

CHEM 3412

Physical Chemistry II

Spring 2018

Instructor: Dr. Christopher Wozny

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Office: Peeples Hall 228

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Class Schedule: TR 8:00-9:15 am Peeples Hall 111

T 1:40-4:30 pm Peeples Hall 311

Office Hours: 10:00-10:40 am MW; 9:25-10:40 pm T,Th; 1:40-3:00 pm W, Th

Course Catalog Description:

An examination of the principles and applications of quantum chemistry, with an introduction to spectroscopy and molecular symmetry. The laboratory experience introduces students to the use of simulations to explore chemical phenomena and well as traditional spectroscopic methods.

Prerequisites: CHEM 3212K, MATH 2254, PHYS 1112K or PHYS 2212K

Textbook: *Physical Chemistry*, 3rd edition, Thomas Engel and Philip Reid with *Mastering Physical Chemistry* (ISBN 978-0-321-81200-1)

Learning Outcomes:

Upon completion of CHEM 3412, students will be able to:

1. Identify the radial, angular and spin eigenfunctions and eigenvalues for a one-electron atom and explain the mathematical characteristics of the functions and the patterns found in their quantum numbers.
2. Apply the Schrodinger equation to realistic systems to predict outcomes of measurable quantities.
3. Apply the principles of physical chemistry to experimental results, either through simulations of experiments or by direct data collection.

Laboratory Safety:

The laboratory is an integral part of any chemistry course. You **MUST** observe **ALL** safety rules at all times. No one will perform an experiment without goggles when chemicals are involved. Sandals, open-toed shoes, and shorts are **NOT** permitted in the laboratory when chemicals are involved. The instructor will emphasize any special safety precautions in the pre-lab introduction. Failure to follow safety guidelines may result in a lower grade for the experiment, or in cases where infractions have the potential to result in bodily injury to oneself or others, immediate withdrawal of the offender from the course.

Assessment and Evaluation:

The letter grade for the course will be assigned based on a standards-based approach to grading. Sixteen standards have been identified based on course content. Students will demonstrate competency (or mastery) of a Standard by an assessment that is equivalent to a quiz or an exam question. Letter grades will be assigned based on mastery of the Standards, as follows:

Demonstrate competency in:	Letter grade
15 or 16 Standards	A
13 or 14 Standards	B
11 or 12 Standards	C
9 or 10 Standards	D

In addition, there are three Core Requirements: laboratory activities, homework and class preparation assignments, and a comprehensive final exam.

All students are expected to submit six acceptable laboratory reports. If a report is found to be unacceptable, the student will be given instruction on how to correct it and it can be re-submitted. Submitting only four or five acceptable laboratory reports will result in the 'loss' of a Standard. Submitting three or fewer acceptable reports will result in a drop of one letter grade.

Similarly, students are expected to achieve between 65-90% of the total points assigned for the combination of the Mastering Chemistry and Class Preparation assignments. Achieving less than 65% for these combined assignments will result in a drop of one letter grade; achieving more than 90% for the assignments will count as one 'extra' Standard.

The final exam is a cumulative assessment of student understanding of course concepts. A score less than 50% of the final exam points will result in the drop of one letter grade. A score between 65%-51% will result in the 'loss' of one Standard. A score between 80-89% will count as one 'extra' Standard. A score of 90% or higher will count as two 'extra' Standards.

Attendance and Make-up Policies:

Given the nature of the course and the depth of the material, it is very important to be present for all lecture sessions. Due to scheduling and set-up/tear-down issues for the laboratory, it may be difficult or impossible to make up missed labs.

Emergency Instructional Plan:

If the college is closed for inclement weather or other conditions, use the equivalent time to complete any unfinished out-of-class activities and prepare for the next topic of study. Also check your DSC email for additional assignments, activities and due dates. Our remaining class time will be compressed, so it is very important that you are aware of the concepts and principles we will be exploring during our time together so that we can use our time efficiently, and as a result, additional effort may be required outside of class to comprehend the material. Compensatory make-up days may be required if the total number of days lost exceeds the equivalent of one week of class time.

