FLORIDA POLYTECHNIC UNIVERSITY

Syllabus: CHM 2045L Chemistry 1 Laboratory

Spring 2026

Welcome to Chemistry 1 Lab! Chemistry is a critical and foundational course for all degree programs at Florida Poly. In this course, you will learn fundamental laboratory techniques, problem-solving skills and applications that help explain the world as we know it. Chemistry 1 lab introduces laboratory safety, glassware and uncertainty, titrations, as well as many other important topics. The course is designed to be fair but challenging.

Success in chemistry lab requires regular attendance and a consistent work ethic. Taking a serious and professional approach to attending and safely completing all laboratory experiments is the best way to ensure you meet the learning outcomes for the course. Be familiar with the academic policies outlined in this syllabus and see your instructor with any questions or concerns.

Course Information

- **Course Number and Title**: CHM 2045L Chemistry 1 Laboratory
- **Credit Hours:** 1 credit hours

Instructor Information

- **Instructor:** Dr. Tracy Olin
- **Email:** tolin@floridapoly.edu
- **Office Location:** BARC 2262
- **Office Hours**: In-person MF 10:00 am – 11:00 am and W 12:00 pm -1:00 pm or by appointment

Course Delivery and Course Description

- **Delivery Mode**: This course will be held face-to-face (in-person) at the rooms, days and times given below.

  Section 2: BARC 2207, Tuesday 1:00 pm – 2:50 pm (Dr. Olin)
  Section 3: BARC 2209, Tuesday 10:00 am – 11:50 am (Dr. Martin)
  Section 4: BARC 2207, Wednesday 1:00 pm – 2:50 am (Dr. Olin)
  Section 5: BARC 2207, Friday 3:00 pm – 4:50 pm (Dr. Sista)
  Section 6: BARC 2207, Thursday 8:00 am – 8:50 am (Dr. Sista)
  Section 7: BARC 2209, Tuesday 1:00 pm – 2:50 pm (Dr. Martin)
  Section 8: BARC 2209, Wednesday 1:00 pm – 2:50 pm (Dr. Martin)
  Section 9: BARC 2207, Wednesday 10:00 pm – 11:50 pm (Dr. Kaushik)
  Section 10: BARC 2209, Wednesday 10:00 am – 11:50 am (Dr. Martin)
  Section 11: BARC 2209, Friday 1:00 pm – 2:50 pm (Dr. Olin)
  Section 12: BARC 2207, Friday 8:00 am – 9:50 am (Dr. Martin)

Official Catalog Course Description: Students will participate in laboratory experiments designed to reflect the topics presented in CHM 2045.
Gordon Rule (6A-10.030): Yes: This course meets communication/writing-intensive requirements (W)

Co-Requisite: CHM 2045 – Chemistry 1

Required Equipment and Material:

- Safety goggles and a lab coat (you can purchase these through the bookstore or via the links provided on the course Canvas site).
- Access to the experiment files on Canvas and a printer.
    - Each week you must print the procedure pages and datasheets for the correct experiment from the Canvas and bring them to lab. You may use a laptop or tablet for data collection in the lab but be aware that they are subject to the conditions of the chemistry lab, which tend to not non-ideal for electronics.
    - Please note that you must collect all data on the printed datasheets that are in the experiment file on Canvas. **Using scratch paper or notebook paper will not be accepted.**
    - All pre-lab, data and post-lab pages will be uploaded to Canvas for grading. You will need to upload them as a pdf file. If you are unsure how to convert photo files to pdf, please see Canvas for suggested tutorials.
- Chemistry requires a Texas Instruments TI-30 series calculator (or a very similar-must be approved by instructor). No other type of calculator is allowed on exams. It is also strongly recommended that you bring it to every lab period, as there may be in-class work that requires the use of a calculator.
- Access to the University Email System

Communication: Florida Polytechnic University email is the official method of communication for the University. Students are required to check their email frequently. The subject of your emails must start with "CHM 2045L Section X" followed by the topic. Failure to provide the correct subject will result in ignoring the email. Any email received from an address other than the one with the floridapoly.edu domain will not be replied to. Emails will typically be answered within 24-48 hours, Monday-Friday.

