Chemical Principles Laboratory II

Chemistry 1225
Dr. Harris
Spring 2017 Course Syllabus
1 credit

Dates		Group A (Widtsoe 003)	Group B (Widtsoe 104)
January	17th – 23rd	Course Policies – Safety Review – Lab Drawer Check In	Course Policies – Safety Review – Lab Drawer Check In
January	24th – 30th	Colligative Properties	Base Hydrolysis of Ethyl Acetate
January/February	31st – 6th	Base Hydrolysis of Ethyl Acetate	Colligative Properties
February	7th – 13th	Qualitative Analysis	Qualitative Analysis
February	14th – 21st	Qualitative Analysis (continued) **Monday lab sections meet on Tuesday the 21st of Feb.**	Qualitative Analysis (continued) **Monday lab sections meet on Tuesday the 21st of Feb.**
February/March	27th – 3rd	Titration of Acids and Bases	Titration of Acids and Bases
March	13th – 17th	Determination of the K_a of a Weak Acid	Determination of the K_{sp} for Calcium Hydroxide
March	20th – 24th	Determination of the K_{sp} for Calcium Hydroxide	Determination of the K_a of a Weak Acid
March	27th – 31st	Electrolysis, the Faraday, Avogadro's Number	Activity Series
April	3rd – 7th	Activity Series	Electrolysis, the Faraday, Avogadro's Number
April	10th – 14th	TA/Course Evaluations – Score Check – Check Out	TA/Course Evaluations – Score Check – Check Out
April	17th – 21st	Make Up Experiment Beer's Law	Make Up Experiment Beer's Law

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Materials

Lab Text (required): "Chemistry 1225 – Chemical Principles Lab II" Catalyst – The Prentice Hall Custom Laboratory Program for Chemistry
Lab Notebook (required): "Student Lab Notebook" from the USU bookstore (carbon-copy pages absolutely necessary)
Goggles, lab coats, full-length jeans with no holes, socks, and "complete" shoes are required in the laboratory.
The lab fee of $75 is used to purchase equipment and supplies for the laboratory as well as a small portion for teaching assistant compensation.

Grades

A score of 90% is guaranteed an A- and 95% or better is guaranteed an A. Final scores will be rounded to nearest one's place (94.4% = 94% and 94.5% = 95%).

Safety Documentation Review and Signature Sheet.....20 points
9 PreLab @ 10 pts..... 90 points
9 Lab notebook sets @ 10 pts..... 90 points
8 Lab reports @ 80 pts..... 640 points
TA Evaluation of Student (safety, cooperation, independence) .....100 points
Total..... 940 points

Policies and Procedures

1. The administration of Chemistry 1225 will adhere strictly to the policies (including the issuing of incompletes) outlined in the USU 2016 – 2017 General Catalog.
2. Qualified students with disabilities may be eligible for reasonable accommodations. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll-free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.
3. Attendance at all the assigned meetings is required. A missed experiment which has an excused absence will be made up by appointment only with the last scheduled experiment (Beer's Law). Excused absences include: (1) school excused absences outlined in the general catalog, (2) illness, and (3) a family emergency. Planned family trips, vacations, outings, and weddings are not excused absences. Students should notify the TA in advance, if possible, prior to missing an experiment. Students missing an experiment will have one week to notify the TA that they have a valid excuse. A missed experiment that is not made up will be scored as **zero**. Only one missed experiment can be made up.
4. Individuals not wearing safety goggles, lab coats, full-length jeans with no holes, socks, and "complete" shoes (no sandals or pumps) will not be allowed in the laboratory, no exceptions.
5. All students must read and sign the Utah State University Chemistry and Biochemistry Departmental *Laboratory Safety Agreement Documentation* before beginning lab experiments.
6. Students must be registered for the lab section they attend. Failure to do so will result in an F letter grade being assigned to the university.
7. PreLab Work: the beginning of lab work will require a completed PreLab assignment. *The PreLab (one page limit) is written in the student's lab notebook and the carbon-copy is torn out and turned in to your TA at the beginning of the lab.* Permission will then be given for the student to begin work on the day's experiment. Incomplete or sloppy work will result in a delayed start and may result in incomplete experiments. In order to be fair to all class members, TAs will not allow students to remain in the lab past the scheduled ending time. The PreLab report will contain the experiment title, a short statement (1 to 2 sentences) about the objectives of the experiment, and answers to the assigned Prelab questions.
8. Notebooks: Students are required to keep an organized record of lab work in their lab notebooks. All work done in the lab must be summarized in the note book. *No writing on the lab report forms is permitted during the lab periods.* At the completion of each lab period, each student is required to hand in a copy of their lab notebook page(s). Each page must be signed and dated. These pages, along with the Lab Report, will be evaluated by the TA. Lab Reports will receive no credit in the absence of the lab notebook copies. Original notebook pages must not be removed from the binder. No blank pages may be left between lab entries and PreLab entries. All notebook entries must be in ink. Incorrect entries and mistakes should be crossed out and followed by correct entries.
9. Lab Reports: The grade in Chem 1225 is largely based on the completion of lab report forms in the Catalyst Lab text and the hand-out experiments. In addition to completing the assigned experiments, there may be additional questions to be answered at the end of the report form. *Students are to turn in the actual report forms from the Lab Text or lab experiment hand-outs.* Grading will reflect completeness, accuracy, *and correspondence to the lab work documented in the notebook pages* turned in at the completion of the lab. The Lab Report is due at the beginning of the next laboratory session. Late reports, pre-lab questions, and notebook sets will be assessed a 10% penalty per week. The lab report for the final experiment (Beer's Law) will be due at the conclusion of the lab period that it is performed.
10. Students must review all lab course scores at the score check meeting time (April 10^{th} – 14^{th}). It is also recommended that students retain all scored course laboratory work. Teaching assistants will not declare a student's final lab course grade at the score check meeting.

Chem 1225 Assignment and Lab Study Questions		
Lab	PreLab Questions	Lab Report Questions
Course Policies – Safety Review – Check In	No PreLab Questions	No Lab Report Questions
Colligative Properties	1, 2, 3, 4, 5 (p. 9)	1-4 (pp. 13)
Base Hydrolysis of Ethyl Acetate	See lab experiment hand-out	See lab experiment hand-out
Qualitative Analysis	1, 3, 5, 6, 7 (pp. 31 - 32)	See lab report
Qualitative Analysis (continued)	1, 2, 3 (p. 37)	See lab report
Titration of Acids and Bases	1, 2, 3, 4, 5 (p. 53)	1-4 (p. 56)
Determination of the K_a of a Weak Acid	1, 3, 4 (p. 67)	1 – 4 (pp. 71 - 72)
Determination of the K_{sp} for Calcium Hydroxide	See lab experiment hand-out	See lab experiment hand-out
Electrolysis, the Faraday, Avogadros Number	1, 2, 3, 4 (p. 81)	1 and 4 (p. 84)
Activity Series	1, 2, 3, 4 (p. 89)	1, 3, 5, 6 (p. 94)
Beer's Law	See lab experiment hand-out	See lab experiment hand-out

Course Objectives and Assessment

Chem 1225 laboratory experiments are designed to cover a range of general chemistry concepts covered in the Chem 1220 lecture course. The experiments deal with the determination of chemical composition and characteristics, acid/bases and their salts, spectroscopy, the characterization of reactions, and electrochemistry.

Assessment of the course will include an end-of-semester evaluation seeking suggestions for course improvement.