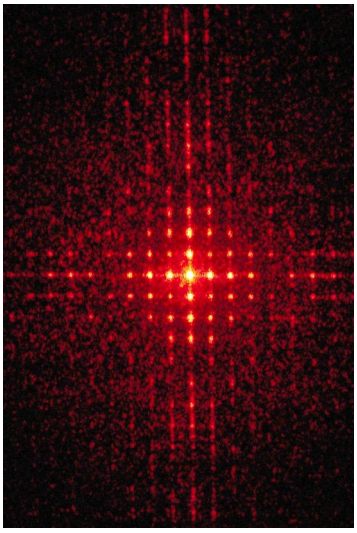
Spring 2026

THE UNIVERSITY OF TEXAS AT TYLER

# CHEM 3155: PChem II Lab

## A Hands-on Laboratory Course Introducing Kinetics and Quantum Mechanics




**Instructor: Dr. Rachel Mason**
rmason@uttyler.edu
903/565-5641
RBS 3002


**Office Hours: MWF 11:15am-12:15 pm**
**TW4:00-5:00pm**
**Or by appointment**

I practice an open door policy—any time my door is open you are welcome to stop in and I will help you as time allows. If I can't talk right then, we'll set an appointment for a different time.

**Class Meetings: RBS 4014**
**R 1:30pm –6:30 pm**
**12 Jan – 1 May 2026**

### Word from the Wise:

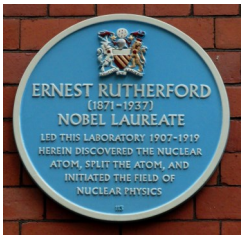
"I am among those who think that science has great beauty. A scientist in his laboratory is not only a technician: he is also a child placed before natural phenomena which impress him like a fairy tale."

Marie Skłodowska Curie - As quoted in *Madame Curie : A Biography* (1937) by Eve Curie Labouisse, as translated by Vincent Sheean, p. 341

### Table of Contents

## Course Description

Physical Chemistry is concerned with the physical principles underlying the properties of chemical substances. In order to learn physical chemistry, students must become familiar with the experimental foundations on which the theoretical principles are based. Generally, the ability to utilize the principles requires an intimate knowledge of experimental techniques. For this reason, the lecture course in physical chemistry is accompanied by this laboratory course. This course is the second in a two semester sequence. It is concerned primarily with reinforcing concepts and developing experiences with experimental techniques in kinetics, quantum mechanics and spectroscopy.




## Learning Objectives

**By the end of the course the students should be able to:**

- Thoroughly understand and apply principles, laws and theories of introductory physical chemistry discussed in lecture.
- Utilize common laboratory apparatus, instruments and equipment to measure physical properties of substances.
- Demonstrate good laboratory technique and skills.
- Learn and work independently.
- Work cooperatively with others.


## Course Pre– and Co-requisites

**Course Prerequisites are:**

- General Chemistry I & II Lab/Lecture
- Organic Chemistry I & II Lab/Lecture
- Analytical Chemistry Lab/Lecture
- Physical Chemistry I Lab/Lecture
- University Physics I & II (calculus based)
- Calculus I & II


**Additionally:**
Additionally, students must show credit for or be concurrently enrolled in Chem 3354: Physical Chemistry II Lecture.

## Important Administrative Dates

**Students should be aware of these dates:**

January 19th (Mon) – Census date, last day to file for grade replacement or make a schedule change.

March 2nd (Wed) – Last day to file for Spring graduation
Graduation checks must be completed prior to this date.

March 9th-13th (Mon-Fri) – Spring Break—The class will not meet.

March 30th (Mon) – Last day to withdraw from courses with a W.
(Note: Failure to officially drop the course will result in a grade of "F".
Students considering dropping should consult with the instructor prior to dropping )

## Course Materials

**Required Textbook:**
There is no required textbook for the course. All instructional material will be posted on the course Canvas site. Students are expected bring the printed laboratory exercise to class with them.

