

CHEMISTRY 117
General Chemistry for Engineering Students Lab
Fall 2017

Laboratory Coordinators: Dr. Edward Lee, EDLEE@tamu.edu, HELD 412
Dr. Ryan Bethel, rbethel@chem.tamu.edu, HELD 412

TA: _____

Section: _____

TA Office Hours in HELD 406: _____

Laboratory Room: _____

TA Email: _____

IA Email: chem117@chem.tamu.edu

Course Requisites and Course Dropping Rules:

- Chemistry 117 is a one-credit laboratory course designed for students who are now or have already been enrolled in Chemistry 107.
- For a student taking Chemistry 107 and 117 at the same time, if they elect to drop either the lecture or lab course during the semester, then both courses must be dropped. Student Rule 1.16.4 includes the statement: "If lecture and companion labs are dropped at the same time, this will count as one Q-drop rather than two."
- After the 50th class day until the Q-drop deadline, students who have demonstrated **active participation** in both lecture and laboratory classes until that time may elect to drop either the lab or lecture course and maintain enrollment in the companion course.

Required Materials:

- Chemistry 117 Lab Manual, Fifth Edition. Department of Chemistry, Texas A&M University, Hayden-McNeil Publishing, 2017, ISBN 978-073809294-2
- Student account for Sapling Learning. Instructions for creating your account are on eCampus. *This account requires an additional cost be paid by the student.*
- Nonprogrammable scientific calculator
- Approved eye protection: Chemical splash goggles (fully enclosing goggles with four indirect vents). These are the **ONLY** approved form of eye protection. **No other goggles will be allowed.**

Learning Outcomes: Experiments in this course will demonstrate fundamental chemical principles taught in the CHEM 107 lecture course and introduce students to modern topics in chemistry. This laboratory course is also designed to emphasize data analysis and comparisons between observed data and theoretical models.

Lab Safety:

- Student safety is a top priority in the Texas A&M Department of Chemistry.
- Protective eyewear, appropriate clothing and shoes that completely cover your feet must be worn at all times in the laboratory. Appropriate clothing includes pants or long skirts which come all the way down to the ankles so that no parts of the legs or feet are exposed and a shirt or top with sleeves.
- All CHEM 117 students accept a Lab Safety Acknowledgement (LSA) in Howdy upon registration.
- Furthermore, students must view a safety video and pass a safety quiz given during the first class meeting.
- **Any student who does not view the safety video and pass the safety quiz will not be permitted to continue in CHEM 117.**
- The safety guidelines associated with individual experiments are explained in the lab manual and will be presented at the beginning of each experiment.
- Prelab quiz questions regarding safety aspects specific to each experiment should be expected.

- Failure to adhere to any safety regulation while in the laboratory will result in a reduced performance score and/or expulsion from the laboratory.
- Eating, drinking, and smoking are prohibited in the lab at all times. Chewing gum or tobacco is also prohibited.
- Long hair must be held in place to the back of your head. You are responsible for bringing the bands or clips to hold back your hair.
- If you do not comply with the attire rules, you will be asked to leave the lab to get appropriate clothing. If you do not make it back to complete the lab, you will receive a zero for that particular lab.
- All personal belongings must be placed in the back of the room and any food/drink should be inside a backpack.

Further details on appropriate lab attire and other safety regulations are provided in the lab manual and will be explained during the first class meeting. If you are pregnant or become pregnant during this semester, it is important to speak to a Lab Coordinator so that safety concerns can be discussed.

Accidents and Other Incidents: Any illness or injury incurred in the laboratory must be brought to the attention of your Teaching Assistant or Laboratory Coordinator. In the event of serious injury, 9-1-1 will be contacted by the Lab Coordinator or Instructor and the situation will be assessed by the responding EMT team. Because students are not eligible for workers compensation, the cost of any care not provided by the Beutel Health Center must be covered by the student's personal health insurance plan.

Personal Electronic Devices: Cell phones, pagers and other personal electronic devices are **NOT** permitted in lab. If you leave them out or continue to use them after being told not to, you will be asked to leave the lab and you will receive a zero for the missed lab.

