

Course Information

- Lecture will meet in AB4 307 on Monday, Wednesday, and Friday from 8 to 9 AM.
- The laboratory in CFS 313 will be open on Monday and Wednesday from 1 to 5 PM.
 - Lab attendance is required on at least one of these days each week.
 - Labs begin the second week and end the last week of the semester.
- The professor for this course is Darren L. Williams, Ph.D.
 - Office: CFS 317 G, Phone: (936)294-1529, Email: williams@shsu.edu.
 - Office hours are 10 to 11 AM, MWF, Monday at 4 PM by appointment and Tuesday morning at 7:30 AM by appointment. Consult the online schedule (http://www.shsu.edu/~chm_dlw/schedule.htm) to view other available appointment times. Email is the preferred method for making appointments.

Course Description

A comprehensive first course in physical chemistry is given with emphasis on the mathematical approach.

- Thermochemistry, the laws of thermodynamics and phase equilibria are considered from the molecular to the macroscopic.
- Laboratory experiments are designed to illustrate principles and to enable students to master physico-chemical techniques.
- Prerequisites: A minimum grade of C in CHM 239, MTH 143 and one year of physics.
- Method: The four-hour course consists of 3 hours of lecture and two hours of lab work per week.

Course Objectives

The main course objectives are:

- IDEA Objective #2: To learn fundamental principles, generalizations, and theories.
- IDEA Objective #8: To develop skill in expressing oneself orally or in writing.

Enabling Objectives direct student effort toward the course objectives. The students will be exposed to and demonstrate some mastery of:

- Experiments that demonstrate the need for the theory of quantum mechanics.
- The mathematics associated with basic quantum theory.
- Spectroscopic measurements to determine physical constants.
- The use of symmetry operators to interpret spectroscopic measurements.
- The statistical approach to thermodynamics.
- The use of computational chemistry programs that aid the chemist in the above objectives.
- The use of Microsoft Excel for numerical integration, non-linear equation modeling, and spectral simulation.

Required and Suggested Textbooks

Required: Quantum Chemistry and Spectroscopy, by Engel and Reid, Pearson – Benjamin Cummings, New York, 2003 (ISBN-0-8053-3843-8)

If taking both semesters, you may wish to buy the larger edition that contains the fall and spring books in one volume: Physical Chemistry, (ISBN-0-8053-3842-X)

Suggested: Mathematics for Physical Chemistry, by Robert Mortimer
Applied Mathematics for Physical Chemistry, by James R. Barrante
FYI, The Barrante book had better reviews on Amazon.

Grading Scheme

- The numerical average will be computed according to the weighting factors in the table below.
- Specific letter grade cut-off values are not predetermined because of the semester-by-semester variation of exams, classes, and circumstances.
- To determine the course letter grade, the student's numerical average will be compared to course requirements, to peer performance, and to the definitions set forth in the University Catalog (<http://www.shsu.edu/catalog/scholasticrequirements.html>) where average performance is a minimum of a C letter grade.

Category Scores (0 – 100%)	Weighting Factor
Attendance Score	0.05
Homework Average	0.10
Exam Average (includes final)	0.60
Laboratory Average	0.25

Attendance Policy

- In accord with university policy, students will not be penalized for absences of up to three hours as long as examinations and other assigned work have not been missed. Beyond that, the student will lose one-fifth of their attendance score for each absence. See table below for an explanation of the attendance score.
- The student is responsible for signing the roster at the beginning of each class period. Forgetting to sign the roster is equivalent to an absence.

Number of Absences	Attendance Score
1 to 3	100%
4	80%
5	60%
6	40%
7	20%
8 or more	0%

Homework Assignments

- Homework assessment will take place on the Blackboard Learning System and in class through book problem assignments.
- It is up to the student to check their grades on the Blackboard system.
- If an online homework set is not properly completed, then the gradebook shows a lock in the gradebook. If a lock appears in the gradebook, email Dr. Williams as soon as possible to reset the attempt.
- The gradebook in Blackboard will be updated after each exam. At that time, Dr. Williams will change all gradebook locks to ZEROs.
- Assignments are due when Blackboard says they are due. Dr. Williams reserves the right to refuse late work, but will make reasonable accommodations for students who experience unfortunate circumstances. Late assignments will be considered for acceptance only if all the following conditions are met:
 - The student was demonstrably incapacitated on the due date or Blackboard was demonstrably down on the due date. Remote computer problems are not acceptable excuses. The computer labs on campus are the most reliable way to complete the homework assignments.
 - The student telephoned in advance or left a voice mail message or email message alerting Dr. Williams to their situation with a description of why they are to miss the due date for the assignment. (All information will be kept in strict confidence.)

