Syllabus
BIO F344 Molecular Biology
Summer 2020
Lectures: Delivered by video to be watched before the in-class exercises
In-Class Exercises Mo Tu We Fr 11:30 A – 12:30 P
Exams (except for June 4) Th 11:30 A – 12:45 P
Professor Stevens' Office Hours: Mo Tu We Fr 12:30 P – 1:00 P
Dr. King's Office Hours: Th 8:00 A – 9:00 A
Course and Office Hour Zoom Room: <https://utexas.zoom.us/j/91774289640>
Discussion Section and Dr. King's Zoom Room: < https://utexas.zoom.us/j/5241078500>

Instructor: **Dr. Scott W. Stevens, Ph.D.**
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Teaching Specialist: Dr. Peter King
email: through Canvas

Description and objectives

This course is a survey of the principles of modern molecular biology. This course will be taught at a fairly high level using both the assigned textbook as well as primary literature describing the phenomena being taught. Unlike the more basic biology courses, this course will not only tell you what you need to know, but *how it is we came to know them*. For this course, I feel this is an important distinction and learning about the experimental details will allow you understand how modern molecular biologists answer the important questions and their relation to human health. The major topics under study will include contributions of chromatin structure to gene expression, control of RNA transcription, RNA processing, ribosomal and other RNA biogenesis, RNA export, protein translation and many aspects of the most modern molecular biology technologies such as genomics/transcriptomics/proteomics etc.

Prerequisites

BIO325 (Genetics) with a grade of C or better. No exceptions to this prerequisite will be made. *Biochemistry (BCH339F or BCH369) and/or Organic Chemistry is recommended*, and may be required, depending on your major and year of matriculation.

New Q/F drop policies

Please familiarize yourself with the revisions to the Q drop policies. All of these changes are outlined on the following webpage: https://ugs.utexas.edu/vick/academic/adddrop/qdrop

Format

There are videos of the lecture content in Canvas in the Video Recordings folder. These should be ***viewed before the date and time of the lecture described below***. In-class exercises and discussions will be held during class time. Office Hours will be held at the end of every class session.

Textbook (Optional)

Molecular Biology (5th ed) by Robert F. Weaver McGraw Hill Companies, New York, NY
This textbook is optional but highly recommended. The material that you will be tested on will all be covered in the lecture notes, online homework, and practice problems in ways that are *not dependent on this particular textbook*. I have suggested readings based on the 5th Edition of Weaver that are meant to reinforce your understanding of the topics we will cover in class, but reading the equivalent sections of any modern Molecular Biology textbook should serve you just as well. You are absolutely NOT expected to know every single fact mentioned in the readings. They are meant to provide you with additional background information to help you understand important concepts. I do strongly recommend that you have access to at least one recent Molecular Biology textbook as a useful reference for this and for subsequent upper division courses.

Other Reading Material

The reading assignments outside the textbook may be provided as PDF files on Canvas.

"Attendance"

Regular viewing of *all* videos, attendance during in-class presentations and at discussion sections is expected. You are responsible for all announcements made in class; additional announcements will be conveyed by email or by posting to the Canvas site. Attendance will be taken during discussion sections. Poor attendance may affect your final grade (see below).

Discussion Sections

Section	**Day**	**Time**	**Location**
84348	Tu	1:30-3P	ZOOM < https://utexas.zoom.us/j/5241078500>
84349	Tu	3 – 4:30P	ZOOM < https://utexas.zoom.us/j/5241078500>

Attendance will be taken at the sections. Please note that attendance requires your presence through the section and active participation.

Exams and grades

There will be five (5) in-class exams during the semester, and ***no*** comprehensive Final exam. Please note the exam dates on the course schedule. Each exam = 20% of your grade. Exams will consist of T/F, fill in the blank and short answer/essay questions and problems similar to the homework. The best preparation for exams is to regularly attend class, discussion sections and office hours, read the textbook material and solve the assigned problems. You may **not** use any electronic device during exams. The lowest of your hour-exam scores will be dropped. Since the lowest exam will dropped, **there will be no make-up exams for any reason whatsoever**. You will get a zero for other missed exams. Your overall course score = total points from your top-four hour exams (80% of grade), your homework and discussion section participation (20% of grade) + 8 bonus pts. if you turned in all homework assignments and attended all of the discussion sections. Overall scores for all students will be adjusted upward if necessary so that the median score for the class is at least 75%. Individual hour exams will *not* be curved.

Hour Exam 1	20%	Adjusted % score	Grade
Hour Exam 2	20%	90-100	A
Hour Exam 3	20%	80-89.9	B
Hour Exam 4	20%	70-79.9	C
Quizzes/Attendance	20%	60-69.9	D
	100%	0-59.9	F

Re-grade requests

Re-grading of individual exams will be done only with clear evidence of an error by me or the TA, (addition error or missing a correct answer). Differences of opinion or interpretation are very unlikely to result in a re-grade. Requests for re-grading must be made within 3 class-days of the date that the graded exams are returned to the class as a whole.