Course Objectives and Outcomes

- **Course Objective: To build a solid foundation of chemistry laboratory safety and techniques that can also be applied to other STEM courses, as well as upper-level chemistry courses.**

- **Course Learning Outcomes:**
    - **Utilize** scientific equipment and glassware safely and accurately.
    - **Make, record,** and **report** experimental observations.
    - **Create** and **analyze** Excel-based graphs of experimental data.
    - **Observe** and **interpret** chemical reactions.
    - Effectively **communicate** experimental information in a scientific writing style.

- **Alignment with Program Outcomes: Program Learning Outcomes and General Education Competencies may be found in the Academic Catalog (http://catalog.floridapoly.edu/).**

Course Learning Outcome	Learning Level	Program Learning Outcome (ABET)
Apply chemical laws and quantitative relationships to solve problems.	Apply, Analyze; Execute; Implement Predicting Compare and contrast	**(1)** Identify, formulate, and solve complex engineering problems using principles of engineering, science, and mathematics.
Explain and **predict** chemical behavior using atomic and molecular theories.	Understand; Interpret; Compare	**(1)** Identify, formulate, and solve complex engineering problems using principles of engineering, science, and mathematics.
Interpret and **connect** lecture concepts to laboratory experimentation and data analysis.	Apply; Evaluate; Integrate	**(6)** Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
Communicate chemical reasoning clearly and effectively.	Understand; Create; Explain; Compose	**(3)** Communicate effectively with a range of audiences.
Acquire and **apply** new chemical knowledge using appropriate learning strategies.	Understand; Apply; Reflect	**(7)** Acquire and apply new knowledge as needed, using appropriate learning strategies.

Schedule of Experiments – Tentative

Week	Title of Experiment	Lab # in Canvas	Assignment (due before the beginning of lab)
Week 1 1/12 – 1/16	Syllabus and check-in		*Get access to the online lab materials and lab coat and goggles
Week 2 1/20 – 1/23	Mandatory Safety Training and Online Quiz	Exp 0	-**Complete** the online Safety Training and Safety Quiz prior to the start of lab on Lab 3 *****Students may not work in the laboratory until they have viewed the Lab Safety video and passed (≥80%) the Safety Quiz*****
Week 3 1/26 – 1/30	Volumetric Glassware and Uncertainty	Exp 1	-Bring the Signed copy of the Lab Safety agreement and submit it in person (hard copy) before the start of your lab period -Submit the pre-lab for the Glassware and uncertainty experiment before the start of your lab period
Week 4 2/2 – 2/6	Density of Solids and Liquids	Exp 2	-Submit Data/post-lab for Glassware and uncertainty experiment before the start of your lab period -Submit the pre-lab for Density experiment before the start of your lab period
Week 5 2/9 – 2/13	**No Labs this Week (2/10 is Career Day)**		
Week 6 2/16 – 2/20	Chemical Nomenclature	Exp 3	-Submit Data/post-lab for the density experiment before the start of your lab period -Submit the pre-lab for Chemical Nomenclature experiment before the start of your lab period
Week 7 2/23 – 2/27	Limiting Reactant and Percent Yield	Exp 4	-Submit Data/post-lab for the chemical nomenclature experiment before the start of your lab period -Submit the pre-lab for Limiting Reactant and Theoretical Yield experiment before the start of your lab period
Week 8 3/2 – 3/6	Preparing Stock Solution and Making Dilutions	Exp 5	-Submit Data/post-lab for the limiting reactant experiment before the start of your lab period -Submit the pre-lab for Preparing Stock Solution and Dilution experiment before the start of your lab period
Week 9 3/9 – 3/13	Solubility and Reactions in Aq. Solutions	Exp 6	-Submit Data/post-lab Limiting Reactant and Theoretical Yield experiment before the start of your lab period -Submit the pre-lab Reactions & Solubility experiment before the start of your lab period
Week 10 3/16 – 3/20	**Spring Break Week – No Classes**		
Week 11 3/23 – 3/27	Acid-Base Titrations	Exp 7	-Submit Data/post-lab for Reactions & Solubility experiment before the start of your lab period -Submit the pre-lab for the Acid-Base Titration experiment before the start of your lab period
Week 12 3/30 – 4/3	Molar Volume of CO_2	Exp 8	-Submit Data/post-lab for Titration experiment before the start of your lab period -Submit the pre-lab for the Determination of Molar Mass experiment before the start of your lab period
Week 13 4/6 – 4/10	Calorimetry and Hess's Law	Exp 9	-Submit Data/post-lab for Determination of Molar Mass experiment before the start of your lab period -Submit the pre-lab for the Calorimetry experiment before the start of your lab period

