “MavMail” address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. ***Students are responsible for checking their MavMail regularly.*** Information about activating and using MavMail is available at <http://www.uta.edu/oit/email/>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

THE REMAINDER IS NOT PART OF THE SYLLABUS:

How BIOL 1441 will address “Core Objectives”

Teamwork

This course includes a two-hour lab each week. In lab, students work in groups of four to design experiments and complete research projects related to the content of the course that semester. At the end of the semester they also give a group powerpoint presentation. In the week following their presentation, each member of the group will complete the “Team Member Critique Sheet” (appended here). This sheet will allow assessment of the ability of each student to work effectively as a team after a semester of working together on several projects.

Critical Thinking

This course includes a two-hour lab in which students have several opportunities to demonstrate their critical thinking skills. Each student is required to write two lab reports individually and make an oral presentation as a group. These exercises provide an opportunity for students to show their critical thinking skills. They must help devise the hypothesis the group chooses to test, collect and analyze data, and interpret their results in the context of the peer-reviewed literature and their own knowledge of the subject area. We are considering the final lab report as the signature assignment that will be used to assess this objective. Please see the lab report assignment below (the actual assignment will be included in the lab manual) for details of how the assignment is constructed and our expectations of the students.

Communication

In the lab, students will complete both written and oral presentations of their work. The written lab reports will be assessed for focus, organization, meeting the requirements of the assignment, and style. We will employ a rubric that assigns points to these and other factors. The oral presentations will be assessed for the same attributes as well as vocal delivery and nonverbal communication. A rubric will be used to ensure that these factors are being graded consistently. We will use the final written lab report as our signature assignment to assess this objective.

Empirical and Quantitative Skills

Because this course includes a lab, students must be able to collect, summarize, and analyze data when conducting their own inquiries. This work is assessed when the students write up their results for a lab report and for an in-class oral presentation. In the rubric used to grade these assignments, students will be evaluated on their ability to accomplish these goals. We will use the final written lab report as our signature assignment to assess this objective.

BIOL 1441 Signature Assignment: Lab Report

Our staff recently wrote a new lab manual for this course which explicitly describes the purpose of scientific writing, data analysis, and critical thinking. Several writing assignments are given throughout the semester to allow lab groups (teams of four students that remain together all semester) to develop written proposals for their own, inquiry-based experiments, and master the skills of data collection, analysis, and writing in a series of exercises. This culminates in a written lab report that resembles a manuscript in the peer-reviewed literature, including an abstract, introduction, methods, results with data in a graph and/or table and described in text, discussion, and literature cited. Students must demonstrate all of the core objectives for the life sciences in this course: teamwork, critical thinking, communication, and empirical and quantitative skills. After completing this lab report (each report is written individually based on the group research project), students will complete the “Team Member Critique Sheet” to evaluate how the group worked together as a team.

TEAM MEMBER CRITIQUE SHEET

Student Name: _____ Date: _____

Project Title: _____ Course: _____

Circle a rating for each team member (including yourself) and provide a rating justification for each team member.

Team Member's Name and Rating Justification (Please Print)	Contribution Rating ← Low to High →	Cooperation Rating ← Low to High →	Self-Management Rating ← Low to High →
Your Name:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rating Justification:			
Team Member Name:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rating Justification:			
Team Member Name:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rating Justification:			
Team Member Name:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rating Justification:			
Team Member Name:	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rating Justification:			

1- Does Not Meet Any Expectations	Made no contributions to the group's work and decisions OR did not lead or take direction within the group	Not respectful of group members, dominates the project, consistently rejects other group member's ideas, fails to acknowledge the group's shared purpose, and causes problematic situations	Was absent or late for meetings, did not present relevant ideas/materials, did not submit work on time, and/or did not stay on task during group meetings or work sessions
2- Meets Few Expectations	EXHIBITS MIXTURE OF CHARACTERISTICS BETWEEN RATING OF 1 & 3		
3- Meets Expectations	Adequately contributed to the group's work and decisions OR adequately fulfilled the role that the student was assigned within the group project	Respectful of other group members, listens to the ideas of others, acknowledges the group's shared purpose, and did not cause problematic situations	Adequately prepared for meetings, presented some relevant ideas/materials, submitted the work by the absolute deadline, and generally stayed on task during meetings
4- Exceeds Some Expectations	EXHIBITS MIXTURE OF CHARACTERISTICS BETWEEN RATING OF 3 & 5		
5- Exceeds All Expectations	Made contributions that were instrumental to the group's success and planning process OR took the initiative to be a good leader	Respectful of other group members, integrates the ideas of other group members into their own ideas, embraces the group's shared purpose, and sought ways to avoid problematic situations	Always well prepared for meetings, presented good ideas and abundant materials, always met all deadlines, and was always task-oriented during meetings