Syllabus and Course Information for

Chemistry for Engineers
CHEM 1465-002
Spring 2016

Text & Required Material

Chemistry for Engineering Students 2nd Ed., Brown & Holme
MasteringChemistry
i<clicker

Place

002 – University Hall 116

Time

Tuesday & Thursday 2:00 pm – 3:20 pm

Instructor Information

Dr. Jennifer Rhinehart
Science Hall 300 E
(817) 272-1091
rhineh@uta.edu
(Please include "CHEM 1465" in subject line.)

Office Hours

Monday and Wednesday 10:00 am – 12:00 pm
Tuesday and Thursday 3:30 pm – 4:30 pm

Grading

Homework	10%	A ≥ 90%
Lab Average	25%	B ≥ 80%
4 Exams	10% each	C ≥ 70%
Final Exam	20%	D ≥ 60%
i<clicker	5%	F ≤ 50%

Important Dates

Jan 19	First Day of Classes
Feb 03	Census Date
Apr 01	Last day to drop
May 11	**Final Exam Wednesday 5:30 pm – 8:00 pm**

Course Content

An introduction to important concepts and principles of chemistry with emphasis on areas considered most relevant in an engineering context. Topics include chemical stoichiometry, bonding, chemical thermodynamics, equilibria, electrochemistry and kinetics.

Class Schedule

Jan. 19 Intro/Pre-exam	Jan. 21 Ch 1	
Jan. 26 Ch 2	Jan. 28 Ch 2/3	
Feb. 2 Ch 3	Feb. 4 Ch 4	
Feb. 9 **Exam I**	Feb. 11 Ch 5	
Feb. 16 Ch 5	Feb. 18 Ch 6	
Feb. 23 Ch 6	Feb. 25 Ch 6	
Mar. 1 **Exam II**	Mar. 3 Ch 7	
Mar. 8 Ch 7	Mar. 10 Ch 8	
Spring Break	Spring Break	
Mar. 22 Ch 9	Mar. 22 Ch 9	
Mar. 29 Ch 9/ review	Mar. 31 **Exam III**	
Apr. 5 Ch 10	Apr. 7 Ch 10	
Apr. 12 Ch 12	Apr. 13 Ch 12	
Apr. 19 Ch 13	Apr. 21 Ch 13	
Apr. 26 **Exam IV**	Apr. 28 Ch 11	
May 3 Ch 11	May 5 Review	
	May 11 **Final Exam 5:30 - 8:00 pm**	

***Note:** As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Jennifer L. Rhinehart **Note that the Final Exam is scheduled for Wednesday, May 11 from 5:30 to 8:00 PM. Make sure to save this date because no make-up final exam will be given.**

Key Notes:

1. Engineering students may substitute the eight hour sequence CHEM 1441 and CHEM 1442 for this class, but not either CHEM 1441 or 1442 alone.

2. All students who enroll in Chemistry classes should have had high school chemistry and MATH 1323.

3. Make-up examinations will **NOT** be given [no books, no caps, no cell phones, no music devises etc. only allowed a simple calculator and ID required]. Academic make-ups will need to be completed before the exam is given. However, the final exam score will replace the lowest mid-term exam score if it is to the student's benefit. The final exam score will not be replaced.

4. Your performance will be evaluated by and course grade determined from the scores received on the four exams, homework, lab average, class participation through i<clickers and the comprehensive final examination according to the grading scale above.

5. Your circled letters on the test-sheet MUST be the same as the bubbled-in letters on your scantron card (type 4521). No later complaints or corrections will be accepted or allowed! **Each student is responsible for furnishing the Scantron answer sheets (type 4521) for the examinations.** Scantrons are to be used for answering multiple choice questions only and should be free of notes when used.

6. **Homework**: There are not extension given on homework. Chapter homework is due on Sunday at 11:59 pm CST. Each homework set is design on national averages to take 1hr – 1.5 hr. If you score less than a 95.00 on the assignment you will need to complete an adaptive follow-up assignment, which is individual designed base on the problems you missed. Once you have completed the chapter homework adaptive follow-up will open up and is due two days after the chapter homework is due. The adaptive follow-up is **NOT** optional, it will account for 25% of your homework grade.

7. **i<clicker:** We will use i<clickers in class every day. You will need to register your clicker on blackboard under the tab i clicker. We will begin using clickers **Thursday Jan. 21st.** You must obtain a physical clicker, no phone apps will be allowed. You will earn points by answering in class questions and receive 0.9 points for answering and 0.1 points for getting the question correct.

