

SYLLABUS

COURSE OBJECTIVES

1. To improve laboratory technique while demonstrating basic methods of quantitative analysis with emphasis on volumetric analysis.
2. To improve understanding of basic statistical methods for data evaluation through application to quantitative chemical analysis.

COURSE OUTCOMES

1. The students will demonstrate competence in laboratory skills involving basic quantitative chemical analysis while enhancing their ability to apply statistical methods for data evaluation.

MATERIALS REQUIRED FOR THIS COURSE

All of the following books and supplies are available in the campus bookstore.

Chemistry 112: Chemical Equilibria and Analysis Lab Manual, Dr. P. Kistler, Spring 2009 Edition.

Laboratory Notebook, W. H. Freeman and Company (1963). You may continue to use the same notebook used for Chemistry 111.

Scientific hand calculator.

Eye protection - safety glasses or goggles.

Graph paper - 20 squares to the inch.

MEETING TIMES

All sections meet in room SCI 122.

Laboratory:	Section 1	Tuesday	8:00 - 11:00 AM	Kistler
	Section 2	Tuesday	1:00 - 4:00 PM	Kistler
	Section 3	Thursday	8:00 - 11:00 AM	Kistler
	Section 4	Thursday	1:00 - 4:00 PM	Raker
	Section 5	Friday	1:00 - 4:00 PM	Sein
	Section 6	Monday	1:00 - 4:00 PM	Sein
	Section 71	Monday	7:00 - 10:00 PM	Raker

Instructor's Office: Miller 2; Phone extension 3615.

Office Hours: Dr. Kistler's schedule will be posted on the door of his office. His e-mail address is ltsein@cedarcrest.edu.

GRADING SYSTEM

This is a 1-credit laboratory course. It must be taken concurrently with the CHE 112 lecture course unless the student has already earned credit for the CHE 112 lecture with a grade of C- or higher. The student will receive a separate syllabus for the lecture portion of the course.

The grade for the laboratory portion of the course will be based on performance with respect to three items: the actual experiments, a final exam, and an evaluation by the instructor.

There will be 9 laboratory experiments. Each experiment will be graded separately, based on individual grades for pre-lab questions, report sheets (and graphs), and post-lab questions. The grades for each individual experiment will be averaged to produce a single grade for the experiments. This experiments grade will constitute 80% of the final laboratory grade.

Pre-lab questions cannot be submitted after the start of the laboratory experiment. For any other laboratory material submitted after the due date, a 10% penalty **per week** will be deducted from the grade for that experiment. A laboratory report will NOT be accepted late unless the carbon copy of your laboratory notes were submitted at the end of the period in which the experiment was completed. Lab reports will also NOT be accepted if they are more than 4 weeks late. In addition, no lab reports will be accepted after the student has taken the laboratory final exam.

A comprehensive laboratory final exam will constitute 15% of the final laboratory grade.

The remaining 5% of the final laboratory grade will be assigned by your laboratory instructor based on the student's performance with respect to such attributes as:

- Compliance with laboratory safety rules.
- Competence with respect to laboratory techniques.
- Organization and efficiency when performing experiments.
- General attitude in the laboratory and the degree of cooperation and contribution when performing experiments with a partner.

In summary, the laboratory grade will be computed as follows:

$$0.80(\text{Experiments Average}) + 0.15(\text{Lab Exam}) + \text{Instructor Evaluation} \\ [0 - 5 \%]$$

The instructor operates on the philosophy that students earn grades. Therefore, she does not use a curve when assigning letter grades. The final letter grade will be awarded according to the following scale:

93-100%	A	80-82.9%	B-	67-69.9%	D+
90-92.9%	A-	77-79.9%	C+	60-66.9%	D

87-89.9%	B+	73-76.9%	C	Below 60%	F
83-86.9%	B	70-72.9%	C-		

POLICIES

Attendance

Attendance in the laboratory is MANDATORY. All twelve experiments must be completed as scheduled and reports submitted when due. If, due to circumstances beyond your control, you are unable to do an experiment at your scheduled time, it may be possible to perform the experiment during some other scheduled laboratory period, preferably while another lab section is carrying out the same experiment. The missed experiment must be made-up within two weeks of the missed period. The student should understand that making up missed experiments causes some difficulties, since you may not work in the laboratory alone. Therefore, when a student has missed an experiment, the make-up period must be scheduled in cooperation with the instructor.

You should also make an effort to arrive on time for your lab period. It is essential that you be present for the entire pre-lab lecture. In addition, you must have sufficient time to complete the experiment. For all late arrivals, the instructor will decide if the student may begin the experiment at that time.

Obtaining Assistance

The instructor will be glad to discuss your concerns at ANY time in which she does not have a previously scheduled commitment. The Instructional Assistants for this course are:

Heather Wert, Kassie Woodard, Andrea Eberhardt, and Christina Matika.

