BIOSC 1940 MOLECULAR BIOLOGY
Fall term 2021
Course policies

Instructor: Dr. Andrea Berman (she/her/hers)
Email: ajb190@pitt.edu
Work Phone: 412-624-2200

Office Hours:
Tues 11 am-12 pm
Other times by appointment

Lecture schedule: Mon., Wed., Fri. 10:00 – 10:50 am A224 Langley Hall

Prerequisites: Completion of (BIOSC 0350 or 0355 or BIOL 0350 or 1315) AND completion of BIOSC 1000 (Biochemistry) or BIOSC 1810 (Macromolecular Structure and Function) with a grade of C or better. These courses provide a foundation for 1940. It is expected that you have a good working knowledge of the material presented in these prerequisite courses, as little review of prior material will be provided. See the instructor if you have not satisfied these requirements.

Course objectives: The goal of this course is to provide students with a current understanding of the molecules and mechanisms that define modern molecular biology. The course will emphasize experiments that have led to major developments in the field of molecular biology. Thus, students will not only learn what we know about molecular biology but how we know it. Primary literature will be emphasized.

Textbook: Molecular Biology Principles of Genome Function by Nancy Craig, Rachel Green, Carol Greider, Gisela Storz, Cynthia Wolberger, 3rd edition, 2021. In addition to the textbook, published reviews and journal articles will be used as supplementary material for discussion. These additional materials will be available through the learning management system Canvas.

Software for the course: We will be using Canvas as the Learning Management System. One office hour per week will be held via Zoom; the other will be in-person but also synchronously over Zoom. All lectures will be available synchronously over Zoom; lectures will be recorded and available for your review through Panopto on Canvas after they are edited. **for the first 2 weeks (per the Provost's 8/20/21 announcement), lectures will be over Zoom; most likely, they will also be available in person in Langley A224 (see announcement page for daily updates). By participating in lecture over Zoom, you acknowledge that your image, voice, and comments will be recorded and broadcast to the people in this course. The recordings will ONLY be provided to people in this course.

Zoom etiquette and expectations: The University of Pittsburgh Student Conduct Code applies to online behavior as well as in-person or classroom behavior. You are expected to be professional and respectful when attending class on Zoom. The following are class policies for our meetings with Zoom. Please read carefully. All students are expected to adhere to the policies.

1. Sign in with your first name and last name as listed on the class roster.
   Exceptions:
   a. Since enrolling in class, some students have changed their names to better reflect their gender identity. If you currently use a different name than what is listed on the official

roster, please send instructor a private Canvas message so this can be noted on the roster.

b. If you do not have access to a computer or smartphone with internet access, call into class using a landline phone. This is not optimal; please try to locate an internet-enabled device to use for class.

2. Please turn off notifications from other apps on your device while you are in class.
3. Video: Please turn on your video if possible.
4. Audio: Please mute your microphone when you are not talking.

ZOOM ADDENDUM 8/30/21: This course is designed to function fully in person beginning September 13, 2021. Requests for remote attendance will not be reviewed by myself or the department. If you believe you have a qualifying disability that prevents you from attending in-person instruction this semester, please contact Disability Resources and Services. If you are quarantined due to COVID-19, you may temporarily participate remotely by providing documentation. Under either of these circumstances, you may elect to preserve your privacy by not using video and by identifying yourself in Zoom using your initials or an alias that you have shared with me.

Instructor commitment to inclusion: I aim to provide an environment that is both intellectually challenging and supportive. This entails facilitating open dialog where everyone feels valued and comfortable contributing. Innovative thinking—scientific or otherwise—emerges from the collaborative exchange of ideas, which are expanded in scope by diverse experiences.

Instructor commitment to your success: I want all my students to succeed. While this requires you to take ownership of your preparation and performance, I will:

- provide abundant opportunities for answering questions and discussing concepts in office hours, by email, and by appointment;
- do my best to grade work within 1 week of receipt;
- facilitate respectful, but critical, discussions about data interpretation;
- request frequent feedback so I can modify my teaching style and/or materials to enhance your learning;
- provide resources and materials that will enable your success.

Final Grade: Your final grade will be curved and based on 455 points divided as follows:

(300 points) Examinations: two mid-term exams will be given during regular class meetings. The dates of these exams are listed on the syllabus. The final exam will be given the week of December 9. It will be cumulative but will emphasize material from the last third of the course. We will have informal review sessions during class time. You are expected to show up to each exam on time. Late arrivals will be given the exam during the time that remains for the designated examination period.

(140 points) Paper dissections (Figure Facts): 20 points/assignment, 7 graded (first one is practice); one or two questions will be chosen at random for grading. Papers to be dissected will be posted to Canvas. Figure Facts assignments are due at 10 am on the days listed on the syllabus. While you may discuss the assigned paper(s) with your classmates, and are encouraged to do so, you are expected to turn in your own original work. Keys that have reasonable answers will be posted for your understanding after the due dates. Note that there is often more than one correct answer. Please interpret the figures to understand what the data mean or show. Copying any text from the papers or

the internet (i.e., plagiarism) is not permitted; the first time this occurs, you will receive a warning and an opportunity to resubmit the modified work within 3 days. If a second offense occurs, you will receive a score of zero for the assignment. Please submit all assignments through Canvas. Late assignments are eligible for half-credit.