Questions: If you have any questions regarding the laboratory course or specific experiments, e-mail your TA or go to the help desk in HELD 406. General questions regarding lost and found or other non-technical issues can be sent to chemfyp@chem.tamu.edu.

Communication and Conduct: All electronic communication with your TA, IA, the FYP office, and the Laboratory Coordinator must be conducted from a **tamu email account**. Emails sent to university email addresses are a permanent document of communication. Therefore, be sure that your emails are polite, professional and well-prepared before you send them. All emails should include the student's first and last name, UIN, and the course and section number. Students are responsible for checking their **tamu email** on a regular basis to receive messages regarding the laboratory course. Inappropriate language and/or disruptive behavior can result in loss of credit at the discretion of the TA, IA or Laboratory Coordinator and/or reported to the Student Conduct Office.

Copyright Notice: All handouts used in this course are copyrighted and may not be copied without the expressly granted permission of the First Year Chemistry Program Office. The term "handouts," means all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, problem sets or other materials. Tutors and tutoring services are expressly forbidden from copying any or all of these materials.

eCampus: All of your grades for the course will be posted on the eCampus page for the course, which can be accessed via: ecampus.tamu.edu. All supplemental information and/or handouts for experiments not included in your lab manual will be posted on eCampus. Furthermore, all Sapling assignments and prelab quizzes can be accessed through eCampus. For more information regarding these assessments, see the prelab quizzes and electronic assignments sections under **Laboratory Assignments**.

Absences and Make-up Labs:

- All students with University-approved excused absences, as defined by Student Rule 7 (see <http://student-rules.tamu.edu/rule07>), will be allowed to make up missed laboratory work. Any acute illness lasting less than three days requires a doctor's note as outlined in the student rule 7.1.6.2.b. Other forms of documentation for acute illnesses will not be accepted (ie. TAMU Explanatory Statement for Absence from Class form). In cases where advanced notice of an approved absence cannot be given, students must contact the FYP office or the lab coordinator **by the end of the second working day after the end of the absence.**
- All excused absences from lab and make-up lab requests must be reported to and processed by the First Year Program office in HELD 412. Your TA **does not** have the authority to approve a request for a make-up lab or to schedule a make-up experiment.
- An absence for a non-acute medical service (**such as a routine doctor's appointment**) does not constitute an excused absence.
- **Missing lab for not having goggles or other required safety attire is not an excused absence.** We are under no obligation to allow make-up opportunities for unexcused absences.
- **Please note:** The FYP office in HELD 412 is open from 7:45-5:00 Monday-Friday.

Assignment Due Dates and Late Policy:

- All assignments (DRA sheets or other written assignments) will be due at the beginning of each lab meeting.
- A three point deduction **per day beginning on the due date** will be applied to any late assignments. For **EXCUSED ABSENCES ONLY**, the three point deduction will begin at the end of the working day after the end of the absence.
- Assignments submitted more than one week after the due date will not be graded.

Switching Sections: Once you have registered for a laboratory section, you are **NOT** at any time allowed to switch sections later in the semester unless we have proof that you need special accommodations. You have to notify the First Year Program office in HELD 412 **before** the conflict occurs so that we can make arrangements. **Conflicts between common exam times and regularly scheduled lab courses must be accommodated by the course administering the exam.**

Punctuality: Arrive to lab on time. Lab sessions begin with important information concerning the procedures to be followed and safety considerations. If you arrive late, it is at the TA's discretion as to whether you can stay for that lab session as you may not be able to properly follow the procedures and the safety instructions discussed prior to your arrival.

Academic Integrity: The Aggie honor code states that "An Aggie does not lie, cheat, or steal or tolerate those who do." Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or processes of the Honor System. For additional information visit: <http://aggiehonor.tamu.edu/>

Even though laboratory data is collected in pairs all submitted work must be completed individually. Each student has to turn in their own pre-lab, post-lab and data sheets. Copying entire or portions of prelab, post-lab and data sheets instead of turning in your own original work is considered cheating. Allowing others to view your work is also cheating. Changing experimental data after leaving lab, making up or borrowing data that you did not obtain in class is also a violation of the honor code. All students found to be in violation of the honor code will be given a grade of 0 for the assignment and a report of the violation will be filed with the Aggie Honor System Office. If any two DRAs or reports are alike in their entirety or in part, it is considered cheating. Turning in a post-lab and data sheets for a lab you did not complete is also considered cheating.