Students should have a Physical Chemistry textbook for reference. The associated Physical Chemistry lecture course is using *Atkins' Physical Chemistry* 11th edition by Atkins, de Paula & Keeler (ISBN: 9780198769866), but any current physical chemistry text is acceptable. Including the free Chem Libre text found here: https://chem.libretexts.org/Bookshelves

**Additional Supplies:**
Students are required to have:

- Laboratory notebook:
  Bound 8 x 10" notebook with cross-lined and removable duplicate pages.
- Splash proof goggles (Must meet ANSI Z87 specifications)
- Scientific calculator
- Lab appropriate clothing
- Access to a computer with word, excel and internet capabilities.

## Grade Calculation

Grades will be tentatively based on a 90/80/70/60 scale, but may be adjusted on my evaluation of the class.

Course grade will be determined by:

| | |
|---|---|
| Lab Reports & Exercises | 75% |
| Lab Practices | 10% |
| Requisitions | 10% |
| Teamwork | 5% |

Generally five to six experiments are assigned during the semester. The instructor reserves the right to adjust this number if conditions warrant the deletion and/or the addition of exercises or reports. There may also be additional exercises.

All assigned experiments must be completed with submitted reports to receive a passing grade.

The lab practice grade includes technique, safety, professional attitude, work ethic, *etc.*

Periodically through the semester recitation or paper assignments will be made during the lab period. These will consist of a variety of exercise such as in depth problems, thought questions, literature searches, short presentations, etc. These are important learning opportunities.

## Safety Notice

Physical Chemistry students have a bad habit of believing that they are advanced chemists no longer needing to follow safety rules. **This is NOT TRUE**. PChem students must recognize that while their increased knowledge allows them to participate in laboratory exercises utilizing a wider array of chemicals, procedures, and equipment, these things carry increased risk and possibility for danger if used careless or incorrectly. Some experiments have potential to cause serious injury if not performed correctly. Students are expected to use safe lab practices and abide by all Departmental safety policies. (See pages 8-11 of this document.) **Safety goggles must be worn in the laboratory anytime glassware or chemicals are in use in the room!!!** Goggles must be splash-proof (indirectly vented) and meet ANSI Z87 criteria.

Lab appropriate clothing should be worn. This includes long pants or skirts and shirts with sleeves. Tank tops, tube tops, shirts with spaghetti straps, strapless shirts, sleeveless shirts and crop tops are all examples of inappropriate clothing. Closed toes shoes which fully encase the foot are also required. Students who come to lab inappropriately attired will be asked to leave.

Students must have a safety contract for the current semester on file with the Department prior to participating in the first laboratory exercise. Please see page 13. The safety contract may be found on the last page of this document.

## Tentative Schedule

**This is a tentative schedule of proposed experiments.** I reserve the right to alter the schedule and/or experiments performed as needed throughout the course of the term.

| Date | Performing | Due |
|---|---|---|
| **15 Jan** | Literature Exercise | --- |
| **22 Jan** | Kinetics | 10 Feb |
| **29 Jan** | Data Workshop | --- |
| **5 Feb** | Diffusion Coefficient of KCl | 19 Feb |
| **12 Feb** | Data Workshop | |
| **19 Feb** | Universal Constants Lab | 10 Mar |
| **26 Feb** | Recitation | **---** |
| **5 Mar** | Atomic Orbitals | 26 Ma r |
| **12 Mar** | **Spring Break** | |
| **19 Mar** | Data Workshop | |
| **26 Mar** | Carbocyanine Dyes | 6 Apr |
| **2 Apr** | Data Workshop | --- |
| **9 Apr** | Vibrational –Rotational Spectra of HCl (by appointment) | 14 Apr |
| **16 Apr** | Data Workshop | |
| **23 Apr** | Attend Seminars | --- |

## Make-up Policy

The nature of the course makes it extremely difficult to accommodate absences. Students are expected to attend each week as your lab group depends on you and the entire group rescheduling that lab is generally not feasible. However, I am aware that dates for visits and interviews with grad schools, professional schools, employers and the like are often out of students' control. I will do my best to accommodate these types of absences if I am informed of them well in advance. If you must miss, please, talk to me before the absence to create a plan. Specific options will depend on the lab session missed.

