

2022 Summer Quarter

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## BIOL101 Molecular Biology 2022



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## SCHEDULE

Class meetings: MW, 1:00- 4:30 pm

Discussion section: Friday 10-11 am. Discussion section time will be used for office hours, quizzes, and exams.

Week 1 [Module 1 Studying Molecules and Sequence](#)[Online Quiz 1](#) (Module 1)Week 2 [Module 2 DNA Replication](#)[Module 3 Transcription in Bacteria](#)[Online Quiz 2](#) (Modules 1 & 2)Week 3 [Module 4 Transcription in Eukaryotes](#)[Midterm](#) (Modules 1-3) - Fri, August 12Week 4 [Module 5 Pre-mRNA Processing](#)[Module 6 Translation](#)[Online Quiz 3](#) (Modules 4 & 5)Week 5 [Module 7 Post-transcriptional Gene Regulation](#)[Module 8 Viruses and Transposable Elements](#)

Final (Modules 4-8) - Fri, August 26

## COURSE INFORMATION

Welcome to the homepage for Biol 101 at UC Santa Cruz. Molecular biology deals with nucleic acids and proteins and how these molecules interact within the cell to promote proper growth, division, and development. This course will cover the molecular mechanisms of DNA replication, transcription, protein synthesis, and gene regulation in both bacterial and eukaryotic organisms. Experimentation using a variety of molecular biology techniques to study the mechanisms will also be emphasized.

**Scroll down for the following information:** Learning Goals, Schedule, Teaching Team, Communication, Course Materials, Assessment, Academic Integrity, Accessibility, Principles of Community, Student Feedback, Title IX/CARE, Student Services

## LEARNING GOALS

Students who successfully complete this course will be able to:

- Understand and use the scientific vocabulary for communicating information in molecular biology.
- Apply general concepts of molecular biology to relevant, specific problems.
- Represent and illustrate the structural organization of genomes and genes.
- Describe the steps of gene expression and mechanisms of gene regulation.
- Discuss how genomes are maintained as well as changing.
- Distinguish between different molecular biology techniques that are used to isolate, separate, and probe for specific proteins, nucleic acids, and their interactions.
- Interpret experimental results of common molecular biology assays.

## TEACHING TEAM

**Instructor:** BIOL 101 will be taught by **Prof. Melissa Jurica**. Students can call me Melissa or Prof. Jurica, whichever is more comfortable. I have more than 30 years of experience in molecular biology, and my research focuses on the structure and function of biomolecules in the context of pre-mRNA splicing during gene expression. I aim to work with all students to ensure a good learning experience and to help come up with creative solutions when issues arise.

**TAs:** Kylie Gilpin  
&  
Sarah Dillon

## COMMUNICATION

The course website is hosted on Canvas. Announcements, lecture notes, homework, etc. will be posted there, so check it regularly.

Use Ed Discussion to ask questions about course materials or policies. Many students have the same questions and concerns. Prof. Jurica will check Ed regularly and post replies. This approach ensures that all students have access to the answers. It is also a great opportunity to discuss class material with each other. For personal issues like an illness, email me: [mjurica@ucsc.edu](mailto:mjurica@ucsc.edu) I will reply within three days of your message. **Put "Bio101" in the subject line or the message may get lost in my inbox.**

## COURSE MATERIALS AND LEARNING TOOLS

We will submit Homework through Gradescope. Students will need a device (tablet or smartphone) with a camera to allow scanning of handwritten Homework and uploading onto Gradescope. Alternatively, PDFs filled out on a computer or tablet can also be uploaded. Recommended scanning apps for IOS and Android devices and instructions for uploading to Gradescope can be found here: [https://gradescope-static-assets.s3.amazonaws.com/help/submitting\\_hw\\_guide.pdf](https://gradescope-static-assets.s3.amazonaws.com/help/submitting_hw_guide.pdf)

**Textbook:** The textbook (Molecular Biology of the Cell by Alberts et al.) does a good job of balancing explaining concepts with explaining experiments used to derive those concepts. It also gives relevant examples related to human disease. The book is also used in BIOL 110, Cell Biology. If you choose to buy the book, the most recent edition (6<sup>th</sup>) is available online. A free electronic version of the 4<sup>th</sup> edition of this book is available at the National Library of Medicine and is acceptable for BIOL 101.

Section headings for readings in the 6<sup>th</sup> edition or free 4<sup>th</sup> edition will be provided. If you feel like they are not matching the current topic let the instructor know. (Links/pages seem to change over time).