DO NOT HESITATE TO SEEK ASSISTANCE OR ADVICE WHEN YOU NEED IT!

Obtaining Extra Credit

Since the normally assigned work associated with this course is relatively extensive and should be sufficient for the mastery of the subject matter, the instructor will not provide opportunities for extra credit.

Honor Philosophy

"The Cedar Crest College Honor Philosophy states that students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor of membership in the Cedar Crest College community of scholars pledge to accept responsibility for their actions in all academic and social situations

and for the effect their actions may have on other members of the College community."

The instructor expects each student to abide by the college's honor code. This honor code applies to all activities associated with this course. The student should realize that the honor code is an important aspect of the educational process at Cedar Crest College.

The following statement concerning Classroom Protocol is supported by Cedar Crest College Faculty and Administration:

"Appropriate classroom behavior is implicit in the Cedar Crest College Honor Code. Such behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations, and any other behaviors that might disrupt instruction and/or compromise students' access to their Cedar Crest College education."

Please be sure to turn off all cell phones and pagers during the laboratory periods. Cell phone use, text messaging, and the playing of any entertainment media during the lab period are strictly forbidden. Violators will be dismissed from the course. Visitors are not allowed in the laboratory during the lab periods.

Community Standards for Academic Conduct:

"Academic integrity and ethics remain steadfast, withstanding technological change. Cedar Crest College academic standards therefore apply to all academic work, including, but not limited to, handwritten or computer-generated documents, video or audio recordings, and telecommunications.

As a student at Cedar Crest College, each student shall:

- Only submit work which is his/her own.
- Adhere to the rules of acknowledging outside sources, as defined by the instructor, never plagiarizing or misrepresenting intellectual property.
- Neither seek nor receive aid from another student, converse with one another when inappropriate, nor use materials not authorized by the instructor.
- Follow the instructions of the professor in any academic situation or environment, including taking of examinations, laboratory procedures, the preparation of papers, properly and respectfully using College facilities and resources, including library and computing resources to ensure that these resources may be effectively shared by all members of the College community.
- Abide by the Cedar Crest Computer Use Policy.

- If a student perceives a violation of the Academic Standards, he/she will go to their instructor.
- If you are unable to resolve the problem with the instructor, you should go to the chair of the department. If you need further assistance after consultation with the instructor and the chair, you should see the Provost."

It is the instructor's policy to deal with violations of these Standards for Academic Conduct by awarding a grade of 0 for the assignment or examination in question.

Students with Learning Disabilities

The instructor supports the Cedar Crest College policy regarding learning disabilities as follows:

"Students with documented disabilities who may need academic accommodations should discuss these needs with their professors during the first two weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center."

Requirement for Enrolling in CHE 205

Completion of the CHE 112 laboratory course with a grade of D or higher is required for enrollment in CHE 205. To be accepted into the Forensic Science Concentration, a student must earn at least a C in Chemistry 112 laboratory.

CHRONOLOGICAL PLAN FOR THE COURSE

The schedule on the following page list the dates each experiment will be performed for this course. Due to various circumstances, this schedule may be amended during the term.

Laboratory Experiments Schedule

<u>2009 Date</u>	<u>Laboratory</u>
1/19, 1/20, 1/22, or 1/23	Introduction: safety regulations, procedures, and statistics review. Check-in
1/26, 1/27, 1/29, or 1/30	Experiment #1: Volumetric Methods
2/2, 2/3, 2/5, or 2/6	Experiment #2: Preparation of a Standard Sodium Hydroxide Solution and Titration of Hydrochloric Acid
2/9, 2/10, 2/12, or 2/13	Experiment #3: Sampling and Analysis of a Drain Cleaner by Titration With Hydrochloric Acid
2/16, 2/17, 2/19, or 2/20	Experiment #4: LeChatelier's Principle
2/23, 2/24, 2/26, Determination or 2/27	Experiment #5: Part I: Potentiometric of Neutralization Curves
3/2, 3/3, 3/5, or 3/6	Experiment #5: Part II: Potentiometric Determina- tion of Acid in a Soft Drink
3/9 to 3/13	Spring Break
3/16, 3/17, 3/19, or 3/20	Experiment #6: Analysis of Allentown Water for Chloride Ion
3/23, 3/27, 3/31, Allentown or 4/2	Experiment #7: Compleximetric Analysis of Water for Mg and Ca
3/24 or 3/26	No Labs (or snow-day make-ups)
3/30, 4/3, 4/7, or 4/9	Experiment #7 (Continued)
4/6, 4/14, 4/16, Citrus or 4/17	Experiment #8: Determination of Vitamin C in Drinks
4/20, 4/21, 4/23, of or 4/24	Experiment #9: Spectrophotometric Determination of Aspirin Check-Out
4/27, 4/28, 4/30, or 5/1	Laboratory Exam
5/4 or 5/5	No Labs (or snow-day make-ups)