



**BSC 541.01W Genetic Engineering**  
**Fall 2025 Course Syllabus CRN: 83848**

**Course Location and Times:** Web-based, D2L

**INSTRUCTOR INFORMATION**

**Instructor:** Hunkar Gizem Yesilyurt, PhD

**Email:** HunkarGizem.Yesilyurt@etamu.edu

**Office Location:** STC 255

**Office Hours:** MWF 11am-12pm, W 2-4pm. (in office and virtual (Zoom link will be shared at D2L), for other times, please email for a(n) (virtual) appointment .

**Preferred Form of Communication:** Email

**Communication Response Time:** less than 48 hours

**COURSE INFORMATION**

**Textbook (Required):** Introduction to Biotechnology, 4<sup>th</sup> Edition, 2013, by William J. Thieman and Michael A. Palladino, Pearson Publishing, ISBN: 13: 9780134650197

**Course Description:** This course will provide graduate students with basics and applied aspects of genetic engineering. The course is organized into three parts. Part I of the course will introduce the field of genetic engineering and provide basics of cell and molecular biology, the scientific driver of genetic engineering. Part II discusses the methodologies and principles of recombinant DNA technology and strategies for gene manipulation. In Part III, applications and use of genetic engineering. Since this is rapidly developing field with sweeping social implications, ethics surrounding recombinant DNA technology will be discussed. Prerequisites: An undergraduate level course in Cell Biology, Genetics, Biochemistry, or Molecular Biology.

*The syllabus/schedule are subject to change.*

## Student Learning Outcomes

Upon completion of this course the students will be able to:

1. Illustrate Gene structure and flow of genetic information.
2. Define recombinant DNA technology and various strategies and techniques to manipulate the genome.
3. Gain knowledge in genomics-related “omics” disciplines.
4. Explain the applications of genetic engineering in agriculture, animal husbandry, and in medicine.
5. Discuss the pros and cons of genetic engineering and ethical issues associated with recombinant DNA technology.
6. Think **experimentally and critically** about the concepts described above

## Course Requirements:

- Proficiency in using the D2L Brightspace Learning Management System through myLeo Online
- Proficiency in use of Microsoft Word, and PowerPoint
- Other relevant graphics programs for preparing effective PowerPoint presentations

**Instructional Methods:** Instruction will consist of web-based delivery of notes, some short videos and student-oriented appointments. Learning will also be achieved through reading of relevant chapters in the recommended textbook. PDF files of all notes will be made available in the D2L Learning, Management System at myLeo Online. Announcements and reminders for important events will also be regularly posted through this system. Course progress can be monitored through the online system.

## Student Responsibilities:

- Dedicated study time each week to go over the materials at D2L and the information in the relevant book chapter(s)
- Regularly check both myLEO Online and university email accounts for announcements or class emails.
- Attend and participate in discussions via forums at D2L.
- Submit exams and assignments on time.

## Assessments (total of 450 points)

2 Term Exams – 75 points each = 150 points

Cumulative Final Exam = 100 points

10 Quizzes/Discussion Check-ins = 50 points

3 Assignments = 150 points

**Total = 450 Points**

## Grading Scale:

A = 89.5-100%

B = 79.5-89.49%

C = 69.5-79.49%

D = 59.5-69.49%

F = <59.5%

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## Tentative Course Schedule (Subject to Change)

### Module 1: Chapters 1-4, Module 2: Chapters 6, 7, 8, 11, Module 3: Chapters 12, 13

Week of	Topics (Book Chapters)
8/25	Welcome / Introduction The Biotechnology Century and its Workforce (Ch 1)
9/1	Introduction to Genes and Genomes (Ch 2)
9/8	Recombinant DNA Technology and Genomics (Ch 3)
9/15	<b><u>Assignment #1 due Sep 21<sup>st</sup> (Sunday midnight)</u></b>
9/22	Proteins as Products (Ch 4)
9/29	<b>Exam #1 (Chapters 1-4; open all week due Oct 5<sup>th</sup> midnight)</b>
10/6	Plant Biotechnology (Ch 6)
10/13	Animal Biotechnology (Ch 7)
10/20	<b><u>Assignment #2 due Nov 30<sup>th</sup> (Sunday midnight)</u></b>
10/27	DNA Fingerprinting and Forensic Analysis (Ch 8)
11/3	Medical Biotechnology (Ch 11)
11/10	<b>Exam #2 (Chapters 6-8, and 11; open all week due Nov 16<sup>th</sup> midnight)</b>
11/17	Biotechnology Regulations (Ch 12)
11/24	Ethics and Biotechnology (Ch 13)
12/1	<b><u>Assignment #3 due Dec 5<sup>th</sup> (Friday midnight)</u></b>
Finals Week	<b>Final Exam (Cumulative)</b>