Drop/Withdrawal:

The last day to drop this class without penalty is posted on the Dalton State College website and calendar and you will be assigned a grade of **W**. After this date, withdrawal without penalty is permitted only in cases of extreme hardship as determined by the Vice President for Academic Affairs; otherwise a grade of **WF** will be issued.

Students who fail to complete the official drop/withdrawal procedure will receive the grade of **F**. **Withdrawal from class is a student responsibility.** Before dropping any class, the college **strongly advises** that students meet with their academic advisor and their instructor to discuss the impact of a withdrawal on their graduation plans. The college also **strongly advises** students who are receiving any type of financial aid to visit the Financial Aid Office in Pope Student Center to discuss the impact a withdrawal may have on their financial aid status. The grade of **W** counts as hours attempted for the purposes of financial aid.

Academic Dishonesty:

Cheating and plagiarism are a part of the Dalton State Code of Student Conduct, which can be found in its most updated form at <http://daltoncampuslife.com/student-conduct/>. ANY assistance provided or given in any way toward work in a class constitutes cheating, unless such behavior is authorized by your instructor. Additionally, any use of the ideas or words of others should be noted, or this will constitute plagiarism. For more details on what Dalton State considers to be Academic Dishonesty, please review the Code of Student Conduct. Instructors will assign grades based on classroom performance. Additional sanctions may be provided as a learning experience from the Student Conduct process.

Campus Carry:

For information regarding HB 280 (campus carry) please visit the following website

<http://www.usg.edu/hb280>

Classroom Behavior:

Dalton State is committed to respect via the Roadrunner Respect pledge. To learn more, please visit <http://daltoncampuslife.com/roadrunner-respect/>.

“I pledge to show my fellow Roadrunner students, faculty, staff, and administration respect by treating others the way they want to be treated and by thinking about others first before making decisions that might affect them.”

Disability Services:

Students with disabilities or special needs are encouraged to contact Disability Access. In order to make an appointment or to obtain information on the process for qualifying for accommodations, the Disability Access Library Guide is located at <http://libguides.daltonstate.edu/c.php?g=24716&p=149663> or contact the Disability Access office.

Contact information:

Andrea Roberson, Associate Director of Disability Access and Student Support Services
Pope Student Center, upper level, Dean of Students Office
706-272-2524, aroberson@daltonstate.edu

Sex Discrimination, Harassment, & Assault:

In accordance with Title IX of the Education Amendments of 1972 (“Title IX”), the University System of Georgia (USG) does not discriminate on the basis of sex in any of its education programs or activities or in employment. The USG is committed to ensuring a safe learning and working environment for all members of the USG community. To that end, this Policy prohibits sexual misconduct, as defined herein.

In order to reduce incidents of sexual misconduct, USG institutions are required to provide prevention tools and to conduct ongoing awareness and prevention programming and training for the campus community. Such programs will promote positive and healthy behaviors and educate the campus community on consent, sexual assault, alcohol use, dating violence, domestic violence, stalking, bystander intervention, and reporting.

When sexual misconduct does occur, all members of the USG community are strongly encouraged to report it promptly through the procedures outlined in this Policy. The purpose of this Policy is to ensure uniformity throughout the USG in reporting and addressing sexual misconduct.

How to Report

Please note that although you have the option to make a report anonymous, doing so may limit the College's options for response.

Call 911 if you are in an emergency situation

If you would like to report to a Police Agency:

Dalton State Public Safety
Health Professions Building- Upper Level
706-272-4461

Online Sexual Assault Report [HERE](#)

If you would like to report to Dalton State Administration:

DSC Online Reporting Form

Title IX Coordinator
Lori McCarty
Director of Human Resources
Phone: 706-272-2034
Email: lmccarty@daltonstate.edu

Deputy Title IX Coordinator
Bobby Whitehead
Assistant Director for Student Conduct
Phone: 706-272-2999
Email: bwhitehead@daltonstate.edu

If you would like to talk with someone confidentially:

The Counseling Center
Health Professions 266 (Inside Health Center)
Phone: 706-272-4430