



UT Tyler

MEDICINE

BIOT 6335

Tissue Culture

Credit Hours: 2

Semester:	Fall	Year:	2026
Class Day/Time:	Tuesday 2 – 5 PM and Friday 9 - 5	Class Location:	BMR Room 113 and Lab B2

Instructor of Record: Dr. Amy Tvinnereim

Office: BMR 314 (Dr. Tvinnereim)

Office Phone: 903-877-5189

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Office Hours: Any time by appointment

Course Description: Basic cell culture techniques with a focus on mammalian cell lines. The course will cover the basic requirements of cells grown in culture, sterile technique for handling cells, and methods for transforming and separating cells.

Prerequisite: As per program entry.

Co-requisite: None

Goals of Course & Course Objectives:

- Understand the basic requirements for growing mammalian cells in culture.
- Understand sources of contamination, methods to prevent contamination, and identify contaminated cell cultures.
- Understand methods to assess cell viability.
- Demonstrate ability to grow and maintain adherent and suspension cell cultures without contamination.
- Demonstrate ability to freeze viable cells and recover these cells for future use.
- Demonstrate ability to prepare cells to be used in assays.
- Transfect cells and select by antibiotic resistance.
- Clone cells by limiting dilution and select transformed cells by flow cytometry.

Student Learning Outcomes (Course Competencies):

1. The student will be able to describe both orally and in writing the basic components of culture media and the conditions required to grow and maintain cells in culture.
2. The student will be able to explain and perform sterile technique required to grow and maintain cells in culture.
3. The student, will demonstrate the ability to prepare cells for assays and to perform assays such as immunohistochemistry on cells grown in culture.
4. The student will demonstrate the ability to apply basic knowledge of growing cells used during class to grow and maintain other cell types.
5. Student will demonstrate the ability to transform mammalian cells, clone transformed cell and assess transformation and cloning efficiency.

Course Assessment/Methods of Evaluation:

Student understanding will be evaluated with a laboratory notebook, graded subjectively, and lab reports.

1. **Laboratory Notebook:** A clear, complete, and concise record of all laboratory actions will be maintained within the lab. This lab notebook is worth a total of 33% of the laboratory grade and will be graded subjectively.
2. **Reports:** Reports written in correct scientific technical format will be scored based on content, clarity, and quality of writing. Each report will be worth 33% of the total lab grade.

Grade:

- A >90%
- B 89-80%
- C 79-70%
- D 69-60%
- F <59%

Assignments

Students are expected to turn in assignments on time. Late assignments will be handled as follows:

1-day late Assignment will earn a maximum score of 90% if no prior arrangements were made with the instructor

14+ days late No credit will be given for the assignment if prior arrangements were not made with the instructor

Linked Program Learning Outcomes:

The student learning outcomes listed above address the following Biotechnology Program PLOs:

- PLO-1. The student will demonstrate English communication skills in both oral and written forms.
- PLO-2. The student will demonstrate mastery of basic and advanced biotechnology methods
- PLO-3. The student will demonstrate the ability to safely operate basic and advanced laboratory equipment, analytic devices and computers.
- PLO-4. The student will demonstrate independent and critical thinking skills integrated with the ability to utilize multiple informational resources.
- PLO-5. The student will explain the principles, mechanisms and interrelatedness of both in vivo and in vitro biochemical, molecular biological and genetic processes.

Textbook:

None

Course Content: All lecture slides and any supplemental material will be available on Canvas prior to each lecture.

1. Setting up a tissue culture room and media preparation (1 lecture/lab)
2. Growing continuous cell lines adherent and suspension (1 lecture/lab)
3. Preparing cells for assays (1 lecture/lab)
4. Flow Cytometry (1 lecture/lab)
5. Immunofluorescence (1 lecture/lab)
6. Freezing cells (1 lecture/lab)
7. Starting cultures from frozen stocks (1 lecture/lab)
8. Transient Transfection (1 lecture/lab)
9. Stable Transfection (1 lecture/Lab)
10. Cloning of cells (2 lecture/lab)
11. Culture of Primary Cells (2 lecture/lab)

Other Class Policies:



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Attendance:

Regular and punctual attendance is expected. If a student misses a class or lab, the student is responsible for obtaining any information distributed during those times. Make-ups are possible only under certain instances (labs cannot be made up). Arrangements for any make-ups and/or missed labs should be discussed directly with the instructor for that day's class.

