CHEM 356.001
Biochemistry Laboratory
Course Syllabus
Spring 2025

Instructor:	Dr. John E. Weldon	Office Hours:	Mondays 10:00–11:30 AM
Email:	jweldon@towson.edu		Tuesdays 2:00– 3:30 PM
Office:	SC 5101K		or by appointment
Phone:	(410) 704-3191		
Zoom:	https://towson-edu.zoom.us/j/2995816788		

Note: Please utilize published Office Hours whenever possible. In lieu of Office Hours, email is the preferred method of contact for course-related communication. Most messages will be answered within 1-2 business days. Questions and concerns regarding grades will only be answered in person.

Pre/Co-requisite: CHEM 351 (Biochemistry)

Meeting Times: Tuesdays 12:00–1:00 PM SC 3333
Wednesdays 1:00–5:00 PM SC 5322

Spring semester classes will begin meeting on Monday, January 28th and end Tuesday, May 13th, 2025.

MATERIALS

Suggested Companion Textbook: Lehninger Principles of Biochemistry, 7th ed.
Nelson, DL and Cox, MM
W.H. Freeman and Company, 2017, New York, NY

Course Website: If you are officially enrolled in this course, you should automatically be enrolled in the course website hosted on Blackboard (https://blackboard.towson.edu). Use your Towson University credentials to log into the site. Important materials and links for the course will be made available through the Blackboard site. You will be notified of new postings by email. Access to the Blackboard site is essential to the course, so please plan accordingly.

Eye Protection: Approved safety eyewear MUST be worn at all times when performing experimental protocols in the laboratory. Approved eyewear may be purchased at a variety of locations (UStore, SAACS, etc…).

Calculator: A scientific calculator is necessary for experimental calculations during the semester. Approved calculators may be purchased at a variety of locations (UStore, SAACS, etc…).

Laboratory Notebook: An approved carbonless-copy lab notebook may be purchased at a variety of locations (UStore, SAACS, etc…). See your instructor with any questions or concerns.

Lab Fees: CHEM 356 assesses lab fees as a cost of course registration. Lab fees are used to pay for equipment and reagents needed during the semester. The use of the lab fee for this course (and all such courses at Towson University) can be accessed here:
https://www.towson.edu/provostbudgetoffice/fees.html

COURSE DESCRIPTION

This course is designed to teach basic techniques utilized in a biochemistry laboratory, including, but not limited to, spectrophotometry, centrifugation, electrophoresis, chromatography, and enzyme activity assays. In addition, laboratory record keeping, data analysis and interpretation, and data presentation will be discussed and put into practice.

Course Objectives: The following outline summarizes the learning objectives for CHEM 356. It is not meant as a study guide and does not include specific details, but instead summarizes the major ideas that we will be covering in this course.

- Understand the general theory behind common biochemical techniques.
    - Spectrophotometry
    - Centrifugation
    - Electrophoresis
    - Chromatography
    - Enzyme activity assay
- Participate in the design of experiments utilizing these techniques.
- Apply these techniques in an experimental setting.
- Develop a coherent hypothesis for novel experiments.
- Analyze and interpret experimental data.

By the end of the course, the successful student will have developed sufficient background to conduct basic biochemical experiments independently.

EXPECTATIONS

This syllabus is an agreement between the instructor and the students. All students who choose to take this course are expected to abide by the terms listed here.

It is expected that:

- You have an extensive foundation of knowledge upon which to build. An advanced undergraduate level of understanding is assumed when discussing the course material.
- You will complete the assigned readings prior to class. You need not fully comprehend everything you read, but the effort is important.
- You will contact your instructor in a timely manner with questions or concerns about the course material and your ability to understand and complete class assignments.
- You will prepare for and participate in class. Science is an ongoing process of investigation and discovery, not simply a collection of facts. The process of scientific discovery requires the active participation of students, including reviewing experimental protocols in advance, participating in class discussions, and performing experiments.