Week 14 4/13 – 4/17	VSEPR Theory	Exp 10	- Submit Data/post-lab the Calorimetry experiment before the start of your lab period -Submit the pre-lab for VSEPR experiment before the start of your lab period
Week 15 4/20 – 4/24	Lab Final Quiz		-Submit Data/post-lab for VSEPR experiment before the start of your lab period
Week 16 4/27	**NO LABS THIS WEEK**		

Course Policies

Please Note: Changes in this syllabus, assignments, exams dates, etc. may be modified as deemed appropriate. All changes will be announced in class and/or in Canvas Announcements.

Late Work/Make-up work

Pre-lab assignment submissions that are after the start of the lab period are considered late. The purpose of a pre-lab assignment is to make sure you have read over the procedure and can safely and effectively complete the experiment. For this reason, if they are submitted late, significant points will be deducted. If they are submitted within 24 hours, 30% of the total grade may be awarded (e.g. you could get a maximum of 3/10 on that pre-lab assignment). After a prelab is more than 24 hours late, no credit will be given.

Lab Data and Post-lab assignments submissions that are after the start of the lab period are considered late. They will have a 10% grade penalty per meeting day they are late (e.g., If your assignment is 4 meeting days late, the maximum you can earn is 60% for that lab assignment). Anything submitted after the start of the lab period when they were due is considered a meeting day late. After four meeting days have passed, a score of zero will be given for the respective lab due to non-submission.

All assignments MUST BE SUBMITTED for grading PRIOR to the scheduled day/time for the final exam/quiz.

Make-up work may be given for excused absences and will be dealt with on a case-by-case basis.
If you miss a lab day because you are participating in a college-sponsored activity, inform your instructor before the day to be missed and provide them with documentation.

Participation

Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for authorized accommodations). In addition, students who routinely do not bring materials to class that are required for participation will not be given credit for class attendance and participation, and if this becomes a pattern of behavior, may be asked to leave the class for the day. Persistent problems with participation may result in a code of conduct referral.

Grading Scale

Grade	A	B+	B	B-	C+	C	D	F
Percentage	90%	87%	83%	80%	77%	70%	60%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

Grades on Canvas

- **Grades will be posted to Canvas for reference only, and students should make sure they are recorded correctly. However, there is no guarantee that the percentages or projected grades provided in Canvas are correct. The instructor will calculate final percentages and will determine final grades regardless of Canvas calculations.**
- **If you wish to dispute a score for an assignment or exam, you must describe the nature of the dispute in writing and communicate it through an email no later than one week after the due date/posting the scores of the assignment or the exam. Scores outside of this window will be considered final.**

Assignment/Evaluation Methods

Assignment/Evaluation Methods:

Attendance	5%
Lab Experiments (Best 9 of 10, 9% each)	81%
Final Exam	14%
Total	100%