## Late-Work Policy

Labs reports are accepted up to 48 hours after the due date with no penalty as long as students have communicated the need at least 12 hours before the due date. However, students are strongly encouraged to not to make this a habit. Late lab reports may receive a penalty up to 10% per day.

## Preparation for Lab

Experimental procedures will be posted to Canvas prior to the lab period. Students are responsible for downloading and reading the materials prior to the lab period. See page 7 Course Expectations—Come Prepared for more information about the students' pre-lab responsibilities.


Groups will need to submit a requisition list for each lab to Canvas by noon on Wednesday prior to the lab. The requisition should include all supplies (chemicals, equipment, glassware, ironware and incidentals needed to perform the experiment). Major pieces of equipment (IR, UV-Vis, *etc*) do not need to be requisitioned. Only requisitioned items will be provided. Additional items may be purchased with technique points. Over-requisition (i.e. requesting every possible item) will be assessed a technique penalty as well so be reasonable.

## Course Format

The course is conducted in person. Students usually will work in groups of two to four with the assigned roles alternating between students with each lab. All students are expected to hold each role at least once across the term. Specific sizes of the group will be determined by several factors including the number of students enrolled in the class and equipment availability. Groups may be subject to change throughout the term. Roles will be adjusted accordingly.

Each student will complete an assessment for the group after each report is submitted.

In some instances data may be shared between multiple groups or the entire lab section. Instructions for handling the report will be made during the lab exercise.

**Scout**

1. Identify safety concerns.
2. Complete & submit requisition list.
3. Suggest reasonable division of labor for lab.
4. Lead Introduction & Methods sections of Report.

**Computer**

1. Identify needed data
2. Prepare data collection plan.
3. Lead Calculations for Report.
4. Provide relevant figures, graphs, tables, etc.

**Discusser**

1. Identify important results.
2. Provide results tables.
3. Identify plausible sources of error.
4. Lead Discussion section of Report.

**Closer**

1. Coordinate Group for report writing.
2. Responsible for citations & plagiarism checks.
3. Compile report & edit for coherency
4. Submit report.

## Self Care Reminders


Students are reminded that the spread of most communicable diseases can be reduced by using good health hygiene practices such as covering coughs & sneezes, frequent hand washing, surface cleaning and staying home when ill. Students feeling ill or experiencing symptoms such as excessive sneezing/coughing, digestive issues or fever are encouraged to stay home. Students are further encouraged to maintain a healthy immune system through practicing good self-care including sleeping and eating regularly. College is stressful enough without getting sick!

## Classroom Courtesy


- This is an active classroom where students are encouraged interact with the instructor, teaching assistant and each other extensively. Students are asked to respect each other in their actions and speech. Derogatory remarks and profanity should be avoided. Students should take care to listen to and avoid interrupting or talking over others.
- The use of laptops, tablets, smartphones and is often necessary, but should (for the most part) be limited to uses related to class. Sharing of videos, music, *etc* is acceptable in downtimes so long as students remember the laboratory is a professional environment and content should be appropriate to such a setting. Questionable content should be avoided in class. (Please note this include wallpapers).
- When leaving the room, students are requested to inform the instructor or TA as a courtesy.
- This course includes large amounts of group work. Students are asked to participate appropriately by making every effort to stay on topic and respect time constraints, treating group members with dignity and respect and sharing the workload by neither shirking nor monopolizing. If a group is not working please let the instructor know.
- The laboratory can be an uncomfortable, and/or frustrating place as equipment breaks, procedures are change or experiments do not work. Please make every effort to keep expressions of chagrin, annoyance, aggravation, disgruntlement, dolefulness and exasperation appropriate for work. You are welcome to express such sentiments; just do so without vulgar language or personal attacks.
- **Students are expected to observe safe laboratory practices at all times.** Please see the Laboratory Safety Guidelines at the end of this document. Be advise that students creating a hazard in the laboratory will be asked to leave immediately.