COURSE POLICIES AND PROCEDURES

Attendance Policy:

CHEM 356 is heavily focused on a practical laboratory experience, which requires the active participation of students in designing, performing, and analyzing experiments. Because of this, the attendance policy is stricter than a typical lecture class. Attendance during the lecture period is highly recommended, but not required. Attendance will not be officially taken, but experience has shown that attendance is correlated with course performance. Please note, however, that in-class assessments will typically be given during the lecture period and unexcused absence will receive a score of 0. Attendance during the laboratory period is mandatory. Students are expected to attend all laboratory class meetings, to arrive on time, and to remain until dismissed. Arriving more than 15 minutes late or leaving prior to dismissal will be considered absent for the class period.

Occasionally, a student may miss a class period or be unable to attend the full duration of class. Based on Towson University policy, such absences will be considered excused (an appropriate reason) or unexcused (an unacceptable reason). Students with excused absences will be required to make up the missed work expediently. Students with three or more excused absences will be given an "Incomplete" (I) grade for the semester and be required to make alternative arrangements to complete the work. Students who miss class with an unexcused absence will also be required to make up the missed work expediently but will receive a 50% grade penalty on their work for that period. Students who miss three class periods with an unexcused absence will automatically receive a failing grade for the class. Please inform your instructor in advance if a foreseeable conflict arises. Emergency absences may be excused under specific circumstances. Please review Towson University's Class Attendance/Absence Policy in the TU Undergraduate Catalog.
http://catalog.towson.edu/undergraduate/academic-policies/class-attendance-absence-policy/

Academic Integrity Policy:

Dishonesty can seriously impair the progress of scientific research, in addition to harming public trust in the sciences. Students in CHEM 356 are expected to adhere to the highest standards of scientific and academic conduct. Any form of cheating on any graded work in this course is unacceptable. All assignments must be individually completed within the limits established by the instructor. Failure to comply with these standards for any portion of an assignment will be penalized and may result in a grade of zero for the assignment.

Any documented instance of academic dishonesty during this class will be reported to the Office of Student Conduct and Civility Education as required by Towson University's Student Academic Integrity Policy. Report of a second violation of this policy by a student can result in suspension or expulsion from the University. Please take the time to familiarize yourself with the information available in order to avoid conflicts. If you are unclear on any matters covered here, please consult with your instructor. You may also refer to the full Towson University academic integrity policy.
https://www.towson.edu/about/administration/policies/03-01-00-student-academic-integrity-policy.html

Generative AI Policy

Generative artificial intelligence (AI) is rapidly becoming integrated into modern life. In this course limited use of AI for completing your work is acceptable for the purposes of

enhancing clarity and brainstorming ideas. Your final submission, however, must be your own work. Additionally, you must document and cite all use of AI in your submissions. Failure to adhere to these guidelines is a violation of the academic integrity policy. Please review the specific guidelines below and bring any questions or concerns to my attention.

Permitted Uses of Generative AI

1. Grammar and Style Assistance

Students may use generative AI tools to improve the grammar, syntax, and style of their written reports and assignments. This includes proofreading, suggesting alternative phrasings, and enhancing overall readability.

2. Collaborative Brainstorming

Generative AI can be used as a "virtual collaborator" for brainstorming ideas, generating hypotheses, or exploring potential experimental designs. Students must clearly indicate when AI has been used in this capacity and provide their own critical analysis of any AI-generated suggestions.

Prohibited Uses of Generative AI

1. Final Content Generation

Students are not permitted to use generative AI to produce final content for lab reports, data analysis, or any graded assignments. All final written work, calculations, and conclusions must be the original work of the student. Please keep in mind that generative AI will often assert ideas that are not true, and will even sometimes fabricate information, such as sources and citations. It cannot be relied upon to prepare scientific content.

2. Data Analysis and Interpretation

While AI can be used to brainstorm approaches, the actual analysis and interpretation of experimental data must be performed by the student without AI assistance.

