CHEM 108 – General Chemistry Lab Recitation

Section 005

Fall 2018

Instructor: Mrs. Kristen Kull
Lab MeetingTime:Thursday 2:00-4:50 pm Sims 103/105
Recitation: Friday 2:00 – 2:50 Sims 111
Course Credit Hours: 1 credit hour for lab and recitation
E-mail Address: kullk@winthrop.edu
Office: Sims 107B
Office Hours: **Thursday 1:00 – 1:50, Friday 1:00 – 1:50 or by appointment**
Course Co-requisite(s): You should also be registered for CHEM 108 (General Chemistry Lab) and CHEM 106 (General Chemistry Lecture).

Required Textbook:

- Textbook: **Chemistry: An Atoms-Focused Approach** by Gilbert, Kirss and Foster, 1st edition
- Lab Manual: ***Cooperative Chemistry Laboratory Manual,*** Cooper, M., *5th edition*

Course Goals:

- In this lab recitation course, we will review the necessary information needed to successfully complete each of the experiments scheduled in CHEM 108. Many of the laboratory skills learned in CHEM 108 will be used in upper level chemistry labs.
- **Develop problem-solving and critical thinking skills.**
- **Demonstrate an understanding of the fundamental principles presented in each of the laboratory experiments conducted in CHEM 108.**

Course Outline:

- Physical properties, analytical balances, typical glassware, volumetric glassware, data analysis, graphing using Excel
- Qualitative solubility, stoichiometry, volumetric glassware, burets, pH meters, writing chemical equations
- Calorimetry, heats of reactions, endothermic/exothermic reactions, writing chemical equations, Excel
- Introduction to organic chemistry, identifying an unknown, functional group testing, infrared spectroscopy, NMR
- Visible spectroscopy, factors effecting reaction rate, graphing with Excel

Exams and Grading:

1. There will be two exams in recitation, a midterm and a final. **No make-up exams will be given**. If you miss an exam with a validated excuse, your other exam grade will be scaled. Tentative exam dates are noted below.
2. **The recitation final exam will be cumulative and will be given during the last week of classes. The class will also meet during finals time to complete the skills exam, a culmination of techniques utilized in the laboratory.**
3. Your total grade in lab recitation will be factored into your final CHEM 108 grade. Recitation will account for 20% of your final lab grade. See the CHEM 108 GRADING webpage for letter grade assignments.
4. You have one week from the time a graded assignment is returned to question its grading. After a week, I will not change any grade.
5. You should carefully read the Winthrop University Student Conduct Code printed in the Winthrop University Student Handbook. As noted in the Student Conduct Code: "Responsibility for good conduct rests with students as adult individuals." This policy on student academic misconduct is outlined in the "Student Conduct Code Academic Misconduct Policy" in the online *Student Handbook* (http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf)http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf

Total Possible Points

Recitation Exams	120 pts (20%)
Laboratory grade	480 pts (80%)
Total points Chem 108	600 pts

Preparation for the lesson: Resource material comes for the lab comes from the Cooperative Project instructions found on Blackboard or on the Chem108 web page AND the associated lab instruction from the course Lab Manual. Your Lab Notebook is a duplicate page resource. **It will be available for your reference on any graded assignment.** I strongly recommend taking all of your recitation notes in this. Calculations for assignments should also be completed here. If buying or using a used Notebook, show it to me for signature and page recording.

Grades: If you have a question about your grade, please stop by my office. I will not discuss grades through e-mail, but you may arrange an alternate meeting time if office hours are not convenient.

Exams: You will need a calculator for exams. Cell phones and pagers are strictly prohibited during exams. You cannot use a cell phone as a calculator during exams.

Course Withdraw: Friday, October 19th is the last day to withdraw from a full semester course with an automatic N grade issued. *Students may not withdraw from a course after this date without documented extenuating circumstances* as determined by the University.

Communication: If you have any questions, please stop by and see me during office hours. If these hours are not convenient, see me in class or e-mail me to set up an appointment.

Attendance: You are expected to attend all class meetings. You are responsible for all announcements made in class. Absence or lateness does not excuse you from this responsibility.

Homework: Each reading assignment and assigned homework problem will give you back ground instruction for the techniques and calculations used in the Cooperative Project. End of chapter homework problems from the textbook will not be collected or graded but will be good practice for preparing for exams. They may be used as a template for quiz and test questions.

