

BIOL-4471-110, CRN 80720, Molecular Biology

Fall 2018 rev. 08.01.2018

Texas A&M University-Central Texas

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Gunisha Sagar

Office: 419 Warrior Hall

Phone: None

Email: gunisha_sagar@tamuct.edu

Office Hours:

I will be available before and after lecture and laboratory class session.

Mode of instruction and course access:

BIOL-4471 is an in class undergraduate level (4 credit) course offered by Science and Mathematics department. It is a combined lecture and laboratory course that involves face to face method of instruction & learning. The lecture session is twice a week on Tuesdays and Thursday (10.00 -11.15 am) and laboratory is held once a week on Thursdays (1.30 to 4.30pm). This course uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com>].

Student-instructor interaction:

I would be prompt in checking and replying to emails. I will be available before and after class (lecture & laboratory) for questions and discussion. The appointments to meet could be made via email at least a day prior to lecture or laboratory session.

911 Cellular:

Emergency Warning System for Texas A&M University-Central Texas

911Cellular is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in 911Cellular through their myCT email account.

Connect at [911Cellular](https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management) [<https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management>] to change where you receive your alerts or to opt out. By staying enrolled in 911Cellular, university officials can quickly pass on safety-related information, regardless of your location.

COURSE INFORMATION

Course Overview and description: A study of aspects and techniques of modern molecular biology with an emphasis on prokaryotic and eukaryotic gene: structure, function, expression and regulation at transcriptional, translational and post-translational levels. It also incorporates elements of biochemistry, immunology and proteomics that further facilitates understanding of gene function.

Three hours of lecture and three hours of laboratory session each week. Prerequisites: BIOL 1407, BIOL 4470.

Course Objective:

Student Learning Outcomes:

Students will:

1. have a clear understanding of the experimental methods used to elucidate the current main theories of molecular biology.
2. understand the molecular/biochemical mechanisms of transcription in both prokaryotes and eukaryotes.
3. be familiar with post-transcription events
4. demonstrate knowledge of mechanism that controls translation
5. have a clear understanding of mechanism of DNA replication
6. have an understanding of biochemical/molecular basis of homologous recombination
7. be introduced to the rapidly growing fields of genomics and proteomics

Competency Goals Statements (certification or standards):

Required Reading and Textbook(s):

- a. Zlatanova, J. and vanHolde K. E. 2016. Molecular Biology: Structure and dynamics of genomes and proteomes. Garland Publishing. ISBN: 978-0815345046
- b. Carson, S., Miller, H., and Witherow, S. 2007. Molecular Biology Techniques: A Classroom Laboratory Manual, 3rd edition. Academic Press. ISBN: 978-0123855442.

COURSE REQUIREMENTS

Course Requirements: (include point values for each- not just a percentage)

Three lecture exams	45%	450 points (150 points/exam)
Final Comprehensive Exam	25%	250 points
Laboratory reports	25%	250 points
Participation	5%	50 points
Total	100%	1000 points

Mandatory Laboratory Safety Training:

- All students are **required** to take the mandatory Laboratory Safety Training Module - found on in your [Modules tab](#) in CANVAS.
- You must take the training and **bring the signed "Safety Agreement Form"** to your instructor **before you are allowed in lab!!!**
- This is **YOUR RESPONSIBILITY** - any lab absences because you have not taken the training will be considered **unexcused!**

Grading Criteria Rubric and Conversion

The **final grade** will be calculated from combining points from: three lecture exams (45% of final grade), final comprehensive exam (25% of final grade), laboratory reports (25% of final grade) and participation (5% of final grade).

Posting of Grades

- The grades will be posted promptly on canvas grade book.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

(T: Tuesday & R: Thursday)