Documentation and Transparency

A citation including the specific AI program and date of usage is required for any submission using generative AI in any manner. In addition, students must maintain a log of their AI interactions related to coursework, including prompts used and AI-generated responses. This log must be submitted along with assignments to ensure transparency and academic integrity.

Consequences of Misuse

Violation of this policy will be considered academic dishonesty and may result in a failing grade for the assignment or course, as well as potential disciplinary action as per university policies.

Evolving Technology Clause

As AI technology rapidly evolves, this policy may be subject to change. Students will be notified of any updates to the policy throughout the course.

By following this policy, students can leverage the benefits of AI as a learning tool while maintaining the academic rigor and integrity expected in an upper-level chemistry laboratory course.

Disability Accommodations Policy:

If you are a qualified student with a disability seeking accommodations under the

Americans with Disabilities Act, you are required to self-identify with Accessibility and Disability Services (ADS) and provide a notification to your instructor from ADS (https://www.towson.edu/accessibility-disability-services/). Accommodations cannot be provided without an ADS notification. This should be done as soon as possible during the semester. Please see your instructor if you have any questions about this process.

STUDENT CONDUCT & ACADEMIC COURTESY

The following rules exist to enhance your ability to learn in this class, to avoid disruption and distraction, and to improve the quality of the classroom experience. Failure to comply with these rules may result in grade penalization. Your instructor reserves the right to add to or modify these regulations at any time in an effort to enhance the learning experience.

Entering/Exiting Class:

Please arrive on time to class and remain for the entire class period; late arrivals and early departures are disruptive and will negatively affect your grade (see Attendance Policy). Resolve any regular conflicts due to your class or work schedule prior to taking the course. Do not enter or leave the room while class is in progress without the approval of the instructor.

Food/Drink:

Food and drink are prohibited in laboratories. Leave all food and drink items (including water bottles) outside of the laboratory room. You may utilize the designated table immediately outside of the SC 5322 room to store items, and exit the room briefly during breaks to consume them. When leaving the lab, wash your hands before attempting to consume anything. Drinking beverages is permitted in the SC 3333 lecture room, but eating food is not allowed.

Lab Groups:

Each student will be assigned to a lab group by your instructor, each group consisting of 2-4 students. Group members are expected to collaborate on the assigned tasks. Many of the assessments will be graded as a group, and each student's contribution to the group will be evaluated by all group members (see Grading Policies below).

Online Assessments:

Some assessments will be given online through Blackboard during class time. Students will need to have a mobile device, such as a smartphone, tablet, or laptop, available to take assessments. Please bring a device to campus on the days indicated in the schedule below and ensure your device can access Blackboard through an internet browser (Do Not use the Blackboard App). If this is not possible, please contact your instructor immediately to make alternative arrangements.

Mobile Device Policy:

As noted above (see Online Assessments), mobile devices such as smartphones, tablets, laptops, and similar devices are required for the course. Mobile devices may also be utilized for taking notes and following along with slides during the lecture period. Please DO NOT place or receive phone calls, or utilize electronic communication (text, email, messaging apps, etc…) during the class period. Wait until after class or during a class break to return any calls/messages received. You may be asked to leave the classroom immediately if this policy is violated. A first violation will result in a warning; subsequent violations will result in a grade penalty. Any exceptions to this must be cleared with your instructor in advance.

Mobile devices are at risk from damaging spills and other hazards during the laboratory period and are strongly discouraged. Please utilize your designated lab notebook to record pertinent information.

Common Courtesy:

When class begins, students should refrain from any activity which could be distracting either to the instructor or to other students. All students should feel comfortable to ask

questions, discuss the material, and express opinions. Rude, intimidating, or disruptive behavior will not be tolerated and may be grounds for disciplinary action.

Recording Devices:

No taping, filming, photography, or other recording are allowed in class without explicit approval from your instructor. These activities may infringe upon privacy and/or copyright laws. Your instructor will record and post lecture meetings for use only by students in the class.

