

Physical Chemistry I - 3541

Lecture: TR 11:10 – 12:45 p.m.

Fall, 2008

Professor:	Dr. Aimée Tomlinson
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Office Hours:	MWF 9:00 – 10:00 a.m., MW 9:00 – 10:30 a.m. and by appt

Prerequisites: A passing grade in chemistry 1212 lecture and lab, Calculus I (and preferably Calculus II), Physics I and II (preferably calculus-based), and Analytical Chemistry.

Course Objective: This course is the first semester of a two-semester physical chemistry sequence. It is intended for students who plan on majoring in the chemistry. We will examine modern quantum mechanics including: atomic and molecular structure theory, bonding, and spectroscopy.

Required Text: *Physical Chemistry: A Molecular Approach* by McQuarrie and Simon; University Science Books, 1997 (ISBN: 0-935702-99-7)

Web Sites: <http://radar.ngcsu.edu/~altomlinson/index.htm>
<http://www.facebook.com>

Also Required: Calculator with exponential and logarithmic functions (if it is programmable I will make you erase the memory prior to a test), a functioning writing tool, paper, and enough caffeine to make sure you stay awake from 12:15 – 2:10 p.m on Tuesday and Thursday.

Exams:

Four exams will be given over the course of the semester. Makeup exams are given only by previous consent. The final will be a comprehensive ACS exam over the entire semester.

Assignments:

You will be given an assignment at the beginning of each chapter. I will select problems from each set to grade for homework. These problems will be taken from your textbook and are chosen to prepare you for exams.

Course Evaluation: Final course grades will computed/evaluated according to the allocations below.

Four Exams (15% each)	60%
Homework	20%
Final Exam	20%

I will be giving final grades based on a straight 90, 80, 70, 60 percentage. As such you must obtain a score of at least 60% in order to pass this course.

Extra Credit: There is none so don't ask.

Schedule: Some material may be either deleted or supplemented from the chapters below.

I. *Fundamentals of Quantum Mechanics*

Chapters 1, MathA, 2, MathB, 3, MathC, 4, and 5 — Intro to Quantum, Complex Numbers, Classical Wave Function, Probability and Statistics, Particle in a Box, Vectors, Harmonic Oscillator and Rigid Rotator

Exam #1 (Tuesday, Sept. 16)

II. *Atomic Structure*

Chapters 6, MathD, 7, MathE, and 8 — H-atom Wavefunction, Determinants, Approximation Methods, Multielectron Atoms

Exam #2 (Tuesday, Oct. 7)

III. *Molecular Structure and Covalent Bonding*

Chapters 9, 10, 11, 12 and MathF — Chemical Bonding in Diatomic and Polyatomic Molecules, Computational Quantum, Matrices, and Group Theory

Exam #3 (Thursday, November 6)

IV. *Spectroscopy*

Chapters 13 and 14 — Molecular Spectroscopy and NMR

Exam #4 (Tuesday, November 25)

V. **Cumulative Final (Thursday, December 4 from 10:30 – 12:30 p.m.)**

Academic Integrity Code:

North Georgia College and State University is dedicated to providing an educational climate characterized by integrity. Academic integrity, in particular, must be the cornerstone of an institution of higher learning and must pervade all segments of the University community. Furthermore, academic integrity is the mutual responsibility of the various constituencies (students, faculty, staff, and administration) which comprise the University.

Academic Integrity Defined

The following regulations define the concept of academic integrity and should be useful in determining standards and attitudes appropriate for optimal intellectual functioning.

1. No student shall receive or give assistance not authorized by the instructor in the preparation of any essay, laboratory report, examination, or other assignment included in an academic course.
2. No student shall take or attempt to take, or otherwise procure in an unauthorized manner, any material pertaining to the conduct of a class, including but not limited to tests, examinations, laboratory equipment, and roll book.
3. No student shall sell, give, lend, or otherwise furnish to any unauthorized person material which can be shown to contain the questions or answers to any examinations scheduled to be given at any subsequent date in any course of study offered by the university, without authorization from the instructor.
4. No student shall plagiarize. Themes, essays, term papers, tests, and other similar requirements must be the work of the student submitting them. When direct quotations are used, they must be so indicated and when ideas of another are incorporated in the paper, they must be appropriately acknowledged.
5. No student shall resubmit her/his graded material from other courses or from previous assignments for a current assignment without permission of the instructor.
6. No student shall sign class rolls for another student.

Integrity Code

The integrity code, on my honor, "I will not lie, cheat, steal, plagiarize, evade the truth or tolerate those that do," symbolizes NGCSU's commitment to academic integrity.

Class Evaluations:

Class evaluations at NGCSU are now conducted on-line through Banner. Evaluation of the class is considered a component of the course and students will not be permitted to access their course grade until the evaluation has been completed. The evaluations will be accessible beginning one week prior to Final Exam week.

Disabilities and Accommodations:

North Georgia College and State University is committed to equal access to its programs, services and activities for people with disabilities. If you believe that you have a disability requiring an accommodation, reasonable prior notice needs to be given to the instructor and the Office of Student Disability Resources. In this case, contact Elizabeth McIntosh, Coordinator, Student Disability Resources at 122 Barnes Hall, 867-2782, emcintosh@ngcsu.edu.

My Pet Peeves:

- any form of cheating
- cell phones
- any disrespectful behavior be it towards me or your peers
- ipods or anything that would distract you from class
- wining – I absolutely hate it!

Ways to reach me:

- email
- by phone (if I am in the office)
- facebook
- during my office hours

My Website will include:

- lecture notes
- homework assignments and solutions
- test solutions