- **Attendance:** Students in face-to-face courses are expected to attend all of their scheduled University classes and to satisfy all academic objectives.
    - Laboratory meets only 12 times in a semester. Make it a priority to be present for all lab periods. The point of the laboratory is for you to learn how to perform measurements and observations using standard chemistry apparatus and instrumentation. The laboratory is the only place where you can learn this. As such, attendance in the laboratory is mandatory and will count towards part of your overall grade.
    - **Attendance will be taken at the beginning of each class period by the instructor. It is the student's responsibility to be present when roll call is taken, within the first 10 minutes of lab.**
    - **Please be sure to be on time to EVERY CLASS PERIOD. You will lose part of the 5% attendance grade for each unexcused absence.**
    - Important safety information may be covered in the first 5-10 minutes of each lab period. For that reason, if students come after the start time of lab, more than 10 minutes late, they will not be permitted to perform that weeks lab and will be counted as absent.
    - Note: Falsifying attendance for yourself or for another student is an act of academic dishonesty and is considered a violation of the university's academic integrity policy.
    - Exceptions to any attendance requirements may be made on a case-by-case basis.

- **Final Exam**: You are required to take the final exam in order to pass the class. It will be during the last week of lab (see schedule for dates). It is taken on Canvas, and will be open during your scheduled lab time. You will have 60 minutes to complete the exam in the time period it is open. More information will be given out a week prior to the final exam.

Lab Experiment Handouts: <u>All experiment procedures and assignments will be accessed and submitted on Canvas</u>.

- **Students will work in pairs for all lab experiments. Be sure to write you lab partners name at the top of your handout pages.**
- **Students should make every attempt to keep the same lab partner for the entire semester. If there is an issue, please speak with your instructor.**
- **The experimental handouts are posted on Canvas. In the experiment file there are the following sections: background, procedure, pre-lab and post-lab. You will need to print these out prior to coming to lab each week (or have them accessible on a tablet that you feel comfortable bringing to the lab).**
- **Students are expected to complete Pre-lab and Post-lab assignments for each experiment, which are included in each experiment handout on Canvas. These assignments should be treated as individual assignments representing your own work. In other words, your data may be from the same set or "identical", however, the way you summarize or explain concepts in your post-lab exercises cannot be the same or identical, as it is considered unethical. Any violation of the University's Academic Integrity policy may result in a failing grade for the course and dismissal from the University.**
- **The pre- and post-lab assignments need to be uploaded prior to their due date and time under the respective assignment on Canvas.**

<u>BEFORE COMING TO LAB</u>:

- **Refer to the class schedule to ensure that you are preparing for the correct experiment. Thoroughly read the experimental discussion and procedure.**
- **Make certain you have proper lab attire. If you show up with improper lab attire, you will have to leave the lab, and will be given an unexcused absence.**
- **Be sure to come ON TIME. After 5 minutes past the start time of the lab, you will not be permitted to complete that days experiment.**

Complete the Pre-lab Assignment:

- **Pre-lab Assignments require a basic understanding of the chemical principles being observed in each experiment. Answering these questions requires you to read the background material provided in the first pages of the experiment. Additionally, it may be helpful to read relevant material in your lecture textbook or outside sources.**
    - The pre-Lab ASSIGNMENT for the experiment is due before the beginning of the lab period for that experiment (canvas assignment)
    - Full name, date and section number must be written clearly.
    - All work of the pre-lab should be clear, presentable, and handwritten in ink.
    - <u>All calculations must be written in the spaces provided and answers reported to the correct number of significant figures. Your work must be clearly shown to receive full credit for the answers.</u>
- **The pre-lab portion of the lab handout contains a space to write the purpose of the experiment, and a few questions that you must answer to make sure you have thoroughly read over the procedure.**

- **The purpose section is to be written in your own words and not copied from the procedure or any online source. It should be a few sentences explaining why you are doing the experiment (what the goal is) and how it will be accomplished. Do not use first person when writing scientifically.**
    - You must upload the Pre-lab work to the respective assignment in canvas before the start of your lab period. Anything submitted after the start of the lab period is considered late and will be graded accordingly (see Late Work section).

