

CHEM 5210 Molecular Biology Module 2 Syllabus

Classroom: SLSRC 2430

TR 8:00am – 9:20am

Instructor: Christina Bourne

Email: cbourne@ou.edu

Office hours: By appointment or as needed

Objective should include fundamental basic knowledge of the biochemistry of mol boil processes to allow understanding of publications in the field, and to provide an entry point that students can follow up with more detail as needed.

The second module to Molecular Biology will extend from a fundamental basic knowledge of the biochemistry of molecular biology and process. The goal is to allow understanding of publications in the field, and to provide an entry point into topics. Course material will loosely follow the textbook *Lewin's Genes XI*, relevant chapters and additional course materials such as published manuscripts.

Expectations: You are expected to show up, *on time*, for every scheduled class. You are expected to have completed the assigned readings before class, and come prepared to discuss the content.

Absences: Given that there are only 10 scheduled meetings, every meeting will be important and absences should be avoided.

Assignments: Given that there are only 10 scheduled meetings, it is expected that students will complete assignments on time. *No make-up work or late assignments will be accepted.*

Grades: will be calculated from in-class participation and preparedness (20%), take home assignments (45%), quizzes (15%), and the final exam (20%).

Anticipated Schedule

Date	Topic	Tasks
(1) Tues. Feb 20 th	Eukaryotic Transcription Factors & Elongation <i>Trends in Genetics</i> (2008) 24:280	
(2) Thurs. Feb 22 nd	RNA Modifications and Splicing <i>Cell</i> (2017) 169:1187	Receive Assignment 1
(3) Tues. Feb. 27 th	Splicing and catalytic RNA, Transposons <i>Cell</i> (1981) 27:487	
(4) Thurs. March 1 st	DNA Repair / VDJ Recombination <i>Trends in Cell Biology</i> (2016) 26:52	QUIZ 1 Assignment 1 is due Receive Assignment 2
(5) Tues. March 6 th	Ribosomes and Translation <i>Science</i> (2017) 356:194	
(6) Thurs. March 8 th	Ribosomes and Translation –non-canonical amino acids <i>Science</i> (2011) 333:1151	QUIZ 2 Assignment 2 is due
(7) Tues. March 13 th	Co-translational modifications – the SRP <i>Curr. Op. in Chemical Biology</i> (2015) 29:79	Receive Assignment 3
(8) Thurs. March 15 th	Other modifications – ubiquitylation & glycosylation <i>Mol. Cell Biol.</i> (2018) 19:59	
(9) Tues. March 27 th	Bacteriophage & Applications <i>J. Exp. Med.</i> (1944) 79:137, reprinted in <i>Microbiology: A Centenary Perspective</i>	QUIZ 3 Assignment 3 is due
(10)Thurs. March 29 th	Cumulative Exam for Module 2	

Items I expect you to already know:

- What are DNA and RNA
- The Central Dogma (including the name of the step, what goes to what, and the enzyme(s) that mediates it)
- Base pairing, complementarity, annealing, PCR
- In general, what functions are carried out by nucleases (endo versus exo), ligases, polymerases, helicases, topoisomerases, restriction enzymes
- Chromatin / nucleosome / replisome / DNA coiling structures
- DNA replication
- Operons and specifically how the *lac* operon works

The instructor reserves the right to change by addition and/or subtraction any and/or all materials contained in this syllabus.

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

University Policies**Codes of Behavior**

Each student should acquaint themselves with the University's codes, policies and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on physical handicap. Students engaging in academic misconduct (including cheating, plagiarism, and any other action that may improperly affect evaluation) will be subject to sanctions in accordance with the Norman Campus Academic Misconduct Code. Grade sanctions could range from a zero for the specific assignment to an "F" for the course. University sanctions can be severe, i.e., expulsion from the University.

Academic Integrity

Cheating is strictly prohibited at the University of Oklahoma, because it devalues the degree you are working hard to get. As a member of the OU community it is your responsibility to protect your educational investment by knowing and following the rules. For specific definitions on what constitutes cheating, review the Student's Guide to Academic Integrity at http://integrity.ou.edu/students_guide.html.

To be successful in this class, all work on exams and quizzes must be yours and yours alone. You may not receive outside help. On examinations and quizzes you will never be permitted to use your notes, textbooks, calculators, or any other study aids unless I give permission. Should you see someone else engaging in this behavior, I encourage you to report it to myself or directly to the Office of Academic Integrity Programs. That student is devaluing not only their degree, but yours, too. Be aware that it is my professional obligation to report academic misconduct, which I will not hesitate to do. Sanctions for academic misconduct can include expulsion from the University and an F in this course, so don't cheat. It's simply not worth it.

Religious Observance

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

Reasonable Accommodation Policy

Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Disability Resource Center website <http://www.ou.edu/drc/home.html>. Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

Title IX Resources and Reporting Requirement

For any concerns regarding gender-based discrimination, sexual harassment, sexual assault, dating/domestic violence, or stalking, the University offers a variety of resources. To learn more or to report an incident, please contact the Sexual Misconduct Office at 405/325-2215 (8 to 5, M-F) or smo@ou.edu. Incidents can also be reported confidentially to OU Advocates at 405/615-0013 (phones are answered 24 hours a day, 7 days a week). Also, please be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. Inquiries regarding non-discrimination policies may be directed to: Bobby J. Mason, University Equal Opportunity Officer and Title IX Coordinator at 405/325-3546 or bjm@ou.edu. For more information, visit <http://www.ou.edu/eoo.html>.

Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor or the Disability Resource Center at 405/325-3852 as soon as possible. Also, see <http://www.ou.edu/eoo/faqs/pregnancy-faqs.html> for answers to commonly asked questions.