**Topic notes:** Prof. Jurica's topic notes will be posted before class meetings. The notes and all other documents for this course are considered private content for this class only. Do not upload them to websites that collect course materials (e.g. Course Hero, CHEGG, etc.)

**Lecture recordings:** Lectures will be recorded and made available in the appropriate Canvas Module the following day. You can also access the [YuJa channel](#) for the course.

Good ways to use the recordings:

- Going back to specific points for which you did not take adequate notes.
- Going back to specific points that went too fast for you.
- Reviewing material while you are commuting.
- Making up for a class session.

Bad way to use the recordings:

- Passively re-listening in the hopes of absorbing the material by osmosis.

**Lecture recordings are private content for this class only. Do not repost them.**

**Ed Discussion:** This term we will be using Ed Discussion for class discussion. The system is designed to get you help fast and efficiently from classmates, the TA, and the instructor. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Ed Discussion.

## ASSESSMENT

**Assessment Policy:** Course Grades in Biol 101 will be based on midterm and final exams, quizzes, homework assignments, and class participation with the following weights:

	300 pts total for the course
Homework assignments	80 pts (20 pts x 4 assignments)
Quizzes	60 pts (20 pts x 3 quizzes)
Midterm	60 pts
Final	90 pts
Participation	10 pts

**Homework Assignments** will be graded based on effort demonstrated and submission by the due date. You are encouraged to discuss the problems with other class members. They can be attempted multiple times.

**Quizzes** will be held during Friday section time and are timed. They will be open book / open note. You will submit only your own work without discussion with other people.

**Participation.** You will earn up to 10 points for any combination of:

- Attending and participating in-person lecture sessions (1 point /lecture)
  - Posting or answering a question related to the lecture material on Ed Discussion within a week of the relevant lecture session (1 point/lecture).
- IMPORTANT:** To receive the credit you must classify your post as "Questions for Lecture Participation" and include the lecture date in the title. Example: "Aug 15 lecture: question on codons"

## Grading scales:

A+	>280 pts
A	>270 pts
A-	>260 pts
B+	>250 pts
B	>240 pts
B-	>230 pts
C+	>220 pts
C	>210 pts
C-	>200 pts
D	>180 pts
F	<180 pts

**Missed exams** If you miss an exam due to a legitimate excuse, it will be made up with an oral exam with Professor Jurica, lasting the same amount of time. Legitimate excuses include: demonstrable sickness or injury on the day of, or immediately prior to, the scheduled exam; death, serious illness or other catastrophic event in the immediate family; jury duty; days of religious observance as set forth in campus policy; other conflicts beyond the control of the student, at the discretion of the instructor. Because the deadline for submission of final grade reports may preclude an oral exam, students who are unable to take the final exam for legitimate reasons, as described above, **AND** who are in the passing range based on midterm, quizzes and homework scores, may request a grade notation of "Incomplete". Arrangements for an incomplete must be made directly with the instructor no later than 24 hours after the scheduled final exam.

In all other cases, a missed exam will be scored as a 0.

## ACADEMIC INTEGRITY

All members of the UCSC community benefit from an environment of trust, honesty, fairness, respect, and responsibility. You are expected to present your own work and acknowledge the work of others in order to preserve the integrity of your scholarship.

Academic integrity includes:

- Following exam rules
- Using only permitted materials during an exam
- Viewing exam materials only when permitted by your instructor
- Keeping what you know about an exam to yourself
- Incorporating proper citation of all sources of information
- Submitting your own original work

Academic misconduct includes, but is not limited to, the following:

- Disclosing exam content during or after you have taken an exam
- Accessing exam materials without permission
- Copying/purchasing any material from another student, or from another source, that is submitted for grading as your own
- Plagiarism, including use of Internet material without proper citation
- Using cell phones or other electronics to obtain outside information during an exam without explicit permission from the instructor
- Submitting your own work in one class that was completed for another class (self-plagiarism) without prior permission from the instructor.
- Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student's transcript. For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the [Academic Misconduct page](#) at the [Division of Undergraduate Education](#).

## ACCESSIBILITY

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by email, preferably within the first two weeks of the quarter. At this time, I would like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact the DRC by phone at 831-459-2089 or by email at [drc@ucsc.edu](mailto:drc@ucsc.edu).