DURING THE LAB CLASS:

Experimental work and Data collection:

- A pre-lab discussion (if needed) is provided at the beginning of the lab period, which includes any changes or modifications in the lab procedure, special safety instructions, and tips which may make your experiment run more smoothly. Please be on time.
- Record the unknown number (if applicable), begin the experiment, recording all the data IN INK in your data pages from the lab manual or handout using correct units, proper significant digits, etc.
- Full name, date and section number must be written clearly on the data pages.
- All data must be recorded in ink (no pencils or correcting tape). Data recorded in pencil and/or with correction tape will not be graded and you will not receive any points for the data page.
- Do not write data on a separate sheet of paper. Scrap paper is not acceptable for recorded data.
- Have you instructor sign the signature box on your data sheets before leaving the lab. This verifies the data you collected and you will lose points if your data is not signed.

AFTER THE EXPERIMENT IS COMPLETED:

Data and Calculations:

- A sample calculation should be shown for each type of calculation performed in the experiment. Calculations may be shown on the Data Page if there is space available or on a separate sheet of paper. All measurements must include units and be clearly labeled.
- All calculations must be done with detailed work in ink (no pencils or correcting tape) and the answers must be reported with proper significant digits.
- Submit the data pages for that experiment showing all data and detailed calculations, etc. to the respective assignment in canvas by the due date (typically the next lab period).

Post-Lab Questions and Conclusion:

- The post-lab section of the lab handout contains calculations and questions that pertain to the experiment, as well as a conclusions sections for you to discuss the outcome of the experiment.
- This assignment will be due before the start of the next lab period after the experiment is completed (see schedule for all due dates) and will need to be uploaded to the correct assignment on Canvas.
- All work of the post-lab should be clear, presentable, and handwritten in ink.
- All calculations must be written in the spaces provided and answers reported to the correct number of significant figures. Your work must be clearly shown to receive full credit for the answers.
- **The conclusions section is to be written in your own words and not copied from your lab**

partner. This portion of the handout is where you write a conclusion about your experiment. In a paragraph or so, you want to state any values that you found, any correlations or comparison to known values, identify an unknown, discuss any errors, etc. Also, complete any necessary calculations and answer all post-lab questions asked

- **You must upload the signed Data Sheets and Post-lab work to the respective assignment in canvas before the start of the lab period it is due. See schedule for all due dates. Anything submitted after the start of the lab period is considered late and will be graded accordingly (see Late Work section).**

General rubric for Lab Experiment Grades: (specific rubrics for each experiment is on Canvas)

Pre-Lab	10 points
Data collected/calculations/graphs etc. Post-lab assignments questions answered with full work Participation/following lab rules	90 points
Total:	**100 points**

PLEASE NOTE: points may be redistributed between the data, and post lab sections based on the work involved.

Lab Coats and Goggles

The detailed safety rules will be discussed during the first lab periods. The safety protocol must be followed at all times in the lab. If students are not following the safety policies, they will not be permitted in the lab and will thus receive a zero for that lab experiment. The Lab coat and goggle policy can be found on the Canvas course page. Please be sure to read over it, understand it, and ask your instructor any questions you may have.

Safety Rules:

1. Food and drinks are not allowed into the lab at any time.
2. Dress Code: Required
   - Closed Toes Shoes
   - Long pants/skirts
   - Shirts or tops should have sleeves and should cover the torso.
   - Long hair tied back.
3. Safety Goggles: You must wear goggles over your eyes, not on your forehead or around your neck. You will lose 1 point from your laboratory work each time the instructor needs to remind you to put on the safety goggles.

**More information on safety will be covered in the lab experiment 0.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and

register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal, and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edy/disability.

Accommodations for Religious Observances, Practices and Beliefs
The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX
Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity
Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

Recording Lectures
Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is* ***prohibited****.*

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses,

upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).

  - **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.

- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing center.