Exams

- **BRING A SCANTRON 882-E AND A BLUE BOOK TO ALL EXAMS.**
 - Exams will be more or less equally spaced throughout the semester.
 - The exam booklets and scantrons will remain the property of SHSU as a record of student performance. The students are encouraged to make appointments where they may compare their exams to the key.
 - Dr. Williams does not give make-up examinations. In the unfortunate case, where a student misses an exam, Dr. Williams will discuss possible remedies with the student provided that all the following conditions are met:
 1. The student was absent on the exam date.
 2. The student telephoned in advance or left a voice mail message or email message alerting Dr. Williams to their absence along with a description of why they are to miss the exam. (All information will be kept in strict confidence.)
- Dr. Williams reserves the right to modify the grading scheme such that the final exam may compensate for the missed exam course percentage. Dr. Williams also reserves the right to assign an exam grade of 0% should he deem the absence was not properly handled or was unjustified. Appeals will be handled in accord with University Policy Statement 900823, Academic Grievance Procedures for Students.
- The final comprehensive examination will occur according to the final exam schedule that will be posted on the university website shsu.edu.
 - The final exam will be weighted equally with the other exams in computing the exam average.
 - Students taking this course for graduate credit will receive some different and more difficult questions on the examinations.

Classroom Rules of Conduct

- Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. **This includes text messaging!**
- Cell phones and pagers must be turned off before class begins.
- Students who are making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction will be asked to leave class.
- Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

Laboratory Work

- Laboratory experiments will begin on the second week and will end on the second to last week of the semester. There will not be a laboratory meeting on the week of the Thanksgiving Holiday. Labs will meet on a flexible schedule on the week of the Labor Day Holiday.
- The number of lab experiments and the requirements for lab reports will be provided on Blackboard as the semester progresses.
- The extensive writing component of this course is present in the laboratory reports. Grammar and writing style will be included in the grading scheme for each report.
- The top priority for laboratory work is SAFETY!
 - Safety glasses or goggles **MUST** be worn at all times in the laboratory.
 - Aprons or lab coats are encouraged when doing wet chemistry, working with vacuum pumps, or cleaning glassware.
 - If the actions of any student are deemed to be unsafe and hazardous to themselves, their peers, or the well-being of the facilities, the student will be removed from the laboratory, and an appointment will be made with the department chair to evaluate a course of action.
- The second priority for laboratory work is CLEANLINESS. This is related to long-term safety. All the students are responsible for keeping the whole laboratory clean. Dr. Williams will deal fairly and firmly with any students who consistently make this task difficult for their peers.
- The third priority for laboratory work is PRODUCTIVITY. Students should not be in the laboratory if they are not working on their experiment. **Visitors to the laboratory are prohibited unless escorted by departmental personnel.** If a student needs to meet with others who are not registered in the course they **MUST** leave the laboratory.
- Students taking this course for graduate credit are to choose one laboratory experiment that needs improvement, and prepare an improvement package that is suitable for use in future laboratory sections.

Americans with Disabilities Act

- SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities.
- If a student has a disability that may adversely affect the student's work in this class, then he or she should register with the SHSU Counseling Center, and then, visit with Dr. Williams about reasonable accommodations.
- All disclosures of disabilities will be kept strictly confidential.
- No accommodation can be made until the student registers with the Counseling Center.

Academic Dishonesty

- All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. This is especially important when a student takes an exam at a time different from the rest of the class.
- 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.
- If it is obvious that a homework assignment or laboratory report is a copy of another student's work, BOTH copies will receive a grade of 0%, and BOTH students will be on notice that they will be reported for scholastic dishonesty should they be involved in any questionable work in the future.
- Dr. Williams reserves the right to ask for an oral explanation of work submitted to determine if the student actually performed the work. This should not be construed as an accusation of academic dishonesty. It is merely a tool to ensure that student's are able to explain their work to their supervisors. Only in cases where the student cannot demonstrate the most basic explanation of what they submitted as their original work will there be any question of dishonesty. Warnings, loss of points, or university disciplinary actions will be issued.

Visitor Policy

- Unannounced visitors to class must not present a disruption to the class by their attendance. If the visitor is not a registered student as evidenced by an official and current SHSU identification card, Dr. Williams will decide whether or not the visitor will be allowed to remain in the classroom.

Religious Holidays

University policy (APS 861001) and state law (Section 51.911(b), Texas Education Code) require that a student who is absent from class for the observance of a religious holy day (and whatever associated travel is necessary) be allowed to take examinations or complete assignments scheduled for that period within a reasonable time after the absence. Not later than the 15th calendar day after the first day of the semester, or the 7th calendar day after the first day of a summer session, the student must notify the instructor of each scheduled class that he/she would be absent for a religious holy day. A form (see APS 861001) must be completed by the instructor, signed by the student, and approved by the departmental chair.

Instructor Evaluation

- The students are asked to evaluate all courses and instructors at the end of each semester. These evaluations are an important tool for improving the faculty, courses, and student experiences at Sam Houston State University.
- Sarcastic, derisive, and inappropriate language should not be used.
- Both positive and negative thoughtful comments are taken to heart by the faculty and administration.

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