

MOLECULAR CELL BIOLOGY LABORATORY
BIOL 3115
Spring 2019

LAB INSTRUCTOR: Dr. Charles T Spencer, Ph.D. (ctspencer@utep.edu)

LAB TEACHING ASSISTANTS:

Mondays 1:30 - 4:20
Tuesdays 9:00 - 11:50
Tuesdays 3:00 - 5:50
Wednesdays 9:00 - 11:50
Wednesdays 1:30 - 4:20
Thursdays 9:00 - 11:50
Thursdays 3:00 - 5:50
Fridays 9:00 - 11:50
Fridays 1:30 - 4:20

TEXT: The laboratory manual is available on Blackboard.

LAB DESCRIPTION: This lab is designed to teach you a few fundamental techniques of cellular biology. However, rather than conduct a series of "cookie-cutter" experiments each week, you will conduct this lab as a semester-long research project as a research team. Each team will undertake the design and execution of experiments (under guidance) to address a novel question in biomedical research.

LAB GOALS:

- To participate in the scientific process by
 - writing a background research proposal
 - conduct reproducible experimental assays
 - evaluate and analyze experimental data
 - articulate your findings in the form of a written and oral presentations

LAB POLICIES:

MISSING LAB: Attendance is required. You **CANNOT** attend another lab section. If you will be out-of-town due to attending a conference or because you are on a UTEP sports team or will be on a school interview, let your TA know, provide evidence to this effect, and arrangements will be made. No other excuses will be accepted.

MAKE-UPS: All submissions are due on the date when indicated (refer to the 'Lab Schedule') at the beginning of lab as a hard copy; electronic copies WILL NOT be accepted; assignments left in the Biology Office WILL NOT be accepted; Reports submitted at the end of lab session WILL NOT be accepted; submissions on any date after the due date WILL NOT be accepted. Moreover, unless pre-approved, make-ups for quizzes, for lab sessions, or for Experiment Progress Reports WILL NOT be provided. If you know you will not be attending lab due to a pre-scheduled activity (such as a conference or school interview), you must receive permission to submit your assignment at an alternate date and time from your TA at least 1 week BEFORE the actual class is missed. Arrangements can then be made with your TA for when the assignment is to be submitted and for when the Quiz is to be taken.

CIVILITY STATEMENT: All cell phones and tablets must be turned off or placed on silent mode. DO NOT answer phones while in class! Laptops are allowed in class as a resource for class material only; they CANNOT be used for other activities other than those related to class.

ACADEMIC DISHONESTY: It is the policy of the University of Texas at El Paso 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. For further information, please refer to UTEP's Handbook of Operating Procedures, Chapter 1: Student Conduct and Discipline (<http://admin.utep.edu/Default.aspx?PageContentID=2084&tabid=30292>).

PLAGIARISM: Plagiarism is considered a form of Academic Dishonesty and WILL NOT be tolerated in any form. Please also see Plagiarism and Scholastic Integrity webpage, at UTEP's Library: <http://libraryweb.utep.edu/research/plagiarism.php>

ADA ACCESSIBILITY: Students who need an accessible classroom or access to adjustable tables or chairs, should register no later than the last week in September for Spring Semester, or by the first week in April for Summer and Fall Semester with the Center for Accommodations and Support Services (CASS) (<http://sa.utep.edu/cass/>). CASS is located in Union East 106, phone 915-747-5148, email cass@utep.edu. If a student has or suspects he/she has a disability and needs an accommodation, he/she should contact the CASS.

MILITARY STATEMENT: If you are a military student, including the National Reserves, with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact the instructor by phone and/or email at the earliest convenience.

GRADING POLICY:

Your grade will be based on the following components:

- 1 Background Report
- 10 Quizzes
- 5 Experiment Progress Reports
- 1 Team Oral Presentation
- 1 Final
- Lab Conduct, Performance, Attendance, and Participation

Teams: Your lab section will be divided into teams – 4 members to a team – NO LESS, NO MORE. As a team, you will meet every week during the scheduled lab time. The purpose of this lab is for you to actually conduct a research project throughout the semester.

Background Research Report: The semester-long research project that your team will conduct specifically addresses cancer: what factors might contribute to the induction of cancer (proliferating cells) and what agents might be used to prevent cancer (slow down or prevent hyper-proliferation of cells). As a team, you will select a chemical reagent to test and a cell line on which to test it on. This component of the lab will be written up as a Background Research Report - a report is submitted by every member of your team (a Background Report from EACH STUDENT). You can work on the proposal together but each student must submit an original document. Components of the Background Research Report are detailed in the Lab Manual.

Quizzes: A total of 10 quizzes will be provided online BEFORE each lab session in which experiment assays are to be conducted. The quizzes will cover material related to the experimental assay that is to be conducted that day (information as to topic provided in the schedule). This is being done to ensure you have read the related material prior to coming to lab in preparation for the lab's activities.

Lab Progress Reports: A total of 5 Lab Reports will be required. The purpose of the Reports is to help you gain additional training in the presentation and interpretation of data. All experimental assays must be repeated a minimum of two times but ideally three. Believable data must be reproducible, so experiments must be repeated. Therefore, rather than turning in a lab report for every week, each student will be submitting a report upon completion of the repeated experiments. A more detailed description of the Lab Progress Reports is provided in the Lab Manual. A team can work together on an Experimental Progress Report but EACH STUDENT must turn one in (and it must not be identical to other team members).

