

COURSE SYLLABUS
CHM 449 (LECTURE & LABORATORY)
PHYSICAL CHEMISTRY II
4 CREDIT HOURS

1. Course Description

This course will cover thermochemistry, the laws of thermodynamics, phase equilibria, and kinetics. A minimum grade of C in CHM 448 is the prerequisite. The four-hour course consists of 3 hours of lecture and four clock-hours of lab work per week.

2. Course Objectives

The main course objectives are:

- IDEA Objective #2: To learn fundamental principles, generalizations, and theories.
- IDEA Objective #4: To develop specific skills, competencies, and points of view needed by professionals in the field of Chemistry.

3. Enabling Objectives

The following objectives will enable the student to achieve the course objectives.

- Study the statistical roots of thermodynamics (Chapters 13-15)
- Learn the Thermodynamic Laws (Chapters 1-5)
- Use the concept of chemical equilibrium to describe gases, solutions, etc (Chapters 6-11).
- Describe the basics of non-equilibrium systems using kinetics (Chapters 16-19)
- Perform laboratory experiments and measurements related to the course material.
- Use computational chemistry programs to predict and confirm course principles.
- Use Microsoft Excel for numerical integration, multiple least-squares regression, Boolean logic operators, and non-linear equation modeling.

4. Required Textbooks

- Required: Thermodynamics, Statistical Thermodynamics, and Kinetics, by Thomas Engel and Philip Reid, Pearson Benjamin Cummings, (ISBN: 0-8053-3844-6)

5. Grading Policy

Category	Weight
Homework	10%
Laboratory	25%
Exams	65%

- 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.

Specific grade cut-off values are not predetermined.

- Students taking this course for graduate credit will be required to prepare an additional report that incorporates various facets of the course into one advanced problem. This report will constitute an additional 10% towards the final grade average. This means that a graduate student will have the following weighting factors: Homework = 10%, Laboratory = 20%, Exams = 60%, Final Report = 10%.

6. Attendance Policy

- Students will not be penalized for missing up to three hours of lecture as long as examinations and other assigned work have not been missed.
- Exceptions are almost never made for students who habitually miss class, and thus, a record of attendance will be kept.
- Laboratory attendance is mandatory. If unavoidable conflicts arise, then arrangements should be made in advance by the student. The schedules of the TA and the professor take precedence over the schedule of the student (including work schedules) when making arrangements for makeups.
- **An unannounced and unaddressed laboratory absence will yield a failing grade.**

7. Homework Assignments

- Homework assessment will be announced on the Blackboard Learning System.
- It is up to the student to check Blackboard frequently for assignments and due dates!
- 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 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.)

8. Laboratory Work

- The laboratory experiments and the requirements for laboratory reports will appear on Blackboard as the semester progresses.
- Sometimes oral instructions and modifications are given in class. These are binding, and

detailed notes of what is said in class are required for success.

- The top priority for laboratory work is SAFETY!
 - Safety glasses or goggles MUST be worn at all times in the physical chemistry laboratory.
 - 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.
- 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.

9. Exams

- **Exams will utilize both a Scantron form 882-E and a Blue Book.**
- There will be multiple midterm exams and a comprehensive final exam.
- Exams will be announced in class, and an announcement will be posted on Blackboard stating what the exam will cover.
- The exam answer sheets will remain the property of SHSU as a record of student performance.
- Make-up examinations are not given. In the unfortunate case, where a student misses an exam, the professor will discuss possible remedies with the student provided that all the following conditions are met:
 - The student was absent on the exam date.
 - The student telephoned in advance or left a voice mail message or email message alerting the professor to their absence along with a description of why they are to miss the exam. (All information will be kept in strict confidence.)
- The professor also reserves the right to assign an exam grade of 0% if 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 be averaged with the midterm exams to determine the total exam average.

10. Academic Dishonesty

- 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 students 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 suggestion of dishonesty.
- The University 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.

11. Classroom Rules of Conduct

- Cell phones must be turned off before class.
- Students who are especially disruptive may be reported to the Dean of Students for disciplinary action in accordance with university policy.

12. Visitor Policy

Dr. Williams will decide whether or not the visitors will be allowed to remain in class.

13. Instructor Evaluation

- The IDEA system asks the student to evaluate their performance towards the course objectives.
- Sarcastic, derisive, and inappropriate language should not be used.

14. Americans with Disabilities Act

No accommodation can be made until the student registers with the Counseling Center.

15. Religious Holidays

Dr. Williams will comply with university policy and state law regarding religious holidays.

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