## Academic Integrity

**Honor and integrity will not allow me to lie, cheat, or steal, nor to accept that actions of those who do.**


The value of any academic degree depends upon the integrity of the work done in earning the degree. Academic misconduct includes, but is not limited to cheating, plagiarism, collusion and/or falsification of records (including data). Students are expected to assume full responsibility for the content and integrity of all academic work submitted.

University policy obliges instructors to report cases of academic misconduct to the Dean of Students; it also obligates students to report observed instances of academic dishonesty to the instructor. As upper division students expect an extremely high level of responsibility and academic honesty from my PChem students.

Services such as Chegg, CourseHero, *etc* have contributed to blurring lines between acceptable use for tutoring and academic misconduct. Such services do provide some legitimate value, but care must be taken in using them. It is never appropriate to one of these services to provide lab reports or answers to discussion questions for you. **I never approve the posting of any of my course materials on these sites.**

Students with questions about the appropriateness material should be directed to the instructor before work is submitted. In this way they can be resolved before an academic integrity violation occurs.

# Course Expectations

**Attend Class in Person.**
The course is conducted in person. Making up labs is extremely difficult so please make every effort to attend. Students will work both in dividually and in groups depending on the exercise. Groups may be subject to change throughout the term.

**Students must keep a record of their work in a lab notebook.**
This will be a complete record of all experiments performed. All prelab notes, procedures, data, calculations and observations should be written in either a physical or digital notebook. The data should be submitted to the instructor BEFORE leaving the class.

**Lab reports are required.**
A formal word-processed report is to be prepared and submitted (usually within two weeks) after each experiment unless stated otherwise. Late reports will be penalized with a letter grade (10%) deduction per day unless arrangements have been made with the instructor. Report grades will be based on formatting, completeness, clarity of presentation, experimental results, discussion of results and error, conclusions and understanding of the theory involved in the experiment. More information will be posted on the course Canvas page.

**Proper references are required.**
Reports are expected to include appropriate citations of procedures, reference values, physical constants, diagrams, theoretical backgrounds, data comparison and discussions. These references should be from high quality literature. Wiki references are not acceptable (anyone can edit that stuff!). All information obtained from a source (not from yourself ) must be referenced. ACS is the preferred citation style.

**Come prepared.**
Study the experiment and be familiar with the theory, apparatus, design and procedure before coming to lab. A requisition requesting all equipment and chemicals needed for the experiment must be submitted by noon on the Tuesday preceding the experiment. Quantities & sizes of glassware and volumes/masses of chemicals are mandatory information in the requisition. You will only be supplied with the items and chemicals you requisition.

**Take care of the equipment.**
Much of the equipment used in the laboratory is expensive and or/difficult to replace. Handle all equipment very carefully and leave it clean and in good condition. Report any damage to the instructor as soon as it occurs or is noticed.

**Work appropriately with your peers.**
When working individually, respect other students using the same equipment and supplies by keeping work areas tidy, cleaning equipment after use and equitably sharing equipment as needed. When working in teams actively contribute to the completion of the experiment. Students are encouraged to discuss the experiment outside of class. However, each individual must submit her/her own original lab report unless otherwise directed.

**Work responsibly.**
Conduct only authorized procedures and do so only after thoroughly reviewing the procedures. If you are unsure of how to properly conduct the experiment, seek clarification. Do not leave an active experiment unmonitored. Dispose of chemicals appropriately. Clean up after yourself.