Disabilities: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

Students wishing to receive accommodations for disabilities for CHEM 117 must submit the appropriate paperwork **to the FYP office in HELD 412**. We are not responsible for providing any accommodations until after the appropriate paperwork has been submitted to the office.

Laboratory Assignments: Assignments associated with ten laboratory experiments and two online assignments comprise the majority of the CHEM 117 course grade. The points for each experiment are divided into as many as four categories, including: quizzes, performance and safety, data reduction and analysis, and reports. The other grade component in CHEM 117 is the final exam. A brief description of each of the course components is given below. A schedule of experiments and a point breakdown for all assignments is listed in the schedule found on the last page of this syllabus.

1. *Prelab Quizzes:* A prelab quiz will be administered for each experiment, or portion of an experiment for multi-week projects, in the course. All of the quizzes for the course are electronic, and will be administered through the course page on Sapling Learning. The prelab quiz for each experiment will be due *prior to the beginning of the class meeting* in which the experiment is scheduled to be performed.

Please Note:

- **Prelab quizzes will not be subject to extensions and there will be no opportunities to make up missed quizzes.**
- Although use of the laboratory manual and other printed or electronic resources cannot be restricted, **you are required to complete the quizzes individually.**
- Students should also be aware that successful completion of the quizzes will require adequate preparation.
- If you experience a technical issue with a Sapling assignment, contact the Sapling Support Team (support@saplinglearning.com) immediately. **Technical difficulties will not be considered an excuse for non-completion**, so we encourage you to begin and complete the assignment well before the deadline.
- **No time extension will be granted due to loss of connection or computer failure. The only exception would be a system-wide outage.**
- All prelab quizzes for the next week will be made available after 7:00 PM the day your lab section meets. Furthermore, as this is graded course work, all rules and policies regarding the Aggie Honor Code apply to this assessment.

The prelab quizzes are designed to test a student's preparedness for the upcoming experiment **and** his/her understanding of basic chemical concepts relevant to each experiment. Quiz questions may cover but are not limited to the following topics: basic calculations; experimental aim; ecological/environmental issues; analytical techniques; basic chemical concepts; experimental procedure; data manipulation, and equipment and reagents. At least one general safety question will be included in each quiz.

2. *Safety and Performance (S&P):*

- The safety and performance grade includes adhering to safety guidelines (including wearing appropriate goggles and attire), maintaining a clean workspace, and being organized and prepared for the day's activities.
- Safety violations will result in lost points and can lead to dismissal from the laboratory. The performance form asks whether each student a) wore goggles throughout the entire exercise; b) was appropriately dressed; c) maintained a clean environment; d) was prepared; and e) followed directions.
- **Each violation costs the student 3 points (making negative scores possible). The TAs must strictly follow the rules and are not allowed to exercise discretion in any of these criteria.**
- Students will be allowed to borrow goggles from the stockroom (HELD 402), but it will cost 5 points on the safety and performance grade for that experiment. *Students must bring their TAMU ID to the stockroom to be able to check out goggles.* Goggles are the only component of safety attire that can be borrowed from the stockroom.

3. *Data Reduction and Analysis (DRA):* The laboratory manual provides a series of directions, calculations and questions after each experiment. These exercises are designed to guide students through the analysis of their experimental data. The data reduction and analysis assignment is due at the beginning of the following lab period. All calculations and questions will be completed on a worksheet found in the lab manual. Any plots or data tables should be completed using an electronic software package such as Microsoft Excel. Paper copies of all tables and plots should be attached to the data reduction and analysis worksheet. A hand-written sample calculation must accompany any calculations performed with electronic spreadsheets.

