

Chemistry 1225 Laboratory Spring Semester, 2009

Professor in Charge: Vernon D. Parker, W 345, 797-1697, vparker@cc.usu.edu
Office hours : M, Tu, Th 1:30-2:30

Teaching Assistants: Ameya mashruwala (ameyamashruwala@aggiemail.usu.edu), Jianjun Zhang (jianjun.zhang@aggiemail.usu.edu), Anna K. Lytle (anna.k.lytle@aggiemail.usu.edu), Sileola Akinsiku (sileolaakinsiku@yahoo.com)

Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. 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.

Lab Fee (required): \$55.00 used for the purchase of equipment and supplies for the lab.

Lab Text (required): "Chemistry 1225 (or Chem 1240) – Chemical Principles Lab II"
Catalyst – The Prentice Hall Custom Laboratory Program for Chemistry

Lab Notebook (required): "Customized Lab Record" from the USU bookstore (carbon-copy pages absolutely necessary)

Course Objectives: 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.

General University Information available at: <http://www.usu.edu/aia/academic/syllabusres.cfm>

Schedule:

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|---|---|-----------|-------|
| Lab Week 1 | Exp. #1, Colligative Properties, p. 1 | 1/12-1/15 | (M-R) |
| Lab Week 2: | Exp. #2, Rates of Chemical Reactions, p. 19 | 1/20-1/26 | (T-M) |
| Lab Week 3: | Exp. #3, Reactions in Aqueous Solution, p. 39 | 1/29-2/2 | (T-M) |
| Lab Week 4: | Exp. #4, Qualitative Analysis, p. 61 | 2/3-2/9 | (T-M) |
| Lab Week 5: | Exp. #4, Qualitative Analysis (continued) | 2/10-2/12 | (T-R) |
| Lab Week 5: | Exp. #4, continued, Monday Sections Only on Tuesday | 2/17 | (T) |
| Lab Week 6: | Exp. #5, Titration of Acids and Bases, p.81 | 2/23-2/26 | (M-R) |
| Lab Week 7: | Exp. #6, Determination of the K_a of a weak acid, p. 97 | 3/2-3/5 | (M-R) |
| !! Spring Break – March 9 -13 (M-F) !! | | | |
| Lab Week 8: | Exp. #7, Hydrolysis of Salts and pH of Buffer Solutions, p. 115 | 3/16-3/19 | (M-R) |
| Lab Week 9: | Exp. #8, Determination of a Solubility Product, p. 137 | 3/23-3/26 | (M-R) |
| Lab Week 10: | Exp. #9, Electrolysis, the Faraday, Avogadros Number, p. 153 | 3/30-4/2 | (M-R) |
| Lab Week 11: | Exp. #10, Activity Series, p. 165 | 4/6-4/9 | (M-R) |
| Lab Week 12: | Exp. #11, Colorimetric Determination of Fe, p. 179 | 4/13-4/16 | (M-R) |
| Lab Week 13: | Check out | 4/20-4/23 | (M-R) |

Chem 1225 Policies, Spring 2009

Safety: All students must read and sign the Utah State University Chemistry and Biochemistry Departmental *Laboratory Safety Agreement* before beginning lab experiments.

Attendance: Students must be registered for the lab section they are attending. Failure to do so will result in no grade being assigned (that's an F). The Individual lab sections are managed and graded by the Teaching Assistants in charge.

Missed Labs: These cannot be made up. Students may attend other sections of the course **only with VDP's permission**. A single missed lab will be excused and grades will be averaged excluding the missed lab. Further absence from lab (unexcused) will result in a 0 grade for the lab and may constitute grounds for an "F" grade for the course. Grades for students who do not miss any labs will be the average excluding the lowest lab grade.

PreLab Work: Except for the first week of labs, 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 the 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. The TA's are required to close the labs in a timely fashion due to significant time and space limitations.

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. 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.

Lab Reports: The grade in Chem 1225 is largely based on the completion of lab report forms in the CATALYST Lab manual. In addition to completing the assigned experiments, there may be additional questions to be answered at the end of the report form.

Lab reports are due no later than one week following the actual experimental work.

Students are to turn in the actual report forms from the CATALYST LAB manual. Grading will reflect completeness, accuracy, and correspondence to the lab work documented in the notebook pages turned in at the completion of the lab. Late reports will be assessed a 10% penalty per week.

Grading: A score of 90% or better earns an A- and 95% an A. The course will be graded on a curve.

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|--|--------------------|
| 10 (best of 11) PreLab @ 10 pts..... | 100 points |
| 11 (best of 12) Lab notebook sets @ 10 pts..... | 110points |
| 11 (best of 12) Lab reports @ 80 pts..... | 880 points |
| 4 quizzes @ 25 points each | 100 points |
| TA Evaluation (safety, cooperation, independence)..... | 100 points |
| Total..... | 1290 points |

Grades will be submitted electronically when available.

Chem 1225 Assignment and Lab Study Questions

Each PreLab Report (one page limit written in lab notebook):

Date and sign the PreLab pages in your notebook.

Write the title of the Experiment.

Write a short statement (1-2 sentences) about the objectives of the experiment.

Answer the questions assigned for the lab.

| <u>Week</u> | <u>Exp #</u> | <u>Prelab Study Questions</u> | <u>Lab Report Questions</u> |
|-------------|--------------|-------------------------------|-----------------------------|
| 1 | 1 | 1, 2, 3, 4, 5 (p. 9) | 1-4 (p. 13) |
| 2 | 2 | 1, 2, 3, 4 (28) | Calculations 1-4 (p. 32-3) |
| 3 | 3 | 1, 2, 3, 5, 6 (p. 46-7) | 1, 3, 4 (p. 58-9) |
| 4 | 4 Part I | 1, 3, 5, 6, 7 (p. 72) | no questions |
| 5 | 4 Part II | 1, 2, 3 (p. 76) | no questions |
| 6 | 5 | 1, 2, 3, 4, 5 (p. 90) | 1-4 (pp. 95) |
| 7 | 6 | 1, 2, 3, 4 (p. 103) | 1-4 (p. 107-8) |
| 8 | 7 | 1, 2, 3, 4 (p. 128) | 1,3,4 (p. 134) |
| 9 | 8 | 1, 2, 3 (p. 147) | 1,2,3,4,6 (p. 151) |
| 10 | 9 | 1, 2, 3, 4 (p. 159) | 1,4,6 (p. 163) |
| 11 | 10 | 1, 2, 3, 4 (p. 171) | 1,3,5,6 (pp. 176-7) |
| 12 | 11 | 1, 2, 3, 4 (p. 185) | 1,2,3,5 (p. 189) |

The Prelab report must be handed to your TA immediately upon arrival to lab. Lab Work may be started only when your TA approves your prelab report.

The Lab Report is due at the beginning of the next laboratory session.