

Course Information

- Darren L. Williams, Ph.D. (a.k.a. DW)
 - Office: CFS 317 G, Office hours are 10 TO 10:50 AM, MTWRF, and other times by appointment. Email is the preferred method for making appointments.
 - Contact (936)294-1529, williams@shsu.edu, SHSU Page: http://www.shsu.edu/~chm_dlw/,
 - Social: <https://twitter.com/@pchem4all>; www.facebook.com/pchem4all; Blog: www.pchem4all.com
- Lecture will meet in CFS 102 on Monday, Wednesday, and Friday from 9 to 10 AM.

Course Description

Advanced application of quantum theory and symmetry to the interpretation and prediction of spectroscopic data. Radio-frequency, microwave, infrared, Raman, UV-visible, and X-ray methods will be covered.

Course Objectives

The main course objectives are:

- IDEA Objective #1: To gain factual knowledge (terminology, classifications, methods, trends)
- IDEA Objective #2: To learn fundamental principles, generalizations, and theories.

Table 1: Numerical Average Weighting Factors

Category Scores (0 – 100%)	Weighting Factor
In-Class Participation	Required
Homework Assignments	30%
Examinations	70%

Enabling Objectives direct student effort toward the course objectives. The students will:

- Demonstrate competence in the mathematics associated with quantum theory.
- Interpret molecular structure through the lens of molecular symmetry and group theory.
- Synthesize symmetry-based arguments for the interpretation of spectroscopic data.
- Create spectral simulations using computational chemistry programs and Microsoft Excel.

Required Textbook

Symmetry and Spectroscopy, by Harris and Bertolucci, Dover, New York, NY, 1978 (ISBN-0-486-66144-X)

Grading Scheme

- The numerical average will be computed according to the weighting factors in Table 1. Specific letter grade cut-off values are not predetermined because of the semester-by-semester variation of exams, classes, and circumstances.
- To determine the final course 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.
- The test scores are typically low, which causes anxiety over grades. In an effort to reduce this anxiety, Dr. Williams will post tentative letter grades in the online grade book after each exam.

In-Class Participation Policy (Attendance, Preparation, Engagement)

- *When considering letter grades, students who are on the edge of a grade cut-off will receive the lower letter grade if they have regularly missed class or have shown themselves to be poorly prepared or have shown little interest in the material.*
- **Lecture Attendance** is required. It is recorded by signing the roster or by using an SHSU login on in-class quizzes.
- **Communication** is important. If you are having difficulty, then, tell Dr. Williams, IMMEDIATELY.
- **Preparedness** Sloppy behavior like showing up to the exam without a scantron, pencil, or calculator will be recorded.
- **Engagement** Falling asleep or failing to engage in classroom discussions will be recorded.

Out-of-class Participation (Homework and Responsiveness)

- **Documentation** of Homework Effort: The purpose of homework is to help YOU learn the material between the lectures. Every student will be required to keep a **problems composition notebook**. A pdf scan (see app to the right) of the hand-written homework problems must be uploaded to blackboard EVERY THURSDAY by 11:59 PM. The pdf document should be a **single file with multiple pages**. No late submissions or hard-copies will be accepted. *Waiting until Thursday night may cause a student to have 0 points for that week if there are computer problems.*
- **Substantial Effort** is required. Each scanned page is worth 1 point. The page should have a substantial amount of work on it. Problems, equations from the text, notes based upon texts and external sources are allowed. **Class notes do not**



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Everyone
Offers in-app purchases
This app is compatible with all of your devices.

count because this problems notebook is meant to capture what you do OUTSIDE of class. Full credit will be given for **100 pages by the end of the semester**, which reflects a weekly effort of about 10 pages per week.

- **No Procrastination.** Any week without pages will yield a reduction of ten points.
- **Responsiveness** is critical in “the real world”. Often action is needed on your part in response to email, and you must respond accordingly. A gradebook item will be used to keep track of those who habitually 1) become “unresponsive”, 2) lose emails, or 3) reach the storage limits of their campus inbox. This gradebook item will be averaged into the Homework average. DW will not use off-campus emails, because the use of private email accounts are not allowed in some “real world” employment situations. *Students must learn how to clean up their campus accounts.*

Exams

- The exams will be announced in class and on Blackboard with one week notice.
- **BRING A SCANTRON 882-E and a pencil to each exam.** The exams and scantrons will remain the property of SHSU as a record of student performance. The students are welcome to compare their exams to the key in DW’s office.
- DW does not give make-up examinations. In the unfortunate case, where a student misses an exam, DW 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 confidence.)DW reserves the right to modify the grading scheme such that the final exam may compensate for the missed exam course percentage. DW 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 2-hour final **comprehensive** examination will be on Wednesday, December 6th from 9:30 AM to 11:30 AM.

Employment and Scholarship Recommendations

With few exceptions, Dr. Williams only writes recommendation letters for students who make an A in his course.

Academic Dishonesty

- Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating, plagiarism, and the abuse of resource materials.
- DW 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. 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.
- **If DW believes that a homework assignment or problems notebook is a copy of another person’s work, BOTH copies will receive a grade of 0%, and disciplinary action will be considered.**

Additional Disclaimers:

Rules of Conduct: Cell phones must be turned off before class begins. Students are prohibited from **text messaging**, emailing, Facebooking, or engaging in any other form of distraction. Students who are especially disruptive will be asked to leave and may be reported to the Dean of Students for disciplinary action. **Students with Disabilities Act:** Any student with a disability that affects his/her academic performance should contact the Office of Services for Students with Disabilities in the SHSU Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786) to request accommodations. **Visitor Policy:** Dr. Williams will decide whether or not visitors 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 fill out form (see APS 861001) in the first week of class. This form must be signed by the instructor, the student, and approved by the departmental chair. **Course Material Copyright ©2017** Course material is reserved to Sam Houston State University, and may not be mass-produced, posted online, sold, or reproduced for purposes other than personal use by students registered for this course in the current semester.