**Do not plagiarize.**
Plagiarism and other forms of cheating will not be tolerated. University regulations are explicit about academic dishonesty and will be enforced. These regulations are contained in *A Student Guide to Conduct and Discipline at UT Tyler,* which may be obtained in the Office of Student Affairs or accessed at http://www.uttyler.edu/**mainsite/conduct.html**.

**Observe the Honor Code.**
In the laboratory, an honor code will apply under which students are to conduct the experiment to honestly collect and record data. Students are also to work alone in writing their laboratory reports and are not to copy material from any source without proper citation. Students are expected to help enforce this code.

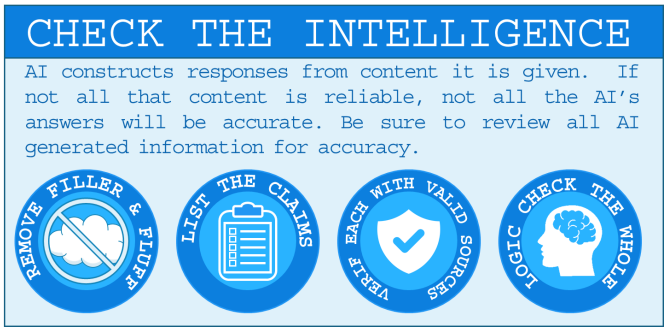
# Artificial Intelligence Policy

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.

Image generated using Canva's Magic Media with the prompt 'student studying using artificial intelligence tools'

**AI is permitted only for specific assignments or situations, and appropriate acknowledgment is required.** Students can use AI platforms to help prepare for assignments and projects. You can use AI tools to revise and edit your work (e.g., identify flaws in reasoning, spot confusing or underdeveloped paragraphs, or correct citations) and generate graphics. However, your ethical responsibilities as a student remain the same. You must follow UT Tyler's Honor Code and uphold the highest standards of academic honesty.

- As with any work not original to the student, appropriate citation is required. The American Chemical Society has not yet updated its style guide to include AI citations so you may use one of the following formats for AI citations: APA Style Citation Information, MLA Style Citation Information, Chicago Style Citation Information
- Be aware that AI tools cannot accurately cite their own sources. References provided by AI tools may themselves be generated—that is they may not actually exist. Always confirm that any sources cited or suggested by AI actually exist and that they contain the information the AI response claims they do.
- References should provide clear and accurate information for each source and should identify where they have been used in your work.
- When submitting work, students must identify any writing, text, mechanisms, derivations, calculations or figures generated by AI. Sections of assignments generated by AI should appear in a different colored font. The relationship between those sections and student contributions should be discussed in the supplemental material section of the lab report when submitted. This should include:
  a) a description of precisely which AI tools were used
  b) an explanation of how the AI tools were used (*e.g.* to generate ideas, elements of text, to clean up/ clarify writing, *etc.*)
  c) an account of why AI tools were used (*e.g.* to save time, to stimulate thinking, to experiment for fun, *etc.*)
  d) the entire exchange (*e.g.*, prompts given, responses received, revised prompts, *etc.*) highlighting the most relevant sections. You may find an extension such as https://aiarchives.org/ useful in saving your AI exchanges.
- Because AI-generate content is not necessarily accurate or appropriate, you must assess the validity and applicability of any submitted AI output. You will not earn full credit if inaccurate, invalid, or inappropriate information is found in your work.
- AI can be a useful to help you and improve your learning if wisely used. It can also be extremely detrimental to learning if used to offload thinking. If you have questions about AI usage, please ask.



## Student Resources

The following are resources available to UT Tyler students. Many of these offices provide additional programming throughout the academic year.

