

CH 334L Analytical Chemistry Laboratory Syllabus, Spring 2017

Instructor: Katelynn Perrault

Section: 01 M 2:30 – 5:20 pm Henry Hall Lab 8

02 F 2:30 – 5:20 pm Henry Hall Lab 8

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Office Hours: Tuesday 3:00-5:00, Friday 9:00-11:00, or by appointment

Required Materials:

- No laboratory manual is required. Experimental procedures will be handed out or posted on Canvas prior to the scheduled lab meetings.
- Students are required to wear closed-toe shoes in lab at all times. Safety glasses and lab coats are required when lab work is being carried out.
- A laboratory notebook (composition book)
- A scientific calculator should be brought to each lab meeting. You will not be permitted to use your cell phone as a calculator.

Course Description and Learning Goals:

CH 334L is a laboratory course that accompanies the CH 334 Analytical Chemistry lecture course. Students completing CH 334L will have gained an understanding of many chemical techniques used in the qualitative and quantitative analysis of a variety of samples. In addition to learning basic analytical laboratory skills, students will become familiar with the statistical treatment of data, propagation of error and the maintenance of a laboratory notebook. Concurrent registration in CH 334 is required. *1 credit.*

After completion of this course, the student will demonstrate the ability to:

- Distinguish between qualitative and quantitative chemical analysis
- Identify sources of error in chemical experiments
- Interpret experimental results and draw reasonable conclusions
- Understand laboratory safety procedures
- Perform accurate and precise quantitative measurements
- Record legible and complete experimental notes
- Collaborate with peers in obtaining and interpreting data

Grading: The course grade will be based on the points earned from laboratory reports, worksheets, quizzes and class participation. The approximate breakdown is as follows:

45% = Laboratory Reports

30% = Lab Quizzes

15% = Worksheets/Self-Assessments

10% = Professional Practice (Preparedness, safety, teamwork, notebook, etc.)

The following percentages of the total possible points will be used to determine the final course grades:

A 90 - 100% B 80 - 89% C 65 - 79% D 40 - 64% Fail < 40%

Attendance: Chemistry is, by its nature, a participatory science – *you need to participate in the lab work!* If, for some reason, you cannot attend a scheduled laboratory, it may be possible to attend another laboratory session if written notice is received prior to the lab meeting. Under exceptional circumstances, alternative assignments worth up to 85% of the assignment points, in addition to the lab write-up, may be available with a written request accompanied by a written verification for the reason of the absences. Experimental results may be provided by the instructor and consist of the raw data only, which can be used to complete the results, questions, and discussion portions of your lab-write up. If this is not possible and the absence is excused, these points will be removed from your total; however, you are still responsible for understanding the material covered. If no attempt is made to make up the missed work or the absence is unexcused, a score of zero will be given for that experiment.

In-class quizzes **cannot** be made up at a later time. If you miss a quiz, a written explanation for your absence is required (doctor's note or other document may be needed to determine if the absence is excused). Unexcused absences will result in a score of zero for that quiz.

Safety Requirements: Students are **required** to practice safety precautions while performing experiments: wearing safety glasses, closed toe, full-coverage shoes and lab coats. You will be required to sign a safety contract in the first laboratory, and safety will contribute to your professional practice marks. Long pants should be worn and long hair must be tied back at all times. Working in a lab can be messy, so consider wearing very casual attire during laboratory work. Only registered students will be allowed in the laboratory. For your safety, food and drink including chewing gum or candy is not permissible in the lab. Avoid applying cosmetics or touching your hands to your face anytime you are in lab.

Lab Notebooks: The lab notebook is where all notes, raw data and calculations for experiments will be documented, as well as who participated in the experiment and when the experiment occurred. Pre-lab and Post-lab questions should also be answered in the lab notebook. Lab notebooks must be bound and pages numbered, must include a title page [Date(s) of Experiment, Description of Experiment, Page Number(s)] and written in blue or black permanent ink (absolutely NO pencil). Mistakes happen and are expected; however, they still need to be readable, thus mistakes are only to be crossed out with a single line and **NO** correction tape/white out can be used. Lab notebooks should not be rewritten to make it look prettier. They may be checked at any time during scheduled labs and quizzes to assess the quality of your notebook.

Lab Quizzes: Lab quizzes may consist of pop quizzes or be announced the week prior to the quiz. A final lab quiz covering the entire semester will be given the last week of classes. You are permitted to use your notebook and calculator as resources during this exam.