GRADING POLICIES

Students will be assessed through several mechanisms throughout the semester. Assessments may be evaluated individually or as a lab group, and are described below.

Individual Assessments

Quizzes:

Short quizzes covering applicable material will be given periodically throughout the semester through Blackboard (see Online Assessments above). Quizzes are often scheduled (see Schedule below), but may be given without notice, and will usually be given at the beginning of lecture. No make-up quizzes will be given. Students absent from class will not be permitted to take missed quizzes. Students late to class will not be given additional time to take the quiz. The lowest quiz score will be dropped from the final grade calculation. Quizzes will be assessed individually.

Lab Notebook:

Proper documentation of laboratory experiments in a notebook is as important as the experiments themselves. Lab notebooks allow others to replicate experiments and provide a legal record of the experiments performed. We will discuss the proper use of lab notebooks in class. Your lab notebook will be assessed as part of your final grade. During the semester, student groups will be randomly selected for lab notebook evaluations weekly. Please keep your notebook updated and prepared for assessment. Lab notebooks will be evaluated individually.

Lab Reports:

Lab reports are opportunities for the instructor to assess your understanding of the background material, your ability to document and describe lab protocols, and your capacity to analyze and interpret data. You will prepare three lab reports over the course of the semester, consisting of one proposal and two experimental reports. More detail will be provided in class. Reports should be prepared on word processing software (MS Word is suggested) using a standard serif 12-pt font (Times New Roman is suggested) with 1.5 line spacing and 1-in margins on all edges. Reports should typically be 3-5 pages long and should not exceed 6 pages.

Weekly Lab Updates:

Weekly lab updates are brief oral reports that will be given at the beginning of the laboratory period to review the status of the project. One member of each group will be selected to provide updates to the instructor and class.

Group Assessments

Lab Citizenship:

A successful research laboratory requires the contributions and cooperation of all lab members. Each researcher must take personal responsibility for his own work to ensure accurate data in a clean and safe environment, as well as assist other lab members performing their own work. This means: 1) clean up after yourself 2) share equipment 3) do not waste limited resources 4) follow the protocols as described 5) ask for help when needed (you will almost certainly need help at some point during the semester – ask for and be willing to accept it) 6) offer assistance to other members in distress 7) use common sense 8) work slowly and steadily (correct is more important than fast) 9) learn from your mistakes 10) PAY ATTENTION. Students will be assessed as a lab group on adherence to these guidelines.

Group Presentation:

At the end of the semester, the class will participate in a symposium to present the findings from the semester. Each lab group will create a poster based on their work and present it to the other groups, your instructor, and interested parties. Your poster and oral presentation will be judged as a group. A poster template will be provided.

Extra Credit

Periodically throughout the semester, extra credit opportunities will arise that can improve you overall score. All extra credit will be assessed individually. Extra credit can never exceed 3% of your final grade, equivalent to 10 pts of extra credit on lab reports for this class.

Peer Evaluations:

Students will evaluate both themselves and their lab partners for participation in and contributions to lab experiments and group assessments. It is expected that all students will work together and support each other. Please bring any conflicts or concerns to your instructor's attention as soon as possible. All evaluations will be kept confidential. Students who receive good evaluation scores will receive extra credit on their course grade.

Seminars:

Occasionally, scientific seminars relevant to the course will be hosted as Towson University. Students who attend these seminars and write a 1-page summary and critique will have the chance to receive extra credit. Appropriate seminars will be announced in advance, but you may bring any seminar at Towson University or other local institution to the attention of your instructor to evaluate its appropriateness.

Primary Research Article Presentation:

Once per semester, students may request the opportunity to receive extra credit for reading and presenting a primary research article. The article must be chosen by the student, relevant to the course, recent, and approved by your instructor. The student will create a 20-minute PowerPoint presentation to give to the class. Reusing presentations from other classes would be considered plagiarism and is not allowed.