- Office of Student Accessibility and Resources (903.566.7079 or saroffice@uttyler.edu)
  Work collaboratively to create inclusive equal access educational environments.
- Student Counseling Center (www.uttyler.edu/counseling or 903.566.7254)
  Confidential dealing with stress/anxiety, improving study skills, time management, *etc*
- UT Tyler Student Health and Wellness (www.uttyler.edu/student-life/health-wellness/recovery/studentservices/)
  Substance abuse, household violence, community resources, Patriot Pantry, finances, etc.
- Academic Success (www.uttyler.edu/success or 903.565.5964 or tutoring @uttyler.edu)
  Supplemental Instruction (SI), Student Learning Communities (SLC), and the tutoring center.
- The Writing Center (CAS 2nd Floor or www.uttyler.edu/writingcenter)
  Helps you learn how to write better. 903.565.5995 writingcenter@uttyler.edu
- The Mathematics Learning Center, RBN 4021
  Computer Lab with tutors to assist students enrolled in early-career courses.
- Robert Muntz Library (www.uttyler.edu/library) & your Library Liaison, Kristine Duncan ( kduncan@uttyler.edu)
  If you don't know where else to find it ask the Librarian; they have all the answers.

## University Policies

The full list of University policies can be found on the course Canvas page and can be accessed via this weblink: www.uttyler.edu/academicaffairs/syllabuspolicies.pdf

Additional information about specific topics can be found:
Students Rights and Responsibilities - http://www.uttyler.edu/wellness/rightsresponsibilities.php
Campus Carry - http://www.uttyler.edu/about/campus-carry/index.php
UT Tyler a Tobacco-Free University- www.uttyler.edu/tobacco-free.
Grade Replacement/Forgiveness and Census Date Policies - http://www.uttyler.edu/registrar.
Disability/Accessibility Services - https://hood.accessiblelearning.com/UTTyler and http://www.uttyler.edu/disabilityservices

## Some Useful Links

# Laboratory Safety Guidelines

**Purpose**

Chemistry is a hands-on laboratory class. You will be doing many laboratory activities, which require the use of hazardous chemicals. Safety in the chemistry laboratory is the number one priority for students, instructors, and assistants. To ensure a safe chemistry laboratory, a list of rules has been developed and provided to you in this student safety contract. These rules must be followed at all times. The student safety contract and signature page are provided to you and the signature page must be returned to the laboratory instructor before you can participate in the laboratory.

**General Guidelines**

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the instructor before proceeding.
3. Never work alone. No student may work in the laboratory without an instructor present.
4. When first entering a chemistry laboratory, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
5. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for food or beverages.
6. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
7. Be prepared for your work in the laboratory. Read all procedures thoroughly before entering the laboratory. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
8. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the classroom area.
9. Keep aisles clear. Protect personal gear—backpacks, pocketbooks, briefcases, coats, *etc.*—by placing them in the lab drawers or other locations designated by the instructor.
10. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
11. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
12. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
13. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.14. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
15. Keep hands away from face, eyes, mouth and body while using chemicals or preserved specimens. **Wash your hands with soap and water after performing all experiments.**
16. Clean (with detergent), rinse, and wipe dry all work surfaces (including the sink) and apparatus at the end of the experiment. Return all equipment clean and in working order to the proper storage area.

# Laboratory Safety Guidelines

17. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.
18. Students are never permitted in the chemistry storage rooms or preparation areas unless given specific permission by their instructor.
19. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.
20. When using knives and other sharp instruments, always carry with tips and points pointing down and away. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.

**Clothing**

1. Any time chemicals, heat, or glassware are used, students will wear laboratory goggles. **There will be no exceptions to this rule!**
2. Contact lenses should not be worn in the laboratory unless you have permission from your instructor.
3. Dress properly during a laboratory activity. Long hair, dangling jewelry, and loose or baggy clothing are a hazard in the laboratory. Long hair must be tied back and dangling jewelry and loose or baggy clothing must be secured. Shoes must completely cover the foot. No sandals allowed.
4. Lab aprons are available, and you are encouraged to wear them to provide additional protection.

