

CBCH 4310 (CRN 11272)
Fall Semester, 2023
Techniques in Molecular Biochemistry (3-0)

Meeting time: Mondays and Wednesdays, 12-1:20 pm in-person in PSY Bldg 307.

Description: A team-taught course 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, Moschak, Balivada, and Roy

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

Course objectives: After this course, the students are expected to achieve the learning objectives described below.

1. Understand the primary approaches for analyzing 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 the primary 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 while 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 prepare group presentations (See the attached schedule for more information).

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

Evaluations	Due date
Ten weekly short assignments (30 points)	About a week from uploading on BB
Four 1-page summaries (60 points)	Summaries 1-5 are due on 10/20/2023, 5 pm Summaries 8-10 due 12/08/2023, 5 pm
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=80-89.9%; C=70-79.9%; D=60-69.9%; F is <60%.

Attendance: Please note that attendance for presentations is mandatory and will be monitored through a sign-in sheet or a BlackBoard poll sent by the speakers at any time. If you cannot attend due to a severe illness or have a legitimate excuse (such as military personnel called to active duty or training) for being out of town, please inform Dr. Ouellet beforehand.

Short assignments: On BlackBoard, there will be a brief assignment for each of the ten topics. The due date will be indicated for each task. If you encounter any technical difficulties, please notify Dr. Ouellet (houellet@utep.edu). It should be noted that there will be no make-up assignments after the due date.

Summaries: Students must write a **one-page** summary on **four** assigned topics, describing techniques used in research and highlighting their strengths and limitations. Plagiarism will be closely monitored via SafeAssign on BlackBoard and other plagiarism detection software. Suspected plagiarism will be immediately reported to the Office of Student Conduct and Conflict Resolution, potentially resulting in a score of "0" for the assignment.

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 respect all students' right to learn without disruptions. In line with this statement, please actively try to keep talking to a minimum during lectures and presentations. Also, make an active effort to turn cell phones off or turn them to vibrate mode before the start of class.

Tentative schedule

Meeting date	Faculty/Evaluator(s)	Content
08/28/2023	Ouellet and Das	Presentation of syllabus
08/30/2023	Ouellet	Topic 1: Elucidation of Gene Function in Mycobacteria, part 1
09/04/2023	-	Labor Day – No class
09/06/2023	Ouellet	Topic 1: Elucidation of Gene Function in Mycobacteria, part 2
09/11/2023	Das	Topic 2: Rafts and Microvesicles Isolation: Proteomic Analysis, Part 1
09/13/2023	Das	Topic 2: Rafts and Microvesicles Isolation: Proteomic Analysis, Part 2
09/18/2023	Sun	Topic 3: Protein Expression and Purification, part 1
09/20/2023	Sun	Topic 3: Protein Expression and Purification, part 2
09/25/2023	Spencer	Topic 4: FACS Analysis, Part 1

09/27/2023	Spencer	Topic 4: FACS Analysis, part 2
10/02/2023	Moschak	Topic 5: Optogenetics, Part 1
10/04/2023	Moschak	Topic 5: Optogenetics, part 2
10/09/2023	Work on Summaries 2-5	No class meeting
10/11/2023	Work on Summaries 2-5	No class meeting
10/16/2023	Work on Summaries 2-5	No class meeting
10/18/2023	Work on Summaries 2-5	No class meeting. Summaries 2-5 are due by no later than 10/20/2023, 5h00 pm
10/23/2023	Ouellet	Topic 6: TBD
10/25/2023	Ouellet	Topic 6: TBD
10/30/2023	Das	Topic 7: TBD
11/01/2023	Das	Topic 7: TBD
11/06/2023	Balivada	Topic 8: Tentative Brain mapping
11/08/2023	Balivada	Topic 8: Tentative Brain mapping
11/13/2023	Roy	Topic 9: Site-Directed Mutagenesis, part 1
11/15/2023	Roy	Topic 9: Site-Directed Mutagenesis, part 2
11/20/2023	Ouellet	Topic 10: Genetic Tools for SARS-CoV-2, part 1
11/22/2023	Ouellet	Topic 10: Genetic Tools for SARS-CoV-2, part 1
11/27/2023	Work on Summaries 6-10	No class meeting
11/29/2023	Work on Summaries 6-10	No class meeting
12/04/2023	Work on Summaries 6-10	No class meeting
12/06/2023	Work on Summaries 6-10	No class meeting. Summaries 6-10 are due by noon on 12/08/2023, 5:00 pm.

Drop date: November 3, 2023