(15 points) Participation: There will be 8 in-class discussions based on current journal articles, as listed in the syllabus, and posted on Course Web. Each student will be randomly selected to informally present 'talking points' with a partner to the rest of the class for one in-class discussion. You will be notified that you are presenting at least 1 week before that class period. You are responsible for finding a replacement if you cannot make the day you are assigned. While everyone is responsible for the content of the posted paper, your presentation will be evaluated as shown:

Expectations for in-class discussion when you present the assigned paper:

- Were you prepared? (Did you read the paper and consider the discussion points?)
- Did you contribute substantive and accurate information?
- Were you able to answer questions from the instructor or audience?
- Did you voluntarily enter class discussion?
- Did you propose additional questions?

Make-up policy: Make-up exams will only be provided if a legitimate excuse is given for missing an exam; specific arrangements should be made with the instructor prior to the scheduled exam. A doctor's note is required for a medical excuse. There will be no make-ups for paper discussions.

Academic integrity: Students in this course are expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, noted below, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz, exam, or paper will be imposed. For the full Academic Integrity policy, go to http://www.provost.pitt.edu/info/aistudcode1.html. You may not use unauthorized materials during an exam, including notes, dictionaries, calculators, pagers, telephones, PDAs, and any device that can connect to the internet. You must submit for grading only material that is written exclusively in your own words and written or drawn in your own handwriting. Violation of the Academic Integrity Code requires the instructor to submit an Academic Integrity Violation Report to the Dean's Office.

You are welcome to use the materials provided for your own private use. You may not reproduce the course materials in any way. Posting the materials to ANY website without written permission is a violation of the academic integrity code. This includes all note-sharing websites.

Turnitin: Students agree that by taking this course all required assignments may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of Turnitin.com page service is subject to the Usage Policy and Privacy Pledge posted on the Turnitin.com site.

E-mail communication policy: Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address.

Disability Resource Services: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890, as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

ALL HANDOUTS AND CANVAS POSTINGS BY THIS INSTRUCTOR ARE THE PROPERTY OF THE UNIVERISTY OF PITTSBURGH (UNLESS OTHERWISE STATED), AND ARE NOT FOR SALE OR DISSEMINATION

Syllabus
BIOSC 1940/2940 FALL 2021
Molecular Biology

Time: M,W,F 10:00-10:50 AM
Location: A224 Langley Hall
Instructor: Dr. Andrea Berman (she/her/hers), 412-624-2200, ajb190@pitt.edu
Textbook: ***Molecular Biology*** *Principles of Genome Function*
Nancy Craig, Rachel Green, Carol Greider, Gisela Storz, Cynthia Wolberger, 3rd edition, 2021.

THIS SCHEDULE IS FLEXIBLE:
IT WILL LIKELY BE MODIFIED THROUGHOUT THE SEMESTER

Lecture	DATE	Day of Week	Associated textbook chapter	Topic	Notes
1	8/27	F	2-3, 5	Course introduction, review of what you should already know, Nucleic acids	
2	8/30	M	19	Classical techniques for studying genes	
3	9/1	W	18, 19	Sequencing technologies	
4	9/3	F	18	Asking genome-wide questions ("omes")	
	9/6	M		Labor Day	
5	9/8	W	6	DNA replication 1: prokaryotes	
6	9/10	F		**Discussion 1: getting comfortable with deep sequencing data**	
7	9/13	M	2, 4	DNA packaging and chromatin	Figure Facts due
8	9/15	W	4, 14	Chromatin modification	
9	9/17	F	4, 5, 6	DNA replication 2: eukaryotes	
10	9/20	M		**Discussion 2: chromatin**	
11	9/22	W	15	DNA mutagenesis	Figure Facts due
12	9/24	F	15	DNA repair 1	
	9/27	M	REVIEW	Looking at real data, review	
	9/29	W		EXAM 1 (lectures 1-11)	
13	10/1	F	15, 16	DNA repair 2	
14	10/4	M	8	Transcription 1	
15	10/6	W		**Discussion 3: DNA repair**	
16	10/8	F	8, 9	Transcription 2	Figure Facts due
17	10/11	M	19	Studying transcription	
18	10/13	W		**Discussion 4: transcription**	
	10/15	F		Fall break	
19	10/18	M	10	RNA processing 1	Figure Facts due
20	10/20	W	10	RNA processing 2	
21	10/22	F	10, 13	RNA processing 3	
22	10/25	M	9	Transcription regulation 1	
23	10/27	W	9	Transcription regulation 2	
24	10/29	F		**Discussion 5: transcription regulation**	
25	11/1	M	13	Noncoding RNA	Figure Facts due
	11/3	W		Looking at real data, review	
	11/5	F		EXAM 2 (covers lectures 11-25)	
26	11/8	M	13	RNAi	
27	11/10	W	13, 17	CRISPR	
28	11/12	F	10, 11	Genetic code and tRNA	

29	11/15	M		**Discussion 6: CRISPR**	
30	11/17	W	11	Translation 1: the ribosome	Figure Facts due
31	11/19	F	11	Translation 2: the translation cycle	
	11/22-26	M-F		Thanksgiving break	
32	11/29	M	19	Translation 3: techniques to study translation	
33	12/1	W		**Discussion 7: translation**	
34	12/3	F	12	Translation regulation 1	Figure Facts due
35	12/6	M	11, 12	Translation regulation 2: problems and solutions	
	12/8	W		Review, looking at data!	
36	12/10	F		**Discussion 8: translation regulation**	Figure Facts due 5pm
Exam 3 during finals week					

LAST UPDATED: 08/13/21.v1