**Accidents and Injuries**

1. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
2. If you or yur lab partner are hurt, immediately obtain the instructor's attention.
3. **If a chemical should splash in your eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 20 minutes. Notify the instructor immediately.**

**Handling Chemicals**

1. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless specifically instructed to do so. The proper technique for smelling chemical fumes will be demonstrated to you.
2. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need.
3. Never return unused chemicals to their original containers.
4. Never use mouth suction to fill a pipet. Use a rubber bulb or pipet pump.
5. When transferring reagents from one container to another, hold the containers away from your body.
6. Acids must be handled with extreme care. You will be shown the proper method for diluting strong acids. Always add acid to water, swirl or stir the solution and be careful of the heat produced, particularly with sulfuric acid.
7. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.
8. Never remove chemicals or other materials from the laboratory area.

9. Take great care when transferring acids and other chemicals from one part of the laboratory to another. Hold them securely and walk carefully.
10. **Solid materials are never allowed in the sinks!**
11. **Never discard liquids in the sinks unless specifically indicated by your instructor!**
12. Pay particular attention to the waste disposal instructions specific to each experiment.

**Handling Glassware and Equipment**

1. Carry glass tubing, especially long pieces, in a vertical position to minimize the likelihood of breakage and injury.
2. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass. Place broken or waste glassware in the designated glass disposal container.
3. Inserting and removing glass tubing from rubber stoppers can be dangerous. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) before attempting to insert it in a stopper. Always protect your hands with towels or cotton gloves when inserting glass tubing into, or removing it from, a rubber stopper. If a piece of glassware becomes "frozen" in a stopper, take it to your instructor for removal.
4. Fill wash bottles only with distilled water and use only as intended, e.g., rinsing glassware and equipment, or adding water to a container.
5. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
6. Examine glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware.
7. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
8. If you do not understand how to use a piece of equipment, ask the instructor for help.
9. Do not place hot glassware in cold water or on cold surfaces; it may shatter.

**Heating Substances**

1. Exercise extreme caution when using a gas burner. Take care that hair, clothing, and hands are a safe distance from the flame at all times. Do not put any substance into the flame unless specifically instructed to do so. Never reach over an exposed flame. Light gas (or alcohol) burners only as instructed by the teacher.
2. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
3. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or anyone else.
4. Heated metals and glass remain very hot for a long time. They should be set aside to cool and picked up with caution. Use tongs or heat-protective gloves if necessary.
5. Never look into a container that is being heated.
6. Do not place hot apparatus directly on the laboratory desk. Always use an insulating pad. Allow plenty of time for hot apparatus to cool before touching it.
7. When bending glass, allow time for the glass to cool before further handling. Hot and cold glassware have the same visual appearance. Determine if an object is hot by bringing the back of your hand close to it prior to grasping it.

# UT-Tyler Department of Chemistry & Biochemistry Safety Contract

**Name:** _____ **Course & Sec.:** Chem 3155-001

**Student ID Number:** _____ **Semester:** Spring 2026

I. Are you color blind? □ YES □ NO

Do you intend to wear contact lenses during lab? □ YES □ NO

I hereby release the Department of Chemistry & Biochemistry at The University of Texas at Tyler and its agents from any responsibility for any injury to my person or damage to my contact lenses as a result of wearing contact lenses in the laboratory. I understand and agree to these special regulations.

Student Initials: _____

II. List any specific allergies (if none, enter NONE):

_____

_____

List any other medical conditions about which your instructor might need to inform emergency service personnel.

_____

Student Initials: _____

**Agreement**

I have read and agree to follow all of the safety rules set forth in this contract. I have viewed the *Laboratory Safety Training for Students* presentation and have achieved a score of 80% or better on the *Student Lab Safety Test*. I realize that I must obey these rules to ensure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being expelled from the laboratory, receiving a failing grade, and/or dismissal from the course.

Student Lab Safety Test Score _____ Date: _____

Student Signature: _____ Date: _____