

**Semester:** Fall**Year:** 2022**Class Day/Time:** Tuesdays 10 – 11:30 AM**Class Location:** BMR Room 116.1**Instructor of Record:** Dr. Pierre Neuenschwander

Office: BMR Lab B4 (Dr. Neuenschwander)

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Office Hours: Any time by appointment.

**Prerequisite:** None**Co-requisite:** None**Course Objectives:**

- Enable students to learn how to investigate new technologies and techniques and evaluate their usefulness.
- Present current topics in biotechnology.
- Encourage students to find and process scientific information.
- Encourage scientific communication (written and oral).

These class objectives are in accordance with the UTHSCT Biotechnology Graduate Program mission statement which states that students will:

1. Receive comprehensive training in techniques and methodologies used in biotechnology.
2. Learn to think independently and problem solve.
3. Be prepared for further graduate studies.
4. Be prepared for supervisory level positions in the biotechnology industry.

**Student Learning Outcomes (Course Competencies):**

1. The student will develop skill sin researching and evaluating techniques used in research.
2. The student will develop skills in finding and understanding pertinent scientific information.
3. The student will develop skills in technical writing.
4. The student will develop skill sin preparing and giving oral presentations.

**Course Assessment/Methods of Evaluation:**

- |                                    |     |
|------------------------------------|-----|
| 1. Selection of technique          | 10% |
| 2. List of potential sources       | 10% |
| 3. Preliminary paper               | 10% |
| 4. Outline of final paper          | 10% |
| 5. Slides and presentation outline | 10% |
| 6. Final paper                     | 25% |
| 7. Oral presentation               | 25% |

**Any grade below B is unacceptable for graduate school and may be considered an academic deficit. Any grade below D is failing.**

<b>Due Date</b>	<b>Activity</b>	<b>Assignments</b>
Week 1	Introduction to course Sources for selecting technique	<b>Aug. 24</b>
Week 2	Review technique Source Materials	<b>Aug. 31</b>
Week 3	Technique selected	<b>Sept. 07</b>
Week 4	Format for abstract	<b>Sept. 14</b>
Week 5	Individual meetings if required	<b>Sept. 21</b>
Week 6	Preliminary paper Discuss Format for final paper	<b>Sept. 28</b>
Week 7	Return input on preliminary papers Individual meetings if required	<b>Oct. 05</b>
Week 8	Outline of final paper	<b>Oct. 12</b>
Week 9	Individual meetings if required	<b>Oct. 19</b>
Week 10	Individual meetings if required	<b>Oct. 26</b>
Week 11	Presentation outline/slides	<b>Nov. 02</b>
Week 12	Individual meetings if required	<b>Nov. 9</b>
Week 13	Papers due	<b>Nov. 16</b>
Week 14	Thanksgiving Week	<b>Nov. 23</b>
Week 15	Presentations	<b>Nov. 30</b>
Week 16	Presentations	<b>Dec. 07</b>

### **Summary of Assignments**

1. **Selection of Technique** – select a technique that is newly emerging or gaining use in research labs. Both Biotechniques and Nature Methods are good places to start looking at potential topics. Bring to your meeting with the instructor a 1 paragraph description of the technique and a list of 3 potential sources. Be prepared to discuss your technique including its utility, how it is performed, why you selected this technique, and the benefits of this technique compared to current techniques or what problems/questions this technique addresses that can't currently be addressed.
2. **Abstract** – a 1 page paper summarizing the following: 1) what the technique is used for; 2) the advantages and disadvantages of this technique compared to current methods to address the same questions; 3) a brief description of how the technique is performed; and 4) list of references used
3. **Outline of final paper.** An outline of the final paper including sources used
4. **Outline of oral presentation and slides.** Prepare an outline of the oral presentation you will give to your fellow students. Also turn in a copy of the slides so they can be distributed
5. **Paper** – Should include all information in your presentation and a list of references used

6. **Presentation** – a 20-minute oral presentation followed by a 5-10 minute question period. Presentation should include the following information:
- 1) a brief description of the technique
  - 2) the purpose of the technique
  - 3) how this technique compares to current or past techniques used to address the same question(s)
  - 4) specialized equipment or reagents required for the technique including cost to get technique up and running in the lab and cost of continues use.
  - 5) a description of how the technique is performed from beginning to end; 6) advantages and disadvantages of the technique
  - 7) recommendation – would you implement the use of this technique and justification for your recommendation.

### **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-4. The student will demonstrate independent and critical thinking skills integrated with the ability to utilize multiple informational resources.

**Textbook:** None

### **Other Class Policies:**

#### **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 their PI and/or the Program Coordinator (Kim Tutt) by phone or email **THE DAY OF** the expected absence. Failure to do so will result in the absence being counted as 2 absences, resulting in a 10% decrease in the class grade.

#### **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.

Program:	Master of Science in Biotechnology
Degree:	MS
Department:	Cellular and Molecular Biology
School:	Medical Biological Sciences
Course:	<b>BIOT5140 – Emerging Technologies</b>

Area	Marketable Skill*
<b>SKILLS</b>	<b>Reading Comprehension</b> — Understanding written sentences and paragraphs in work-related documents.
	<b>Critical Thinking</b> — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
	<b>Writing</b> — Communicating effectively in writing as appropriate for the needs of the audience.
<b>ABILITIES</b>	<b>Written Comprehension</b> — The ability to read and understand information and ideas presented in writing.
	<b>Oral Comprehension</b> — The ability to listen to and understand information and ideas presented through spoken words and sentences.
	<b>Inductive Reasoning</b> — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
	<b>Oral Expression</b> — The ability to communicate information and ideas in speaking so others will understand.
	<b>Written Expression</b> — The ability to communicate information and ideas in writing so others will understand.
<b>WORK ACTIVITIES</b>	<b>Analyzing Data or Information</b> — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.
	<b>Updating and Using Relevant Knowledge</b> — Keeping up-to-date technically and applying new knowledge to your job.
	<b>Getting Information</b> — 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](http://www.onetonline.org))