Homework

1. Go to **www.masteringchemistry.com**. Under the large **Register Now** section on the right side of the page, click the **Student** button.
2. Read the onscreen instructions and select your **location**.
3. Next, check off whether or not you have a **Course ID**. (Course ID for section 001: RHINEHARTSP161465002) If you have a **Course ID** code provided by your instructor, type it in and Click **Go**. If your course does not require an ID, Click on that radio button next to it and Click **Next**. Check with your professor to be sure.
4. Next, check off whether or not you have an **Access Code**. If you don't have an access code and want to purchase access, select your textbook and whether you want to purchase an eText. If purchasing access online, it is important to check with your professor to make sure you select the correct title, author, and edition so you can enroll successfully into the course. (Select Chemistry, Tro, 3rd Ed, NOTE: this is not the course text book!) On the next page you can select to purchase without the text book.
5. Before continuing, make sure you read and accept the License Agreement. After this, either **Create** a new Pearson username/password, or, if you've already registered for another Pearson product (i.e. MyMathLab), enter that username/password. If you have an **Access Code**, enter it on the bottom of the page.
6. On the next page, fill out the appropriate information fields then click **Next**. If you entered an **Access Code**, you will be brought to a page from which you can access your product. If not, enter your payment information so that you can **Purchase Access**, after which you'll be granted access.

You are now registered! Now, it's time to enroll in your course. Click **Log In Now**. Enter your student ID. That's it!

General Notes:

1. At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I have elected to take attendance via i<clicker by in class participation which will count for 5% of your overall grade

2. **Examinations Policy: READ THIS VERY CAREFULLY!** For examinations, students will be required to present current UTA ID, and any calculator for inspection (Note that TI-36X Pro is **NOT** allowed). **Exams turned in by students without ID will not be graded.** Only simple arithmetic calculators will be allowed, no complex graphing and equation-storing calculators will be permitted (for obvious reasons). During examinations, students must hand in their exam papers when they leave the room for any reason. After this, the student **cannot** return and resume the examination. A student who arrives late for any examination will be allowed to take the examination **only if no other student has finished the exam and left the room. Students must be in line to turn in their exams at the end of the exam period or it will not be graded.**

   The evening before the exam a seating chart will be posted on blackboard with your assigned seat. You must take the exam in your assigned seat. If you take an exam in the incorrect seat your exam will not be graded. During the exam you must place all belongings to the sides of the classroom. You may not have anything at your feet.

3. **The Chemistry Clinic** is located in Room 318 Science Hall and will be staffed with tutors available to answer your questions related to lecture and homework. This service is free for all UT-Arlington students enrolled in Chemistry 1465. Unless otherwise posted, the Chemistry Clinic will be open the following hours:

   Monday – Thursday, 9:00 AM – 7:00 PM
   Friday, 9:00 AM – 5:00 PM
   Saturday, 11:00 AM – 4:00 PM

   (Note: The Chemistry Clinic will be closed any day that the University is closed due to inclement weather.)

4. **Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. *After the late registration period, students must see their academic advisor to drop a class or withdraw.* Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

5. **Disability Accommodations: UT** Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

   The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
   Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

   Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

6. **Title IX:** The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit uta.edu/titleix.

7. **Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:
   I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

   I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

   UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

8. **Lab Safety Training: Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned. Instructions for completing lab safety training are given separately in the lab syllabus of this course.

9. **Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

10. **Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

11. **Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

12. **Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located **at the front/back of the room**. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

13. **Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

14. **Emergency Phone Numbers**: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.

Chemistry 1465 Laboratory Syllabus
Spring 2016

Lab Coordinator Bill Cleaver wcleaver@uta.edu
Office Hours: Tue & Wed 9:00 – 10:00 in 217 CPB (and by appointment)

Required materials: *CHEM 1465 Lab Manual*, Third Edition (red cover) and duplicating page lab notebook, both are available at the UTA Bookstore. Scientific calculator.

Suggested Materials: A Sharpie marker (for glassware marking) may come in handy.

Safety Guidelines: IMPORTANT! You will be exposed to hazardous chemicals in this class. Personal protective equipment (PPE) is necessary to protect your body. You will not be admitted into the lab if any of the following guidelines are not met. If you violate any of the following guidelines, you may be asked to leave the lab. All missed work will receive zero credit.

1. Goggles, gloves and aprons are provided and are required at all times.
2. Shoes that cover the entire foot are required at all times. Absolutely no exceptions will be made to this guideline. Warnings will not be issued.
3. Long pants and sleeves are highly recommended.
4. No musical or other entertainment devices may be used in chemistry lab at any time.
5. Cell phones are not permitted in lab and must be silenced and placed in your bag before you enter lab.

Mandatory Online Safety Training: Students registered for this course must complete the University's required "Lab Safety Training" prior to entering the lab and undertaking any activities. Students should complete the required module as soon as possible, but no later than their first lab meeting. Until all required Lab Safety Training is completed, a student will not be given access to lab facilities, will not be able to participate in any lab activities, and will earn a grade of zero for any uncompleted work.

1. Login to **Blackboard** at https://elearn.uta.edu with your NetID and password.
2. Under **My Blackboard** tab, click **Lab Safety Training.**
3. Click **Welcome** from the left pane to start and follow the instructions.

Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e. September '15 through August '16) for all UTA courses that include a lab. If a student enrolls in a lab course in a subsequent academic year, he/she must complete the required training again.