Week	Day	Topic	Reading
1	T, 08/28	Introduction and Genetics	Ch 1, 2
	R, 08/30	Introduction and Genetics	Ch 1, 2
2	T, 09/04	Proteins	Ch 3
	R, 09/6	Proteins	Ch 3
3	T, 09/11	Nucleic Acids & Recombinant DNA	Ch 4, 5
	R, 09/13	Nucleic Acids & Recombinant DNA	Ch 4, 5
4	T, 09/18	Protein-Nucleic Acids & Genetic Code	Ch 6,7
	R, 09/20	Protein-Nucleic Acids & Genetic Code	Ch 6,7
5	T, 09/25	Genetic Code., Genomics	Ch 7, 8
	R, 09/27	Genetic Code., Genomics., Exam I	Ch 7, 8
6	T, 10/2	Transcription	Ch 9, 10
	R, 10/4	Transcription	Ch 9, 10
7	T, 10/9	Regulation of Transcription	Ch 11, Ch 12
	R, 10/11	Regulation of Transcription	Ch 11, Ch 12
8	T, 10/16	RNA processing, Translation: The Players	Ch 14, Ch 15
	R, 10/18	RNA processing, Translation: The Players	Ch 14, Ch 15
9	T, 10/23	Translation: The Players., Translation: The Process	Ch 15, Ch 16
	R, 10/25	Translation: The Players., Translation: The Process., Exam 2	Ch 15, Ch 16
10	T, 10/30	Regulation of Translation	Ch 17
	R, 11/1	Regulation of Translation	Ch 17
11	T, 11/6	Protein Processing & Modification	Ch 18
	R, 11/8	Protein Processing & Modification	Ch 18
12	T, 11/13	DNA Replication in Bacteria	Ch 19
	R, 11/15	DNA Replication in Bacteria, Exam 3	Ch 19
13	T, 11/20	DNA Replication in Eukaryotes	Ch 20
	R, 11/22	Thanksgiving	
14	T, 11/27	DNA Replication in Eukaryotes	Ch 20
	R, 11/29	DNA Recombination	Ch 21
15	T, 12/4	DNA Repair	Ch 22
	R, 12/6	DNA Repair	Ch 22
16	T, 12/11	Final Exam	Comprehensive

Important University Dates:

August 24, 2018	Deadline for Tuition and Fee Payments (16- & First 8-Week Classes).
August 27, 2018	Classes Begin for Fall Semester Add, Drop, and Late Registration Begins for 16- and First 8-Week Classes. \$25 fee assessed for late registrants.
August 29, 2018	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes.
September 3, 2018	Labor Day
September 12, 2018	Deadline to drop 16-Week Classes with No Record.
November 9, 2018	Deadline to drop 16-Week Classes with a Quit (Q) or Withdraw (W).
November 12, 2018	Veterans Day (Observed)-No Class
November 22-23, 2018	Thanksgiving
December 14, 2018	Deadline to Withdraw from University for 16- and Second 8-Week Classes, Fall Semester Ends
December 18, 2018	Deadline for Faculty Submission of 16-Week and Second 8-Week Final Class Grades (due by 3pm).
December 24, 2018-January 1, 2019	Winter Break

TECHNOLOGY REQUIREMENTS AND SUPPORT

This course will use Canvas learning management system.

Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system. Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Other Technology Support

For log-in problems, students should contact Help Desk Central.

24 hours a day, 7 days a week:

Email: helpdesk@tamu.edu

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

Please let the support technician know you are an A&M-Central Texas student.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy.

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf].

Professors cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed, signed and returned. Once you return the signed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity.

Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be reported to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

Academic Accommodations.

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion at (254) 501-5831. Any information you provide is private and confidential and will be treated as such.

For more information please visit our [Access & Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) web page [https://www.tamuct.edu/student-affairs/access-inclusion.html].

Important information for Pregnant and/or Parenting Students.

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit the [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) web page [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines online](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf), please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring.

Tutoring is available to all A&M-Central Texas students, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 519-5796, or by emailing Dr. DeEadra Albert-Green at deeadra.albertgreen@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive FREE online tutoring and writing support. This tool provides tutoring in over 40 subject areas. Access Tutor.com through Canvas.

University Writing Center.

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University-Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.

Students may arrange a one-on-one session with a trained and experienced writing tutor by visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WOnline](https://tamuct.mywconline.com/) at [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu for any assistance needed with scheduling.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

If you have any questions about the UWC, please do not hesitate to contact Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu.

University Library.

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

OPTIONAL POLICY STATEMENTS:

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/departments/compliance/titleix.php) [<https://www.tamuct.edu/departments/compliance/titleix.php>].

INSTRUCTOR POLICIES.

Class Attendance: Full attendance is preferred for both the lecture and laboratory sessions. If a class session or sessions (lecture & laboratory) are missed due to an unavoidable circumstance then I should be informed promptly by email and proof of absence should be brought in next class session. It is difficult to make up for a missed laboratory session as it is difficult to make arrangements for prepping and setting the lab again. More than 3 absences (lecture & Laboratory) will compromise the overall grade.

Copyright Notice.

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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