

Instrumental Analytical Chemistry - Chem4440
Syllabus & Tentative Schedule
Sam Houston State University – fall 2017

Course description: The purpose of this 4 semester hour chemistry course is to provide a broad introduction to modern, analytical instrumental methods of chemical analysis. Spectrophotometry, separation techniques, and mass spectrometry are discussed. Specific topics include the computer's use in the modern laboratory; atomic absorption, flame emission, inductively coupled plasma, ultraviolet and visible absorption, and infrared absorption spectroscopies; gas and liquid chromatography; and mass spectroscopy. Instruments for these techniques are used in the four-hour laboratory that is part of this course. This course is Writing Enhanced. Prerequisite: A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2323, CHEM 2325 and CHEM 2401 and a minimum grade of C or concurrent enrollment in CHEM 4448. **This course is a writing enhanced course.** It uses writing assignments and written lab reports to promote a deeper understanding of instruments. It uses the study of instruments as an avenue to improve your writing. A portion of the grade in this course will be based on the quality of your writing.

Instructor: David E. Thompson, Ph.D.

Office Hours: I am happy to meet with you. Standard office hours will be after class on TuTh. Please catch me after class to let me know if you will be stopping by. Meetings at alternate times can be scheduled via email, or phone.

Contact information: david.thompson@shsu.edu, 936 294 3270, Office CFS317E

Lecture Location: Chemistry and Forensic Science (CFS) 103 Tu Th 9:30 – 10:50 am

Lab Location: Wet Chemistry Labs will be held in CFS 309. Dry lab locations to be determined.

Class Blackboard Web Address: <https://shsu.blackboard.com>

Required Resources for this course:

Calculator

Text: Principles of instrumental analysis, 7th edition, by Skoog, Holler and Crouch
(Thompson/Brooks/Cole Publishing: ISBN # 978-1-305-57721-3)

Lab Manual and Notes packet: Available on Blackboard

Lab Notebook: Hayden McNeil Student Lab Notebook with permanent binding & 50 carbonless duplicate sets

Course Grades

Your grade will be based upon your performance on:

Class participation, homework forum, writing	150 points
Midterm exams (3 @ 150 pts)	450 points
Final exam	150 points
<u>Laboratory (9 @ 20 pts)</u>	<u>250 points</u>
Total	1000 points

CLASS PARTICIPATION, HOMEWORK FORUM POSTINGS: (15 % of total grade)

There will be writing assignments, problem assignments, and short quizzes sprinkled throughout the course. The total value of these RATS and assignments will be 100 points. Excessive absences, tardiness, or leaving early will adversely affect your grade in the course.

LABORATORY (25 % of total grade)

The deadline for submitted a CHEM 4440 lab write-up is before your lab begins the week after the data are collected. This gives you 7 days to write up and submit the lab. The point penalty for submitting a required lab write-up after the deadline is 10% for each of the two 24-hour periods after the deadline (-10% late to 24 h late; -20% 24-48 h late). If your write-up is not submitted to your TA within 48 hours of the initial deadline, it will not be accepted and you will receive a 0 on that lab, and the lab will be treated as not submitted. If you do not submit 2 labs anytime in the entire semester (either not at all or after the 48-h deadline) then your entire CHEM 4440 laboratory grade (25% of the course) will be zero.

If you have any documentation for excused absences for the CHEM 4440 laboratory (see the syllabus) you must bring them to your TA when you attend the next CHEM 4440 laboratory. Failing to observe safety precautions, (i.e. wearing goggles, using the hood when appropriate, safe disposal of chemical spills at the balances and dispensing areas etc.), or failing to fully participate (arriving late, leaving early etc...) may negatively impact your grade. One group will be assigned to clean the lab at the end of each lab. No lab grades are dropped.

MIDTERM EXAMS: (45 % of total grade)

Midterm exams (See attached schedule for dates) are closed book exams. There will be a midterm exam at the end of each of the first three units. Exam questions may take any format (essay, multiple choice, calculation etc.). **Midterm Dates: Tuesday September 19, Thursday October 19, Thursday November 16.**

FINAL EXAM: (15 % of total grade) The final exam is worth 150 points and will consist of some material from Unit 4, and some review material from units 1, 2, and 3. **Final Date and Time: Thursday December 7, 9:30-11:30 am.**

Course Policies

ACCOMMODATION: Any student with a disability that affects his/her academic functioning should contact the Services for Students with Disabilities (SSD) at the Lee Drain North Annex, (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu) to apply for accommodations. In the event that accommodations are approved by SSD, the student is advised to schedule an appointment with the course instructor in order to present his/her accommodation forms and discuss the arrangements for the accommodations.

COLLABORATION: In general I encourage you to work with others. Collaboration will enable you to get much more out of the class than if you work alone. Specifically I would encourage you to work with others to prepare for exams and to discuss laboratories and lectures. Your lab reports must be in your own words (No direct copying of text) and give appropriate credit to all relevant sources, including fellow students with whom you worked. No collaboration is allowed during exams, and submitting answers that you have not derived yourself is prohibited in all submitted work.

ATTENDANCE AND MAKE-UP: Attendance will be taken in lecture, but attendance at lectures is not required and does not affect your grade. That being said: (1) you are responsible for all of the material covered in class, and (2) I will work to make the lectures as useful and relevant as I can and to provide some supplementary notes that will be available whether you make it to lecture or not. If you miss a lecture, check Blackboard for materials and/or arrange to obtain notes from a fellow student. Unexcused laboratory, assignment and exam absences will result in a grade of 0 for all grades based on the exams and experiments that were missed. Late assignments and late lab write ups because of **unexcused reasons or absences** receive a grade of zero and cannot be made up.

CELL PHONES AND ELECTRONIC DEVICES: Lectures: With the exception of approved graphing calculators and wrist watches, no other electronics (for example cell phones and computers) are allowed during lecture, unless the user has requested and received permission from the instructor to use a specific device. The first violation of this policy will be met with a warning. If there are subsequent violations, the student may be asked to move the back rows of the classroom or to leave, and the lecture will pause until this has been accomplished.

Exams: On exams the visible presence of a cell phone, earbuds or other electronic device (excepting approved calculators and watches) during the exam is not permitted and will be penalized. Exceptions will be granted to individuals who have requested and received permission to use a specific device from the instructor.

ACADEMIC DISHONESTY: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. Specific policy for chem. 2401: First violations will automatically result in a grade of 0 for the work in question. Second violations will result in failure of the course.

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY: A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

VISITORS IN THE CLASSROOM: Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.