All questions/problems with online training should be directed to the Blackboard Support Center either online or by calling 1-855-308-5542. General questions about the Lab Safety Training, including content should be directed to the Office of Environmental Health and Safety at (817) 272-2185 or ehsafety@uta.edu

Teaching Assistants (TAs): Your TA's office hours will be announced in lab and will be posted outside of 114 CPB. You may attend the office hours of any 1465 TA.

CHEM 1465 Lab Schedule

Week of:	Lab Schedule
Jan 19-21	No Labs. MLK Day Holiday. Buy the lab manual and notebook in the bookstore.
Jan 25-28	No labs. Complete the online safety training.
Feb 1-4	Lab Check-in, Lab & Safety orientation.
Feb 8-11	UTA-601: Mass and Volume Measurements
Feb 15-18	UTA-603: Formula of a Copper Oxide
Feb 22-25	UTA-606: The Ideal Gas Law and Gas Constant
Feb 29 - Mar 3	UTA-610: Atomic Emission Spectra of Gases
Mar 7-10	UTA-304: Spectrophotometry and Beer's Law **Note: this lab is out of sequence from the manual**
Mar 14-17	No Labs. Spring Break.
Mar 21-24	UTA-301: Molecular Shapes by VSEPR and Solid State Structures
Mar 28-31	UTA-302: Polymers
Apr 4-7	UTA-303: Energy Content of Fuels
Apr 11-14	UTA-607: Hess's Law and Calorimetry
Apr 18-21	UTA-545: Determination of the Equilibrium Constant of a Complex Ion
Apr 25-28	UTA-550: Batteries and Electrolysis.
May 2-5	Hand in UTA-550 report. Lab Check-Out.
May 9-13	No labs. University Final Exams.

Grading: The lab average, which comprises 25% of the Chemistry 1465 grade, is determined the following way:

Quizzes	30%
Pre-Lab Assignment	20%
Post-Lab Reports	40%
Notebook/Technique	10%

• **Quizzes:** There will be a quiz given at the beginning of every lab period. They will cover material and techniques used in experiments preceding and including that day's experiment. The quiz will only be given in the first 10 minutes of the lab period. Missed quizzes cannot be made-up.

• **The Pre-Lab Assignment** is due when you walk through the door. Each pre-lab is worth 100 points. Pre-labs will not be accepted more than 15 minutes after the beginning of the lab. Any student not completing the Pre-Lab assignment will not be permitted to perform that week's experiment.

• **The Post-Lab Report** is due when you walk through the door for the next lab meeting. The post-lab consists of completing all the calculations and answering the questions outlined in the lab manual as well as a one or two paragraph conclusion where you will discuss your experimental results. Each post-lab is worth 100 points. Post-labs are considered late 15 minutes into the lab period and will be assessed a point-penalty of 25 points per day. Reports will not be accepted more than ***two*** days late. Students are responsible for contacting their TA to deliver a late report. Please do not take them to the Chemistry Office or to the Lab Coordinator.

• **The Lab Notebook/Technique:** You will hand in the carbonless copy of your data, signed by your TA, at the end of the lab period. Failure to do so will be counted as a lab absence. Your TA will grade your lab notebook as well as your lab technique during the experiment.

All work, with the exception of computer-generated graphs, must be original and hand-written. Photocopied or computer-generated work will not be accepted.

Your lowest pre-lab grade, post-lab grade and quiz grade will be dropped. Additional missed labs will receive zero credit. Any zero resulting from Academic Dishonesty is not eligible to be the lowest grade dropped. Each

experiment runs for one week (Mon – Thur) and any conflicts should be addressed to your TA at least a week in advance of the conflict (including observing religious holidays). *There are no makeup labs once the week is over*.

Do not turn in a report for an experiment for which you were absent. This is considered cheating and will be addressed as such.

Attendance Policy: The following is from UT-Arlington Undergraduate Catalog's Academic Regulations section

> **Class Attendance**
> Class attendance and lateness regulations will be established by instructors and announced to their classes. At the discretion of the instructor, such regulations may or may not include provisions for making up work missed by the student as a consequence of an absence. Students who are late to class are responsible for reporting their presence to the instructor after the class is dismissed.

Information that stresses safety and technique is disseminated at the beginning of each lab period. Students are expected to be in the lab on time, and they will not be admitted to the lab more than 15 minutes after it begins. All missed work will receive zero credit. These 15 minutes are intended as a grace period for rare instances. It is not intended to become the norm. Abuse of this grace period will result in its cancellation.

You are required to attend lab in the section for which you have registered. Do not go to another lab section.

Academic dishonesty: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

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I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Students with Disabilities: Students who need an accommodation based on disability should arrange to meet with the laboratory coordinator during to see that they are appropriately accommodated.

Students with Pregnancies: For students who are pregnant, it is recommended by the Chemistry and Biochemistry Dept. that you do not enroll into a chemistry lab at this time. If you become pregnant during the semester, we recommend dropping the course as soon as possible; and special provisions will be made to assist you in finishing the course at a later date. ***Please see your faculty instructor for assistance.***

If you drop or fail Chemistry 1465, grades earned in the lab cannot be carried over when you re-take Chemistry 1465.