4. *Reports:* A full (typed) report will be required for one of the experiments in this course. This experiment is indicated in the course schedule on the last page of the syllabus, and the topics to include are provided in the lab manual. Both physical (to TA) and electronic submission (eCampus) of this report will be required to receive credit. Additional guidelines for lab reports are provided on *eCampus*. As with other assignments, lab reports are due at the beginning of the next lab meeting.

5. *Online Assignments:* During the semester, you will complete 2 online assignments on Sapling Learning, available through eCampus and at www.saplinglearning.com. These assignments consist of two parts: a tutorial and a set of questions. The tutorial is designed to help you learn the key concepts in the exercise. The questions will test your understanding of and ability to apply those concepts.

Each assignment will be open for a two week period; the dates are given at the end of this syllabus. **These assignments will not be subject to extensions and there will be no opportunities to make up missed online assignments.** If you experience a technical issue with a Sapling assignment, contact the Sapling (support@saplinglearning.com) immediately. **Technical difficulties will not be considered an excuse for non-completion,** so we encourage you to begin and complete the assignment well before the deadline.

These exercises are to be completed independently; all rules and policies regarding the Aggie Honor Code apply to these assignments.

6. *Exams:* A final exam is given in CHEM 117. The exam may include multiple-choice, true/false and free-response questions. This exam will be administered in lab during your regular lab time the week of November 27.

There are no opportunities to earn “extra credit” in CHEM 117.

Determination of Final Grades:

- Student scores from the assignments described above will be summed and grades will be determined using grade dividing lines (cutoffs) that will vary to some extent from section to section.
- The grade cutoffs will be determined after consultation between your Teaching Assistant and the Laboratory Coordinator. In each laboratory section then, grading will be ‘on the curve’, and while ‘the curves’ will be similar in different sections, they will not be identical.
- Overall section grade averages will be allowed to vary somewhat since every group of students is different, but the Laboratory Coordinator’s policy will attempt to compensate as much as possible for differences in the grading habits of TAs.
- Grade cutoffs are not determined by any adherence to a 90/80/70/60 rule – students need to be aware that *such a rule is not applied*.
- In many cases, the cutoffs will be lower than these numbers, but it is also possible that they will be higher than these numbers.
- **Please refrain from contacting your TA, IA, the FYP office or the lab coordinator with specific questions regarding the final curve in this course; these questions cannot and WILL NOT be answered.**

Final grade assignments will not be released to students by the TAs or the FYP office. Students will learn their final grades in the course after they are released by the University.

Disclaimer: Any communications or handouts from your IA, the FYP office or Lab Coordinator take precedence over the contents of this syllabus.

Schedule for Chemistry 117 Fall 2017

Week of	Assignment	*Last Day for Make-up Lab	Points	Quiz	S & P	DRA	Report	Total
				15	10	40	50	
9/4	Safety	**	20					
9/4	Sapling Activity: Significant Figures		50	Assignment available: 9/4 Due: 9/18 at 10 PM, all sections				
9/11	Exp. 1: Conservation Laws	9/21	65					
9/18***	Sapling Activity: Propagation of Errors		50	Assignment available: 9/18 Due: 10/2 at 10 PM, all sections				
9/18	Exp. 2: Aqueous Solutions	9/28	65					
9/25	Exp. 3: Gas Laws	10/5	65					
10/2	Exp. 4: Beer's Law	10/12	65					
10/9	Exp. 5: Nanoparticles	10/19	75					
10/16	Exp. 7: From Atoms to Molecules (Dry Lab)	10/26	65		Worksheet (50)			
10/23	Exp. 9: Intermolecular Forces	11/2	65					
10/30	Exp. 10: Calorimetry	11/9	65					
11/6	Exp. 12: Kinetics of the Iodine Clock	11/16	65					
11/13	Exp. 13: Chemical Equilibrium	11/20	65					
11/27	Final Lab Exam		150	During your regular lab time				
	Total		930					

* Students must report to the FYP office in HELD 412 within two days after the end of an absence to schedule a make-up lab; requests may not be accepted after **3:00 pm on the date indicated**.

** Students who miss the safety orientation must make this up BEFORE their next lab meeting.

*** Class time will not be given for the completion of this assignment.