Use of Class Materials

The materials used in this class, including, but not limited to, exams, quizzes, and homework assignments are copyright-protected works. Any unauthorized copying of the class materials is a violation of federal law and may result in disciplinary actions. Additionally, sharing of class materials without the written approval of the instructor may be a violation of the University's Student Honor Code and an act of academic dishonesty, resulting in further disciplinary action. (Including, among other things, uploading materials to websites to share with other current or future students).

University policy on scholastic dishonesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including failure in the course and/or dismissal from the University. Policies on scholastic dishonesty are strictly enforced. Read, and be familiar with: http://deanofstudents.utexas.edu/sjs/ and http://deanofstudents.utexas.edu/conduct/

Academic accommodations for students with disabilities and other needs

The University of Texas at Austin provides, upon request, appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY. ***It is the responsibility of the student to discuss needed accommodations with the instructor within the first few days of class.***

Communicating with the instructor

The best means of contact outside of class is by e-mail. I encourage questions about anything connected with the class. However, **scientific questions should be reserved for class or office hours**. You may also make an appointment to meet with me at other times, *subject to my availability*. I will use e-mail to send announcements to the whole class, using your email address that was on record at the time you registered for this class. It is your responsibility to ensure that your address on record is current, to check it regularly, and that messages sent to that address don't bounce.

Religious Holy Days

Religious holy days sometimes conflict with class and examination schedules. Sections 51.911 and 51.925 of the Texas Education Code address absences by students and instructors for religious holy days. Section 51.911 states that a student shall be excused from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. University policy required students to notify each of their instructors as far in advance of the absence as possible so that arrangements can be made. Section 51.925 prohibits the university from discriminating against or penalizing an instructor who is absent from class for the observance of a religious holy day. Proper notice must be given to the department chair. Prior to the begin of classes each semester, the instructor must provide the department chair a list of classes that will be missed due to observance of a religious holy day. The list must be personally delivered, acknowledged and dated by the chair, or sent via certified mail, return receipt requested. Consistent with regular university policy, the instructor is responsible for finding a qualified substitute UT Austin instructor for any missed class(es).

Classroom policy

During class, please refrain from any behavior that can be a distraction to other students. Please respect the learning environment of your professor and your classmates. Cell phones, pagers, video games, MP3 players, talking and the like will not be tolerated. Please turn off all electronics before you enter any Zoom sessions. In the event that a cell phone or pager does go off, please turn it off immediately. Repeated events will result in the student being asked to mute their connection or leave the Zoom session. Needless to say, questions about the topic being discussed are encouraged.

Miscellaneous

There is no “extra credit” possible, outside of the assignments and exams so please, do not ask.

Course schedule

Topics listed are tentative till they are covered in class. The dates of exams are not expected to change, except when forced by University closure or delayed opening.

PLEASE REMEMBER TO VIEW THE LECTURE VIDEOS BEFORE THE IN-CLASS MEETING!

Date (lecture #)	**Topic**	**Chapter(s) covered**
June 4 (1)	History of Molecular Biology; RNA and DNA	Ch. 1, 2, 3
June 5 (2)	Techniques and technologies	Ch. 4, 5
June 8 (3)	Chromatin	Ch. 13 (pp 360-377), Other*
June 9 (4)	Prokaryotic RNA transcription	Ch. 6, 7, 8, 10, 11, 12
June 10 (5)	Eukaryotic RNA transcription	Ch. 6, 7, 8, 10, 11, 12
June 11	**Exam 1**	
June 12 (6)	mRNA Capping and modification	Ch. 15.1, 16.4, Other*
June 15 (7)	mRNA splicing – mechanism	Ch. 14
June 16 (8)	mRNA splicing – assembly and control	Ch. 14.2, Other*
June 17 (9)	mRNA polyadenylation and export	Ch. 15.2, Other*
June 18	**Exam 2**	
June 19 (10)	Coordination and control of gene expression	Ch. 15.3, Other*
June 22 (11)	RNA quality control and decay	Ch. 16.5. Other*
June 23 (12)	Ribosome biogenesis I	Ch. 16.1, 19.1, Other*
June 24 (13)	Ribosome biogenesis II	Ch. 16.1, 19.1, Other*
June 25	**Exam 3**	
June 26 (14)	Other RNAs (tRNA, snRNA, snoRNA)	Ch. 16.2, 19.2, Other*
June 29 (15)	Translation I	Ch. 17, Other*
June 30 (16)	Translation II	Ch. 18, Other*
July 1 (17)	miRNA / RNAi	Ch. 16.5-16.9; Other*
July 2	**Exam 4**	
July 3 (18)	Protein turnover	Other*
July 6 (19)	Retroviruses	Ch. 23.4 Other*
July 7 (20)	Transgenic techniques and organisms	Other*
July 8 (21)	Genomics & Genome-wide gene expression	Ch. 24.2, 24.3, 25, Other*
July 9	**Exam 5**	

* Other materials may be used (eg. Material uploaded to Canvas, primary literature, etc.)