BSC 513-01W

Molecular Genetics

Summer II 2026
East Texas A&M University
Web Based
Myleoonline.tamuc.edu

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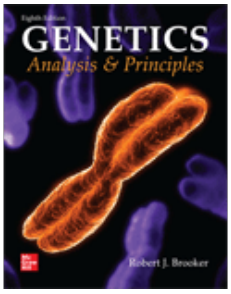
Please e-mail me if you have a question. I will try to respond within 24 hours, except for weekends and holidays.

Office Hours: Tuesdays and Thursdays 12:00-1:00 PM or by appointment.
If you have questions, drop by my office or join the Zoom session (link below) during office hours. If the time does not work for you, feel free to email me, and we can set up a time that does.
Office Hour Zoom link:
https://tamuc.zoom.us/j/7032367457?pwd=RkFQZmtkcm90emNnUGNDL0E0Sjg0UT09
Meeting ID: 703 236 7457
Passcode: OH

COURSE INFORMATION



Textbook(s) Required: Genetics, Analysis & Principles. 2024. 8th edition, Brooker, Robert J., ISBN-13: 9781265350796, 9781266135170, or eBook. **The 7th edition also works**. This book is available for purchase or rental at the TAMUC bookstore and can be bought or rented from various local and online retailers. Readings from the textbook will be announced and follow the course schedule's topic order. In order for you to get the most out of the lecture, it is important that you complete the assigned readings with each lecture since lectures will build on the reading assignment.

Course Description

This course is designed for students who have taken introductory genetics and have a general familiarity with cell and molecular biology. Therefore, this course provides students with an in-depth investigation into DNA technology and practical application of genetic study. Emphasis will be placed on eukaryotic gene mapping, gene functional studies and on genomics, and its practical applications. Students are expected to gain an in-depth understanding of analysis, strategy and experimental logic used in deriving the basic principles and concepts of genetics at the molecular level.

Student Learning Outcomes

Upon completion of this course, you should be able to;

1. Describe the development of the gene concept.
2. Describe the molecular structure of genetic material and its replication.
3. Describe the molecular basis of mutations and DNA repair.
4. Describe molecular mechanisms of recombination and transposition
5. Understand methods of gene mapping and cloning of genes.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Standard skills necessary to use web browsers to access course materials are required. Students should also be able to submit their work as required. Students should be able to use Microsoft Word and PowerPoint.

Instructional Methods:

This is a fully online course. All course materials will be posted in D2L. I will post announcements on the course's home page or send email notifications.

Student Responsibilities or Tips for Success in the Course

- ✓ **Checking both D2L and emails for course-related announcements.**
- ✓ Dedicated time to learn course materials.
  Lecture videos will be uploaded each week. It is important to watch the videos and complete the assigned reading each week.
- ✓ Have the required technology (a computer, a secure and reliable internet connection, and other requirements detailed in this syllabus – please read the "Technology Requirements" section.
- ✓ **Take exams within the specified time.**
- ✓ **Submitting the assignment before deadlines.**
- ✓ If special accommodations are needed to be made, notify the instructor in advance.

Assessments:

1. **Weekly Quizzes (20% of Total):** After covering each unit, there will be a quiz which needs to be taken online in D2L. Quizzes are due @11.59 PM on every Sunday. ***If you miss a quiz or perform poorly, there won't be any makeup quiz.***

2. **Problem Solving Assignments (20% of total)**: At the end of each unit/chapter, a set of problem solving questions will be assigned, which are due in a week. It works for your advantage to solve these problems by yourself as you go along the week, which will increase your success in weekly quizzes and later in exams. Bonus questions (10%) of exams may be chosen from weekly problem sets with some modification. Solving problem sets will augment concepts covered in lectures and help you retain them. Completed problem sets mus be submitted in D2L; note that emailed copies of problem sets would not be evaluated and credited "zero" points. For full credit assignment must included detailed steps of problem solving.

3. **Exams**: There will be two exams including the final. Exam questions will test critical thinking, analytical ability, and the understanding of subject matter. Therefore, it is important to understand the concepts. ***If you miss an exam for reasons other than university-approved emergencies, make up exams would not be provided. In the event of a make up examination, it will be provided only in the ETAMU campus, that means you need to travel to the campus.***

Grading Policy:

Weekly Quizzes Two exams (a midterm and final) Assignment (Problem Set)	= 80 points (20%) =240 points (60%) = 80 points (20%)
Total	**= 400 points**

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Course Calendar and Exam Schedule:

Date	**Units**	**Textbook Chapter and Unit Title**
Week 1 (July 6–11)	**Unit 1**	Introduction and Mendelian Genetics (*Chapters 1&2*)
	Unit 2	Development of Gene Concept (*Reading Material*)

Week 2 (July 13–18)	**Unit 3**	DNA Structure (*Chapter 9)*
	Unit 4	DNA Replication (*Chapter 11)*
Midterm Exam (July 22 Wednesday)		
Week 3 (July 20–25)	**Unit 5**	DNA Mutation & Repair (*Chapter 19)*
	Unit 6	Recombination and Transposition (*Chapter 20)*
Week 4 (July 27–August 1)	**Unit 7**	Molecular Techniques (*Chapter 21)*
	Unit 8	Genomics, Analysis of DNA (*Chapter 23)*
Final Exam (August 05, Wednesday)		

★ ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGE

Sample Study Week:

Step 1–Download lecture slides and supporting materials from D2L.

Step 2–**Critically** read chapters and supporting materials, make notes (*simply going through the materials are not going to be enough, focus on concepts, molecular mechanisms etc..*)

Step 3–Complete assignments and upload into D2L by due date.

Step 4–Review materials and your notes and participate in officer hours to clear any questions that you may have.

Step 5–Take online quizzes in D2L when they are due.

Step 6–Review again before the test due date and take online tests.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:

The *syllabus/schedule are subject to change.*

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool
https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: https://www.britannica.com/topic/netiquette

ETAMU Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedures 13.99.99.R0.01
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

Graduate Student Academic Dishonesty Form

http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

The *syllabus/schedule are subject to change.*

East Texas A&M Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit **www.tamuc.edu/counsel**

AI use policy [Draft 2, May 25, 2023]

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors 'guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty