

**Semester:** Spring

**Year:** 2026

**Class Day/Time:** Mondays, 12:00-1:00p

**Class Location:** BMR Rm B12.1

**Instructor of Record:** Dr. Pierre Neuenschwander

**Professor**

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Office Hours: Thursdays, noon-1pm

**Course Description:** This course exposes students to current research published in major scientific journals. Students will learn how to read and interpret methodologies and results published by other scientists. This course will provide the student with a thorough understanding of the strengths and limitations of scientific writing. This course is the first of a two-course sequence and introduces the student to basic organization of scientific papers and how to identify the questions being addressed based on the scientific method.

**Prerequisite:** None

**Co-requisite:** None

**Goals of Course & Course Objectives:**

Critical Reading I is the first course in a two-course sequence that is designed to teach the early graduate student how to read and critically interpret scientific papers taken from the primary literature. Reading for knowledge (i.e. textbook reading) is much different than reading critically, and thus the latter must be approached much differently. When one reads for knowledge, the focus is on accepting as fact what is written and absorbing and understanding the material. For critical reading, one must learn how to question and analyze the material. The student should not blindly accept what is written, but must read, absorb, analyze, question and formulate their own opinion as to the validity of the presented results and their interpretation. This is very difficult to become accustomed to and students need to learn, develop and hone this skill by exposure and repeated practice.

What we will do in this class is hand out papers taken directly from the primary literature and learn how to read them to extract the information in a way that allows you, the student, to individually develop and hone your skills in critical reading. For each paper you will have one week to read it, take notes and write down questions you may have, especially on methods etc. so you can understand how to interpret the results. In the next class, we will spend one class focusing mostly on a Q&A session where we will identify the main question and strategy of the paper, discuss the methodology that was used and I will answer any questions you wrote down. You will take that week after class to generate a “flow-chart” of the logic the authors used (or should have used) to lay out the study in an understandable way (I will show you what I mean in class). The next class will focus on understanding the paper and critiquing it. We will work at your pace since the idea isn't necessarily to learn the science, but rather understand how to read a study, present a study, discuss a study and interpret its significance and validity. We will then move on to the next paper and repeat the process. There will be a total of 6 papers throughout the term. As each week progresses, there will be less and less input from me and (hopefully) more and more discussion by and among the entire class. For the “final” paper you will select a paper of your choosing and prepare a flow chart. You will then present the paper to the class (following the flow chart you prepared).

**PLEASE NOTE THAT FOR THIS CLASS THE FOCUS IS ON THE QUALITY OF THE PAPERS AND THEIR GENERAL ORGANIZATION AND PRESENTATION, NOT THE TOPIC ITSELF.**

**Course Objectives (Learning Outcomes):**

1. General strategies for critical reading, interpretation, summarizing and presenting studies from the primary literature.
2. How to develop a working flow-chart that describes the logic and flow of a scientific study.
3. How to present and discuss data in figures, tables and text.

**Course Assessment/Methods of Evaluation:**

Please note that this is NOT a didactic-type class. In order for you to get something out of it you need to participate, and in order to do that you need to actually read each paper carefully before the class. DO NOT WAIT UNTIL THE HOUR BEFORE CLASS TO LOOK AT THE PAPER FOR THE FIRST TIME! If you do this, it will be obvious during class and it will be a very boring class as nobody will be speaking. The idea is for you to learn how to present and discuss the paper, not for me to present it to you. Don't be shy, the first paper will be difficult but it will get easier as you learn how to do it and gain confidence.

**Attendance & Participation (40% of final grade):** Regular and punctual attendance is expected and essential for this class. If a student misses a class, the student will not benefit from the discussion. **Make-ups of the discussion (participation) are not possible.** Each class will be worth 10 points for attendance and participation (5 points for attendance and up to 5 points for participation in the discussion). Students are expected to be in attendance for the majority of class time to receive full credit. **Tardiness of more than 30 minutes will result in a reduction of 5 points for that class.**

Students are allowed one excused absence without penalty (any assignments are still due on time). For an excused absence, the student **must** contact either me or the Program Manager (Dr. Chris Holmquist) by email before the start of class (see "Emergencies" below). Additional excused absences (after the one allowed) will result in a deduction of 5 points for attendance & participation in each missed class. Unexcused absences will result in the student not receiving any credit for attendance & participation in each missed class.

**Emergencies**

In the event of an emergency or sickness, the student **MUST** contact me and/or the Program Manager (Dr. Chris Holmquist) by phone or email before class. If the student fails to send prior notification, the absence will be considered an unexcused absence.

**Assignments (40% of final grade):** Assignments for this class will be in the form of generating "flow charts" for each paper discussed. These will be graded out of 10 points, and you should anticipate 5 of these over the course of the semester.

