

Texas A&M University-Texarkana BIOL/CHEM 490: Introduction to Biotechnology Spring 2011



Contact Information

Instructor: Nurul Alam, Ph. D.
Office: Room SCIT 219 (2nd floor), Science and Technology Building
Office Phone: Tel: 903-334-6671
Email: nurul.alam@tamut.edu
Office Hours*: Tuesdays: 12:30 pm-2:30 pm; 4:00 pm-6:00 pm;
Wednesdays: 10:30 am- 2:30 pm; Thursdays: 4:00 pm-6:00 pm. * *Subject to change*

Course Website: www.tamut.edu Go to Web Courses (Blackboard)

Textbooks

Required: Introduction to Biotechnology, 2e, 2009, Thieman, W, and Palladino, M, Pearson/Benjamin Cummings Publisher, **ISBN: 10-0321491459**.

Recommended: DNA Science: A First course in Recombinant DNA Technology, 2e, 2003, Michlos, D., and Freyer, G., Cold Spring Harbor Laboratories, **ISBN: 10-0879696362**.

Course Objectives

The primary objective of this course is to examine the basic concepts of biotechnology and the methods used in the manipulation of nucleic acids (DNA and RNA). The course is supplemented with laboratory exercise and demonstrations that illustrate the basic concepts techniques of biotechnology. Bioethical issues relating to this new technology

will also be discussed. After taking this course, the students should have an understanding of the following concepts:

- foundations of modern biotechnology
- recombinant DNA technology and genomics
- common methods and applications of biotechnology
- microbial, plant, and animal biotechnology
- bioremediation
- medical biotechnology
- regulations and ethics in biotechnology

Methods of Instruction:

- Lecture
- Demonstration and simulation
- Internet/WebCT
- Animation
- Outside assignments
- Class discussion
- A-V Media
- Laboratory work
- Field work

Attendance Policy and Course Withdrawal

Regular and punctual attendance (both physical and mental) is of paramount importance. You are expected to attend all meetings of the class, to arrive at the designated beginning time for the class, and to remain until the designated dismissal time for the class. Authorized absences are granted for students who are approved by the appropriate administrator of the University. Examples of authorized absences include class field trips, University-sponsored workshops, musical performances, and intercollegiate sports participation. Daily quizzes, if administered, are given promptly at the beginning of class and cannot be made up and will not be given if you are not in your seat when they are handed out. The final drop/withdrawal date for the fall semester is published in the University Calendar. Please also see University catalog procedure for dropping a course. I may also use the administrative drop for students missing three or more classes.

Lecture and Laboratory Rules

Attendance will be taken daily, either by students signing an attendance sheet or by the roll being called verbally. Each lecture will begin with announcements (if needed) followed by a brief review of information from, and/or questions about, the previous lecture. The roll will be taken immediately after the review, usually no more than 5 minutes into the class period. A student is responsible for the content of any missed laboratory period. Laboratory material will be tested on both lecture and laboratory exams. There will be no make-up laboratories. Anyone not present or not answering the roll call will be considered absent except as follows. Students arriving after the roll is

called will be allowed to enter and participate. However, it is their responsibility to sign the tardy sheet that will be available. Three times on the tardy sheet will be considered an unexcused and unauthorized absence. **Important: Cell phones are to 'turned off' or 'turned to vibrate' during both lecture and laboratory and during all tests and exams. No exceptions!**

Course Evaluation and Grading

Three lecture exams each worth 100 points will be given. Exams will be multiple choice and problem-solving format incorporating concepts and activities introduced in class. Make-up exams may be made available in the event that the instructor receives notification prior to the scheduled examination time. 15 points will be given for attendance and timely completion of each laboratory session. Quizzes, structured in a variety of ways, will be given at the beginning of each class meeting. Any reasonable resource may be used on the quizzes, however if you are not in attendance when a quiz is given you will not be able to make it up. One quiz grade will be dropped. There may also be unannounced pop-quizzes, some homework assignments, class projects, journals, and take-home exams. Your grade on late work may be reduced by 10 points per day.

| | | |
|---|------|------------------|
| Average of quizzes, homework, and assignments | | 150 points |
| Average of lab attendance & activities, lab report/exam | | 150 points |
| Three lecture exams (3X100) | | 300 points |
| | | Total 600 points |

Grading scale:

| | |
|------------|---|
| >90% = | A |
| 80% - <90% | B |
| 70% - <80% | C |
| 60% - <70% | D |
| <60% | F |

Make-up exams

Each student is required to take all examinations. Make-up examinations will be given only if the student has an excused or authorized absence, but students must contact the instructor no later than one week after the missed exam, or after return to campus, to indicate why they were absent and to request to take a make-up. It is the responsibility of the student to inquire as to the procedure for making up an exam. A grade of zero (0) will be recorded if the make-up is not taken in a timely manner. There are no make-ups on pop-quizzes and other class assignments.

Activities and Assignments

Note: The following schedule is subject to modifications. The lecture sequence may change and topics may end sooner or later than noted. The exact date of each of the three lecture exams will be announced not later than one week before the exam.

Weekly Schedule:

1. Biotechnology Century and its Workforce
2. An Introduction to Gene and Genomes
3. Recombinant DNA Technology and Genomics
4. Proteins and Products

Exam I

5. Microbial Biotechnology
6. Plant Biotechnology
7. Animal Biotechnology
8. DNA Fingerprinting & Forensic Analysis
9. Bioremediation

Exam II

10. Aquatic Biotechnology
11. Medical Biotechnology
12. Biotechnology Regulations
13. Ethics & Biotechnology
- 15-16. Reviews & **Exam III**

Disability Accommodations

Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

Academic Integrity

Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source constitute academic dishonesty and may be grounds for a grade of 'F' in the course and/or disciplinary actions. For additional information, see the university catalog.

Statement on email usage

Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

Student Technical Assistance

- Solutions to common problems and FAQ's for your web-enhanced and online courses are found at this link:
<http://www.tamut.edu/webcourses/index.php?pageid=37>

- If you cannot find your resolution there, you can send in a support request detailing your specific problem here:
<http://www.tamut.edu/webcourses/gethelp2.php>

- Blackboard Helpdesk contacts:

Office hours are: Monday - Friday, 8:00a to 5:00p

Kevin Williams (main contact) 903-223-1356 kevin.williams@tamut.edu

Frank Miller (alternate) 903-223-3156 frank.miller@tamut.edu

Nikki Thomson (alternate) 903-223-3083 nikki.thomson@tamut.edu