Team Oral Presentation: A summary of ALL of your findings must be provided as an oral presentation at the end of the semester. One lab session has been set aside to discuss your findings and to determine what conclusions can be drawn from the data. Details are provided in the Lab Manual. Note that this is the only assignment that is to be submitted as a team (one presentation per team).

Conduct, Performance, Participation and Attendance: These elements will be assessed by your TA and the Lab Coordinator (Dr. Jennifer Apodaca). If any misconduct or lack of performance is observed, points will be deducted from your grade. Poor conduct/performance includes not following lab safety requirements,

goofing off in lab, not coming to lab prepared, not contributing to the team experiments, wearing inappropriate attire, etc. This list is not comprehensive. Skipping or missing a lab will also result in a deduction of points as will coming into lab late. The number of points to be deducted will be appropriate for the infraction. Lastly, you will also be observed for how engaged you are with your team. Points will be deducted from those to be awarded that session if you are not participating in that day's activities.

Final: A comprehensive Final will be administered the last day of labs. It will cover the various aspects of working in a tissue culture lab and information regarding the 5 procedures/assays conducted throughout the semester.

Your experiments will be conducted in the MCB HHMI CELL LAB. This is a dedicated lab for MCB students to perform research. This opportunity is a privilege not a right – your tuition and/or lab fees DOES NOT contribute to this facility! Thus, conduct yourselves in a respectful manner. As with any research lab, your instructor, TA, and the Lab Coordinator all have the right to throw you out of the teaching lab should you demonstrate disregard for proper use of laboratory facilities or if you demonstrate a lack of respect for your fellow students, TA, or the Lab Coordinator.

Molecular Cell Biology Teaching Laboratory

Background Report	100 points
Weekly Quizzes	100 points (10 quizzes/10 pts each)
Lab Final	100 points
Progress Reports	100 points (5 reports/20 pts each)
Team Presentation	100 points
Attendance/Participation	100 points (10 days/10 pts each)

600 points total

Extra Credit: Extra credit opportunities or activities WILL NOT be provided.

Final Grading: I will round final grades at the end of the semester – so, an 89.6% is an “A” – but an 89.2% is a “B”. I will not *push* a percentile grade to improve a letter grade; for example, a 79.2% WILL NOT be pushed to a “B” – so don’t even bother asking.

Grades are not based on a curve. Everyone will receive a grade that is reflective of the effort put into the course, the knowledge learned during the course, and the skills acquired during the course. **You EARN your grade; neither I nor the TA’s give you a grade.**

MCB SPRING 2019 LAB SCHEDULE

**please note that our schedule is subject to change – check on Blackboard regularly for announcements*

WEEK	DATE (Mon-Sat):	LAB EXERCISE	TO BE SUBMITTED
1	Jan 20 – Jan 25	NO LABS – first week of classes	
2	Jan 27 – Feb 1	General Lab Safety, HHMI Lab Orientation and Course Overview	Quiz 1 Research cell lines and compounds
3	Feb 4 – Feb 8	EXPERIMENT ONE: Learning how to Pipette – Protein Titration Curve	Quiz 2 Background Report: Report to TA the cell line and compound your team is going to test for your project.
4	Feb 11 – Feb 15	EXPERIMENT TWO (a): Determining EC50 (microplate reader)	Quiz 3 Experiment Progress Report 1
5	Feb 18 – Feb 22	EXPERIMENT TWO (b): repeat	Quiz 4
6	Feb 25 – Mar 1	EXPERIMENT THREE (a): Live/Dead Assay (Fluorescent microscopy day)	Quiz 5 Experiment Progress Report 2
7	Mar 4 – Mar 8	EXPERIMENT THREE (b): repeat	Quiz 6
8	Mar 11 – Mar 15	EXPERIMENT FOUR (a): Migration Assay (light microscopy)	Quiz 7 Experiment Progress Report 3
9	Mar 18 – Mar 22	NO LABS - SPRING BREAK	
10	Mar 25 – Mar 29	EXPERIMENT FOUR (b): repeat	Quiz 8
11	Apr 1 – Apr 5	EXPERIMENT FIVE (a): Cell Cycle Analysis (flow cytometry)	Quiz 9 Experiment Progress Report 4
12	Apr 8 – Apr 12	EXPERIMENT FIVE (b): repeat	Quiz 10
13	Apr 15 – Apr 19	NO LABS (Friday is a holiday)	Spring Study Day
14	Apr 22 – Apr 26	MCB LAB FINAL	Experiment Progress Report 5
15	Apr 29 – May 3	RESEARCH PRESENTATIONS	
16	May 6 – May 10	NO LAB – last week of classes	
	May 13 – May 17	NO LAB - Finals Week	

Quizzes:

- 1 = General Lab Safety
- 2 = pipetting and standard curve
- 3 and 4 = determining an EC50
- 5 and 6 = Live/Dead Assay
- 7 and 8 = Migration Assay
- 9 and 10 = Cell Cycle Analysis

Experiment Progress Reports:

- 1 = Pipetting Exercise
- 2 = EC50 experiment
- 3 = Live/Dead Assay
- 4 = Migration Assay
- 5 = Cell Cycle Analysis