**Final flow chart (20% of final grade):** There is no final exam for this course. In its place there will be a final flow chart (Paper 6). Grading considerations for this final flow chart will be explained in class.

$$\begin{aligned} \text{Attendance \& Participation} &= 40\% \\ \text{Assignments (flow charts \#1-6)} &= 40\% \\ \text{Final flow chart} &= 20\% \\ \text{Total} &= 100\% \end{aligned}$$

Each person's total score in each category will be divided into the maximum possible score for that category and then multiplied by the fractional percentage. These will be summed to obtain your final grade. For example:

$$\begin{aligned} [(20/30)*0.4] &+ [(50/50)*0.4] + [(10/10)*0.20] = 0.866 = 86\% = B \\ [\text{Attendance \& Participation}] &+ [\text{Assignments}] + [\text{Final FC}] \end{aligned}$$

The following scale will be used to convert to a final letter grade:

C	B	A
70-79%	80-89%	90-100%

### Assignment Submission Policy:

Students are expected to turn in all class assignments on time. **Late assignments will not provide any help since the papers will be discussed in class.** However, late assignments will still be accepted as follows:

Late assignments will be handled as follows:

After 11:59 pm but before class starts.	<b>10% deduction</b> from the assignment grade.
After class but before 11:59 pm Monday.	<b>25% deduction</b> from the assignment grade.
24 hrs late (Monday after 11:59 pm)	<b>50% deduction</b> from the assignment grade.
48+ hrs late (Tuesday after 11:59 pm)	<b>No credit</b> will be given for the assignment.

### Linked Program Learning Outcomes:

The student learning outcomes listed above address the following BIOT 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.
- 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:

No textbook. Papers will be from the primary literature and will be as assigned.

### Course Content:

Discuss and critique papers as assigned:

Class Date	Discussion Paper/Topic
01/12	Strategy for reading and critiquing a scientific article. Making a flow chart.
01/19	<b>NO CLASS. Martin Luther King Jr. Day</b>
01/26	<b>Paper 1:</b> Identify main question and strategy. Q&A and discuss methodology.
02/02	Flow chart for Paper 1 <b>due no later than 11:59 pm on Sunday 2/01.</b> Finish discussion of paper.
02/09	<b>Paper 2:</b> Identify main question and strategy. Q&A and discuss methodology.
02/16	Flow chart for Paper 2 <b>due no later than 11:59 pm on Sunday 2/15.</b> Finish discussion of paper.
02/23	<b>Paper 3:</b> Identify main question and strategy. Q&A and discuss methodology.
03/02	Flow chart for Paper 3 <b>due no later than 11:59 pm on Sunday 3/01.</b> Finish discussion of paper.
03/09	<b>NO CLASS. Spring break.</b>
03/16	<b>Paper 4:</b> Identify main question and strategy. Q&A and discuss methodology.
03/23	Flow chart for Paper 4 <b>due no later than 11:59 pm on Sunday 3/22.</b> Finish discussion of paper.

03/30	<b>Paper 5:</b> Identify main question and strategy. Q&A and discuss methodology.
04/06	Flow chart for Paper 5 <b>due no later than 11:59 pm on Sunday 4/05.</b> Finish discussion of paper.
04/13	<b>Paper 6:</b> Identify main question and strategy. Q&A and discuss methodology.
04/20	Flow chart for Paper 6 <b>due no later than 11:59 pm on Sunday 4/19.</b> Finish discussion of paper.
04/27	Final flow chart ( <b>for your selected paper</b> ) <b>due no later than 11:59 pm on Sunday 4/26.</b> <b>During class each of you will “present” your paper to the class following your prepared flow chart (10-15 min each).</b>
05/04	<b>FINALS WEEK (if we need to meet to finish presentations we will do so).</b>

### Other Class Policies:

#### 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 policy [Sec. 8-802. Academic Dishonesty](#). 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.

#### AI (Artificial Intelligence) Policy:

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.

**Use of 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.

**Adding/Dropping:**

The official deadline for adding and dropping courses is as published in the academic calendar ([Registrar Withdrawal webpage](#)). 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. Each student is responsible for their own enrollment status with the university.

**Disability Accommodations:**

UT Tyler HSC 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 the 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 main campus). You may call 903-566-7079 for more information.

**A listing and description of all student policies can be found here: [Manual of Policies and Procedures for Student Affairs](#).**

## MARKETABLE SKILLS FOR YOUR RESUME/CV

Program:	Master of Science in Biotechnology
Degree:	MS
Department:	Cellular and Molecular Biology
School:	Medical Biological Sciences
Course:	<b>BIOT5131 – Critical Reading I</b>

Area	Marketable Skill*
<b>SKILLS</b>	<p><b>Reading Comprehension</b> — Understanding written sentences and paragraphs in work-related documents.</p> <p><b>Critical Thinking</b> — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.</p> <p><b>Active Listening</b> — 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.</p>
<b>ABILITIES</b>	<p><b>Written Comprehension</b> — The ability to read and understand information and ideas presented in writing.</p> <p><b>Oral Comprehension</b> — The ability to listen to and understand information and ideas presented through spoken words and sentences.</p> <p><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).</p> <p><b>Oral Expression</b> — The ability to communicate information and ideas in speaking so others will understand.</p>

\*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))