E-mail: It is important to check your e-mail regularly. If you registered for the course late, you will need to manually subscribe to the listserv, the class master enrollment list for messages. If you drop the course, you will need to unsubscribe to the list or you will continue to receive all e-mails I send. You can find directions at http://www.winthrop.edu/acc/classlist.htm

Students with Disabilities/Need of Accommodations for Access: Winthrop University is committed to providing access to education. If you have a condition which may adversely impact your ability to access academics and/or campus life, and you require specific accommodations to complete this course, contact the Office of Accessibility (OA) at 803-323-3290, or, accessibility@winthrop.edu. Please inform me as early as possible, once you have your official notice of accommodations from the Office of Accessibility.

Syllabus: This is a tentative schedule. Modifications and mistake correction will be announced and made as necessary.

Date	Exams	Prelab Topics	Reading Assignments and Homework Problems (End of Chapter Exercises)
8/24		Lab, Recitation Introduction Quantitative and Qualitative Analysis, Density, Units of Measurement, Making Measurements: Precision, Accuracy, Experimental Error, Standard Deviation, Significant Figures	**Laboratory Manual:** ~Recording and Reporting Results, p. 17-19 ~Reporting Numerical Results, Significant Figures, Graphs, p. 35-40 ~Measuring Devices, p. 47-49 ~Reading a Meniscus, p. 67-68 **Chemistry: An Atoms-Focused Approach:** ~Read Section 1-4, Density; Sections 1-8 and 1-9 ~Complete the following problems: • End of Chapter Problems 40, 44, 48, 54, 60, 69, 71 • End of Chapter Problems 16, 30, 32, 59 (instead of calculating percent error, calculate the standard deviation), 61, 64 A sample of an unknown metal was placed in a graduated cylinder containing water. The mass of the sample was 23.5 g and the water level rose from 47.5 ml to 52.2 ml. Calculate the density of this unknown metal.
8/31 9/7		Ions, Ionic compounds, Precipitation reactions, Solubility rules, Qualitative analysis	**Laboratory Manual:** ~Read pages 57-63 ***Chemistry: An Atoms-Focused Approach:*** ~ Ions, Ionic Compounds: Read pages 43, 50-53, 139-142 ~Reactions: Read Section 8.5 including Sample Exercise 8.6. Complete Practice Exercise on page 328 and End of Chapter Problems 8.65, 8.66

9/14 9/21		Writing chemical equations for precipitation reactions (complete balanced equations, complete ionic equations, and net ionic equations), Acid/Base reactions, Molarity, Dilutions, Using burets, Using pH meters Stoichiometry	**Laboratory Manual:** ~Read pages 64-69 ***Chemistry: An Atoms-Focused Approach:*** ~ Molarity: Read Section 8.1 (312-315); Complete End of Chapter Problems 8.11a; 8.14a,b;15a,b ~Acids and Bases: Read Section 8.4 (320-326) including Sample Exercise on page 324; Complete End of Chapter Problems 8.51b, 8.53b ~Reaction Stoichiometry: Read Section 8.5, (326-330); Read Section 8.5 including Sample Exercise 8.7 and 8.8, complete Practice Exercises on page 330 and 331 and End of Chapter Problems 8.68, 8.69, 9.72
9/28		Calorimetry, Heats of Reactions Precipitation Reactions, Acid/Base Reactions, Oxidation-Reduction Reactions	***Chemistry: An Atoms-Focused Approach:*** ~ Calorimetry: Read Section 9.5, (382-384) including sample Exercise (384); Complete Practice Exercise on page 384 and End of Chapter Problems 9.65, 9.66 ~Precipitation Reactions: Read Section 8.5 ~ Acids and Bases: Read Section 8.4 ~Oxidation-Reduction Reactions: Read Section 8.6, (332-338); Complete End of Chapter Problems 8.83, 8.89
10/5	**EXAM 1**		
10/12	**no class**	**Fall Break**	
10/19, 10/26		Organic Nomenclature and Functional Groups NMR and IR	
11/2, 11/9		Ethanol Kinetics	
11/16		CPII presentation review	
11/30	**EXAM 2**		