Students are expected to attend all classes. Students will be allowed to miss **1 class** without penalty.

Additional absences will be handled as follows:

2 absences	Lose 5% of overall grade in class
3 absences	Lose 10% of overall grade in class
4 absences	Lose 15% of overall grade in class
5+ absences	Student will have to remediate the course

Students will be considered absent if they arrive more than **30 minutes** after the start of class.

Emergencies

In the event of an emergency or sickness, the student **MUST** contact the instructor of record and/or the Program Coordinator by phone or email **THE DAY OF** the expected absence.

Academic Honesty:

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Cheating

Dishonesty of any kind involving examinations, assignments, alteration of records, wrongful possession of examinations, and unpermitted submission of duplicate papers for multiple classes or unauthorized use of keys to examinations is considered cheating. Cheating includes but is not limited to:

- Using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class.
- Falsifying or inventing any information, including citations, on an assigned exercise.
- Helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism

Plagiarism is presenting the words or ideas of another person as if they were your own. Materials, even ideas, borrowed from others necessitate full and complete acknowledgment of the original authors. Offering the work of another as one's own is plagiarism and is unacceptable in the academic community. A lack of adequate recognition constitutes plagiarism, whether it utilizes a few sentences, whole paragraphs, articles, books, audio-visual materials, or even the writing of a fellow student. In addition, the presentation of material gathered, assembled or formatted by others as one's own is also plagiarism. Because the university takes such misconduct very seriously, the student is urged to carefully read university policies on Misconduct in Research and Other Scholarly Activity 05.00. Examples of plagiarism are:

- Submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another.
- Submitting a work that has been purchased or otherwise obtained from an Internet source or another source.
- Incorporating the words or ideas of an author into one's paper without giving the author due credit.

Adding/Dropping:

The official deadline for adding and dropping courses is as published in the academic calendar and Graduate Bulletin (typically the day before Census Day). However, students are strongly encouraged to meet with their graduate advisor or the Program Coordinator prior to adding/dropping courses. Movement into and out of classes after the 4th class day requires approval of the Program Director. Students can drop until mid-semester without a WP or WF. Drops after mid-semester require approval of the Dean. Each student is responsible for their own enrollment status with the university.

**Disability Accommodations:**

UTHSCT abides by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, which mandate reasonable accommodations be provided for students with documented disabilities. If you have a disability and may require some type of instructional and/or examination accommodations, please contact me early in the semester so that I can provide or facilitate provision of accommodations you may need. If you have not already done so, you will need to register with the Student Services Office (located on the UT Tyler Campus). You may call 903-566-7079 for more information.

Use of Artificial Intelligence:

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

For this course, **AI is not permitted in this course at all.**

To best support your learning, you must complete all graded assignments by yourself to assist in your learning. Doing your own work, without human or artificial intelligence assistance, is best for your efforts in mastering course learning objectives. This exclusion of other resources to help complete assignments includes artificial intelligence (AI). Refrain from using AI tools to generate any course context (e.g., text, video, audio, images, code, etc.) for any assignment or classroom assignment.

Program:	Master of Science in Biotechnology
Degree:	MS
Department:	Cellular and Molecular Biology
School:	Medical Biological Sciences
Course:	BIOT6335 – Tissue Culture

Area	Marketable Skill*
SKILLS	Reading Comprehension — Understanding written sentences and paragraphs in work-related documents.
	Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
	Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
ABILITIES	Written Comprehension — The ability to read and understand information and ideas presented in writing.
	Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
	Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
WORK ACTIVITIES	Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job.
	Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.

*All marketable skills listed for this course and program were drawn from the Knowledge, Skills, and Abilities identified by the US Department of Labor and Statistics for “Biological Technicians” and “Molecular and Cellular Biologists” as published on O*Net Online (www.onetonline.org)