Final Grade:

The final grade will be calculated based on multiple elements listed below. Extra credit will be added on top of the final grade.

The final grade will be calculated as follows:

Lab Reports	30%
Group Presentation	20%
Quizzes	20%
Weekly Lab Updates	10%
Lab Notebook	10%
Lab Citizenship	10%

Letter grades will be assigned as follows:

A 93 – 100%	B- 80 - 82%	D 60 - 66%
A- 90 - 92%	C+ 77 - 79%	F < 60%
B+ 87 - 89%	C 70 - 76%	
B 83 - 86%	D+ 67 - 69%	

How to contest grading:

If you believe that any grade was given incorrectly, you have one week after the graded document is returned to provide a factual written rebuttal explaining why you think you deserve additional credit. Your rebuttal must be typed, printed, and hand-delivered to your instructor. Oral arguments and rebuttals submitted by email will not be considered unless in person contact is not possible. Rebuttals will not be accepted on the day a graded item is returned; please give yourself time to collect your thoughts and develop a coherent argument to present to your instructor.

ADDITIONAL INFORMATION

Advice for Success:

1) Attend all scheduled classes.
2) Cooperate with other students and share your insights.
3) Keep the Academic Integrity Policy in mind.
4) The instructor is here to help you but cannot think for you.
5) Think about a question before you ask it, but don't be concerned that it might be foolish; it is likely that others have a similar question but are too anxious to ask.
6) Free tutoring is available at Towson University through the Tutoring & Learning Center. https://www.towson.edu/tutoring-learning/
7) Adequate sleep, a healthy diet, and regular exercise are important preparations for learning (and life). Do not neglect them.

Emergency Statement:

In the event of a University-wide emergency, course requirements deadlines and grading schemes are subject to changes in delivery methods, instructor interaction, class materials, lab partners, attendance policy, calendar, and/or grading scheme. In cases of inclement weather or University-wide emergencies, alerts will be posted on the Towson homepage (www.towson.edu), through the Closing & News hotline (410-704-6397), and through the main University phone number (410-704-2000). Interested parties can sign up for text alerts by subscribing to the Omnilert Campus Notification System (https://towson.omnilert.net/subscriber.php).

Diversity Statement:

Towson University values diversity and fosters a climate that is grounded in respect and inclusion, enriches the educational experience of students, supports positive classroom and workplace environments, promotes excellence, and cultivates the intellectual and personal growth of the entire university community. Should you feel that you are experiencing a negative environment related to diversity issues or cultural sensitivity, we encourage you to contact the Chemistry Department Diversity Liaison [Dr. Cynthia Zeller czeller@towson.edu]. For more information, please visit https://www.towson.edu/about/diversity.html.

Title IX Statement:

Towson University (TU) is committed to ensuring a safe, productive learning environment on our campus that does not tolerate sexual misconduct, including harassment, stalking, sexual assault, sexual exploitation, or intimate partner violence [Policy 06.01.60]. It is important for you to know that there are resources available if you or someone you know needs assistance. You may speak to a member of university administration, faculty, or staff, but keep in mind that they have an obligation to report the incident to the Title IX Coordinator. It is a goal that you feel able to share information related to your life experiences in classroom discussions and in one-on-one meetings. However, it is required to share information with the Title IX Coordinator regarding disclosures but know that the information will be kept private to the greatest extent possible. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the TU Counseling Center (call 410-704-2512 to schedule an appointment), and locally within the community at TurnAround, Inc. (call 443-279-0379 to reach the 24-hour hotline or 410-377-8111 to schedule an appointment). For more information, please consult TU policies at http://towson.edu/titleix

CHEM 356.001 (*Biochemistry Laboratory*) Course Agreement
Spring 2025

By signing my name below, I indicate that I have read and agree to the content of the course syllabus for CHEM 356 provided by Dr. Weldon. I understand my obligations and expectations for the course and will maintain academic integrity as specified by this syllabus and Towson University policy.

Printed Name: _____

Signature: _____

Date: _____