

CBCH 4310 (CRN 12281)
Fall Semester, 2021
Techniques in Molecular Biochemistry (3-0)

Meeting time: Mondays and Wednesdays, 9-10:20 am in-person in LART 108

Description: A team-taught course aimed at providing an overview of research methods and techniques in modern molecular biology and molecular biochemistry laboratories.

Prerequisites: CHEM 4330, CBCH 3414 or instructor approval.

Course organizers: Dr. Sid Das and Hugues Ouellet

Faculty Presenters: Das, Ouellet, Sun, Spencer, Lavretsky, Moody, Quintana, Rosas-Acosta and Roy

Office Hours: Immediately after the class or through prior appointments.

Course Objectives: At the completion of this course the students are expected to achieve the specific learning objectives described below.

1. Understand the basic approaches used for the analysis of molecular methodologies, construction of mutants, phylogenetic classification, membranes and vesicle isolation, protein modification and molecular manipulation of genes by CRISPR.
2. Understand the principles underlying the approaches indicated above.
3. Be able to apply their knowledge in understanding basic mechanism of a cell and the disease process.

Assessment of Course Objectives: A learning outcomes evaluation (self-assessment) will be handed out for you to complete at the same time that the course evaluation forms are completed.

Textbook and exam procedures: None. Topic-specific papers and the instructor's presentation slides will be assigned to answer quizzes on a specific topic and preparing group presentations. (See the attached schedule for more information)

Grading: As indicated above quizzes and presentations will be your final grades.

Evaluations	Material covered	Due date
Quiz 1 (15 points)	Topics 1 to 5	TBA
Quiz 2 (15 points)	Topics 6 to 10	TBA
Essay 1 (30 points)	Topics 1 to 5	TBA
Essay 2 (30 points)	Topics 6 to 10	TBA
Attendance (10 points)	-	-

The final grade will correspond to an average of the scores obtained by the student in quizzes, attendance, and presentations throughout the semester. No final exam will be administered. Grading scale: A=90-100%; B=80-89%; C=70-79%; D=60-69%; F is <60%.

Quizzes: There will be two quizzes uploaded on BlackBoard. Each quiz will cover five topics. The due dates are listed above. You will have two attempts of 45 min. The highest score will be counted. If you experience any technical problems while taking the quizzes, you must inform Dr. Ouellet (houellet@utep.edu) immediately to get the quiz reopened. Do not wait at the very last minute to do the quizzes. Importantly, there will not be any make-up quizzes after the due time.

Attendance: Attendance is mandatory and will be monitored through a poll on BlackBoard sent anytime by the speakers during the presentations. If you have a serious illness or a legitimate excuse (includes military personnel called to active duty or training) for being out-of-town, make sure to inform us before.

Essays: Students will form teams of three or four and will be asked to write two essays. The topics will be selected by a draw done in class. The essays will be on the description/use of the molecular techniques presented in class and must include a discussion of a related peer-reviewed paper provided by the speakers. Detailed guidelines will be given. The due dates are below.

Drop date: October 29, 2021

Academic Integrity Policy: UTEP's policies regarding academic integrity apply in this course. Information on this policy can be found at <http://academics.utep.edu/Default.aspx?tabid=23785>

Civility Statement: Please be respectful of all students' right to learn without disruptions. In line with this statement please make an active effort to keep the talking to a minimum during lectures and presentations. Also make an active effort to either turn cell phones off or turn them to vibrate mode prior to the start of class.

Tentative schedule

Meeting date	Faculty/Evaluator(s)	Content
08/23/2021	Das	Presentation of syllabus
08/25/2021	Das	Rafts and Microvesicles Isolation: Proteomic Analysis, part 1
08/30/2021	Das	Rafts and Microvesicles Isolation: Proteomic Analysis, part 2
09/01/2021	Ouellet	Elucidation of Gene Function in Mycobacteria, part 1
09/06/2021	No class Labor Day	-
09/08/2021	Ouellet	Elucidation of Gene Function in Mycobacteria, part 2
09/13/2021	Sun	Proteins Expression and Purification, part 1
09/15/2021	Sun	Proteins Expression and Purification, part 2
09/20/2021	Charles Spencer	FACS Analysis, part 1

09/22/2021	Charles Spencer	FACS Analysis, part 2
09/27/2021	Lavretsky	Genome Sequencing and Deep Sequencing, part 1
09/29/2021	Lavretsky	Genome Sequencing and Deep Sequencing, part 2
10/04/2021	Essay #1	Team work
10/06/2021	Essay #1	Team work
10/11/2021	Essay #1	Team work
10/13/2021	Essay #1	Team work : Essay #1 is due by no later than 5h00 pm
10/18/2021	Moody	Plant Transcriptomics, part 1
10/20/2021	Moody	Plant Transcriptomics, part 2
10/25/2021	Quintana	Human genetics and Genome Editing, part 1
10/27/2021	Quintana	Human genetics and Genome Editing, part 2
11/01/2021	Rosas-Acosta	Sumoylation, part 1
11/03/2021	Rosas-Acosta	Sumoylation, part 2
11/08/2021	Roy	Site-Directed Mutagenesis, part 1
11/10/2021	Roy	Site-Directed Mutagenesis, part 2
11/15/2021	Ouellet	COVID-19
11/17/2021	Ouellet	COVID-19
11/22/2021	Essay 2	Team work
11/24/2021	Essay 2	Team work
11/29/2021	Essay 2	Team work
12/01/2021	Essay 2	Team work: Essay #2 is due by no later than 5h00 pm.