Lab Reports: The lab reports will be evaluated for completion and accuracy of the information required. They should be brief and concise, and contain the following:

- An abstract describing what you did, how you did it and the results obtained
- Any relevant chemical equations
- Sample calculations
- Any sources of error and statistical treatment of data

Spring 2017 CH 334L Schedule

<i>Lab Meeting</i>	<i>Dates</i>	<i>Experiment</i>
1	1/20, 1/23	Lab check-in
2	1/27, 1/30	Preparation of a Standard Base, Statistical Treatment of Data
3	2/3, 2/6	Acid-Base Titrations
4	2/10, 2/13	Gravimetric Analysis of Calcium
	2/17	TBA
	2/20	Holiday
5	2/24, 2/27	EDTA Titration of Calcium Supplements
6	3/3, 3/6	Calcium Analysis Calculations
7	3/10, 3/13	Spectrophotometric Iron Analysis
	3/17	TBA

Spring Break 3/20-3/24

	3/27	Holiday
8	3/31, 4/3	Iron Data Analysis
9	4/7, 4/10	Solubility of Calcium Iodate, K_{sp} Determination
	4/14	Holiday
10	4/17, 4/21	K_{sp} Data Analysis
11	4/24, 4/28	pH Titration of Glutamic Acid
12	5/1, 5/5	Lab Quiz, Course Evaluation

**Schedule is subject to change based on the availability of materials. Announcements regarding quizzes, changes to the lab schedule, and any additional instructions for laboratory reports will be announced using Canvas.

Additional Departmental and University Policies

1. Electronic Devices

Use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, unless specifically permitted by your instructor. Use of cellphones and music devices in laboratories is a safety issue. In addition, use of cellphones and music devices in any class is discourteous and may lead to suspicion of academic misconduct. Students who cannot comply with this rule will be asked to leave class and may be subject to laboratory safety violation fines. You will be asked to leave class and marked absent if you do not comply. This will negatively affect your grade. Please refer any questions to the Dean of Natural Sciences and Mathematics.

2. ADA Statement

2.1 Pursuant to several federal and state laws, including the Americans with Disabilities Act of 1990, as amended by the ADA Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973, all qualified students with disabilities are protected from discrimination on basis of disability and are eligible for reasonable accommodations or modifications in the academic environment to enable them to enjoy equal access to academic programs, services, or activities. If a student would like to determine if they meet the criteria for accommodations, they should contact the Counseling Center at 808-735-4845 for further information.

3. Attendance & Tardiness

3.1 Students are expected to attend regularly all courses for which they are registered. Students should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension or by leaving a message with the instructor's division office (Natural Science and Math 1 (808) 440-4204). It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially **withdrawing**, may receive a failing grade.

3.2 Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being **withdrawn** from the course by the instructor, although the instructor is not required to **withdraw** students in that scenario. Repeated absences put students at risk of failing grades.

3.3. Tardiness – failure to be on time for class may result in loss of participation points and even quiz/exam points as additional time will not be given, nor will makeup quizzes be given for students who are tardy.

4. Policy on Make-Up Tests

See syllabus, under Attendance for Instructor's policy on make-up exams/quizzes.

5. Policy on Communication

5.1 The University provides a Chaminade email address for all students. Official Chaminade communications will be sent to the students' Chaminade email address and instructors will use only this email to communicate with students. It is the responsibility of the student to check their email frequently. Report email-related problems to the Helpdesk at 808-735-4855 or helpdesk@chaminade.edu.

6. Laboratory Safety Information

The following guidelines are established to provide instructions in maintaining safety for students, staff, and faculty while using any of the science laboratories at Chaminade University. The Division of Natural Sciences and Mathematics (NSM), along with the University Environmental Safety Office are responsible for enforcing the regulations set forth in the current Student Handbook. Queries should be addressed to: Dean of Natural Sciences and Mathematics (808) 440-4204; Environmental Safety Officer (808) 739-4811

7. Title IX Declaration

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. Should you want to speak to a confidential source you may contact the following:

- Chaminade Counseling Center | 808 735-4845.
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role. | 808-735-4774 |

8. Academic Honesty

Students are expected to have read and to abide by the "Student Rules of Conduct" which are available in your copy of Chaminade University's Student Handbook. Cheating in the form of plagiarism, collusion, deception and will not be tolerated and will negatively affect your grade.