## PRINCIPLES OF COMMUNITY

The University of California, Santa Cruz expressly prohibits students from engaging in conduct constituting unlawful discrimination, harassment or bias. [More information here](#) I am committed to providing an atmosphere for learning that respects diversity and supports inclusivity. We need to work together to build this community of learning. I ask all members of this class to:

- be open to and interested in the views of others
- consider the possibility that your views may change over the course of the term
- be aware that this course asks you to reconsider some "common sense" notions you may hold
- honor the unique life experiences of your colleagues
- appreciate the opportunity that we have to learn from each other
- listen to each other's opinions and communicate in a respectful manner

## STUDENT FEEDBACK

At the end of the quarter, you will be asked to complete a Student Experience of Teaching survey for this course. SETs provide an opportunity for you to give valuable feedback on your learning that is honest and constructive. This anonymous feedback will help me consider modifications to the course that will help future students learn more effectively. I take student feedback seriously and read all responses and am always striving to improve my teaching.

## RELIGIOUS ACCOMMODATION

UC Santa Cruz welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request the reasonable accommodation for religious practices. The instructor will review the situation in an effort to provide a reasonable accommodation without penalty. You should first discuss the conflict and your requested accommodation with your instructor early in the term. You or your instructor may also seek assistance from the [Dean of Students office](#).

## TITLE IX/CARE ADVISORY

UC Santa Cruz is committed to providing a safe learning environment that is free of all forms of sexual harassment, sexual harassment, which are explicitly prohibited under Title IX. If you have experienced any form of sexual harassment, sexual assault, domestic violence, dating violence, or stalking, know that you are not alone. The Title IX Office, the Campus Advocacy, Resources & Education (CARE) office, and Counseling & Psychological Services (CAPS) are all resources that you can rely on for support.

Please be aware that if you tell me about a situation involving Title IX misconduct, I am required to share this information with the Title IX Coordinator. This reporting responsibility also applies to course TAs and tutors (as well to all UCSC employees who are not designated as "confidential" employees, which is a special designation granted to counselors and CARE advocates). Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. The goal is to make sure that you are aware of the range of options available to you and that you have access to the resources you need.

Confidential resources are available through [CARE](#). Confidentiality means CARE advocates will not share any information with Title IX, the police, parents, or anyone else without explicit permission. CARE advocates are trained to support you in understanding your rights and options, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more. You can contact CARE at (831) 502-2273 or [care@ucsc.edu](mailto:care@ucsc.edu).

In addition to CARE, these resources are available to you:

- If you need help figuring out what resources you or someone else might need, visit the [Sexual Violence Prevention & Response \(SAFE\) website](#), which provides information and resources for different situations.
- [Counseling & Psychological Services \(CAPS\)](#) can provide confidential counseling support. Call them at (831) 459-2628.
- You can also report gender discrimination and sexual harassment and violence directly to the University's [Title IX Office](#), by calling (831) 459-2462 or by using their [online reporting tool](#).
- Reports to law enforcement can be made to the UC Police Department, (831) 459-2231 ext. 1.
- For emergencies, call 911.

## STUDENT SERVICES

[Counseling and Psychological Services](#)

Many students at UCSC face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

[Student Success and Engagement Hub](#)

The Division of Student Success provides campus-wide coordination and leadership for student success programs and activities across departments, divisions, the colleges, and administrative units.

[Tutoring](#) and Learning Support

At Learning Support Services (LSS), undergraduate students build a strong foundation for success and cultivate a sense of belonging in our community of learners. LSS partners with faculty and staff to advance educational equity by designing inclusive learning environments in Modified Supplemental Instruction, Small Group Tutoring, and Writing Support. When students fully engage in our programs, they gain transformative experiences that empower them at the university and beyond

[Slug Support Program](#)

College can be a challenging time for students and during times of stress it is not always easy to find the help you need. Slug Support can give help with everything from basic needs (housing, food, or financial insecurity) to getting the technology you need during remote instruction.

To get started with SLUG Support, please contact the [Dean of Students](#) Office at 831-459-4446 or you may send us an email at [deanofstudents@ucsc.edu](mailto:deanofstudents@ucsc.edu).

Slug Help/[Technology](#)

The ITS Support Center is your single point of contact for all issues, problems or questions related to technology services and computing at UC Santa Cruz. To get technological help, simply email [help@ucsc.edu](mailto:help@ucsc.edu).

On-Campus Emergency Contacts

Slug Help/[Emergency Services](#). For all other help and support, including the health center and emergency services, start [here](#). Always dial 9-1-1 in the case of an emergency.