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# COURSE AND UNIVERSITY PROCEDURES/POLICIES

## Course Specific Procedures/Policies

**Assignments:** At home questions and/or research will be assigned three times during the semester. Be sure to check D2L announcements for updates.

**Quizzes and Exams:** Consist of multiple-choice questions (80-90%) and essay-type answer questions (10-20%). The quizzes will be approximately from 1-2 chapter(s). The two term exams will be taken at the date range in the course schedule and the final exam will be cumulative and take place during the university final exam week. Some questions for exams from a given chapter may be derived from the same Test Pool and repeated.

**Makeup Policy:** The student is responsible for requesting a makeup when they are unable to attend the regularly scheduled examination and must schedule the makeup within 2 days of the absence. Makeup exams will be scheduled only in the event of an EXCUSED absence (as defined in the Student's Guidebook). If the test is not made-up, the student will receive a zero for that exam.

**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: Netiquette

<http://www.albion.com/netiquette/corerules.html>

### ETAMU Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 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>

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## **Academic Integrity**

Students at East Texas A&M University 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

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

Graduate Student Academic Dishonesty 13.99.99.R0.10

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

**AI Use in Course:** East Texas A&M University 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

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

13.99.99.R0.10 Graduate Student Academic Dishonesty

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/graduate/13.99.99.R0.10.pdf>

## **ADA Statement**

### **Students with Disabilities**

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:

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**Office of Student Disability Resources and Services**

East Texas A&M University

Waters Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: Office of Student Disability Resources and Services

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

**Nondiscrimination Notice**

East Texas A&M University 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 East Texas A&M University 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 East Texas A&M 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 East Texas A&M campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

**TECHNOLOGY REQUIREMENTS****Browser support**

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

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Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products. Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Desktop Support Browser	Supported Browser Version(s)	Maintenance Browser Version(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

Tablet and Mobile Support Device	Operating System	Browser	Supported Browser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or <b>point</b> release of that major version) and the previous major version of iOS (the latest minor or <b>point</b> release of that major version). For example, as of June 7, 2017, D2L supports iOS

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			10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - o 512 MB of RAM, 1 GB or more preferred
  - o Broadband connection required courses are heavily video intensive
  - o Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- **For Zoom Meeting sessions 8 Mbps is required.** You must have a:
  - o Sound card, which is usually integrated into your desktop or laptop computer
  - o Speakers or headphones.
  - o \*For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.
- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site  
<http://www.java.com/en/download/manual.jsp>
- Current anti-virus software must be installed and kept up to date.
- Running the browser check will ensure your internet browser is supported.
  - Pop-ups are allowed.
  - JavaScript is enabled.
  - Cookies are enabled.
- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - o Adobe Reader <https://get.adobe.com/reader/>
  - o Adobe Flash Player (version 17 or later) <https://get.adobe.com/flashplayer/>
  - o Adobe Shockwave Player <https://get.adobe.com/shockwave/>
  - o Apple Quick Time <http://www.apple.com/quicktime/download/>

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- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

## **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](mailto: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 ETAMU campus open computer lab, etc.

## **COMMUNICATION AND SUPPORT**

### **Brightspace Support**

#### **Need Help?**

#### **Student 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 or click on the **Live Chat** or click on the words “click here” to submit an issue via email.

#### **System Maintenance**

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

#### **Interaction with Instructor Statement**

The grading of the assignments, quizzes, and exams will be completed within 1-5 days depending on the length of the assignment or test. In most cases the grading will be completed within 24 hours, and the questions will be discussed during office hours or via email. Students are also encouraged to make an appointment with the instructor outside the office hours to discuss any issue related to the course individually or in groups.

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