

**TEXTBOOK:** Chemical Principles by Zumdahl and Zumdahl & Decoste. 8th edition is current, but earlier editions are similar and are ok.

**LECTURE:** Students are expected to go over the notes in Moodle and read the textbook material relating to the Moodle listed topics before class. Classes are interactive with a lot of problem solving done during class. It is mandatory that you attend all the classes.

**ALL HOMEWORK IS IN YOUR MOODLE WEBSITE FOR CHEMISTRY.** There are two types of homework: Basic and Regular.

**Basic Homework, worth 100 points:** Do the basic HW for the chapter before coming to the lecture. This homework is intended as a preparation for your participation in class. Getting > 70% in the basic homework before the lecture, will ensure you have the foundation necessary to understand what is being taught in class.

**Regular homework, worth 160 points:** This homework is to test your understanding of the material being taught. This homework will build on the classroom content and enhance your understanding of the material. This homework will also be good preparation for the common exams.

All homework is very important. However, it is absolutely important that you aim to get > 90% in the basic and >70% in the regular HW to help you pass this class.

Each homework assignment has its due date. In addition, Moodle has a calendar with due dates. **ALL HOMEWORK MUST BE DONE ON TIME.** There is no credit for late homework. DO NOT WAIT TO THE LAST MINUTE TO DO YOUR HOMEWORK. ONLINE SYSTEMS ARE NOT 100% RELIABLE AND UNEXPECTED EVENTS MAY OCCUR. IN GENERAL, THERE IS NO LATE HOMEWORK AND MOODLE BEING DOWN IS NOT A VALID EXCUSE. PLAN TO FINISH YOUR HOMEWORK AT LEAST ONE DAY BEFORE IT IS DUE.

**EXAMINATIONS:** There are 3 common exams and 1 final exam administered during the course. The exams are worth 550 points. You are required to maintain an average of 35% which is 193 points in the common exams and finals in order to pass the course.

**COMMON EXAMINATIONS:** Three common examinations will be administered throughout the semester. Each Common exam is worth 100 points and is 75 minutes in duration.

**FINAL EXAM:** The final exam is a standardized ACS final. The exam is worth 250 points and is between 110 - 125 minutes. Scoring > 60% in the final exam is a good target for a passing score in the course.

**EXAM BEHAVIOR:**

- Students are reminded that violations of the NJIT student Honor Code are serious and that the Chemistry Division will make an extraordinary effort to prevent *CHEATING* on all examinations and will vigorously prosecute cases of cheating, if any, in accordance with NJIT policy and procedures.
- Use the bathroom before or after test. No work is allowed on the test after leaving to use the bathroom.
- During sign in a NJIT photo ID or valid driver's license needs to be visible. No books, **cell phones**, notes, tables, or scrap paper will be allowed.
- ***Scientific Calculators but not hand held computers are permitted.*** Calculators with battery operation only are permitted. Students must bring *two #2 pencils* to all exams.
- If you have a medical condition, bring it to the instructor's attention at least one week in advance so special arrangements can be made.

### **MAKEUP EXAM POLICY:**

**One *make-up examination*** will be permitted if there is an acceptable and substantial reason. A grade of zero will be given for a second missed examination independent of reason.

### **ACADEMIC INTEGRITY**

Students are reminded that violations of the NJIT student Honor Code are serious and that the Chemistry Division will make an extraordinary effort to prevent **CHEATING** on all examinations and will vigorously prosecute cases of cheating, if any, in accordance with NJIT policy and procedures. Students are hereby notified that computer crosschecking and statistical analytical methods are used, in addition to the more traditional methods, to detect and deter cheating.

**TEST GRADING ERROR.** Tests are returned in recitations following the test. If you believe there is an error, you have until the Thursday following the test to submit a test for regrading. You must write a very brief description of the problem on the back of the test. **(The answer key is provided in Moodle in the TEST INFORMATION book. You should always learn from your mistakes and go over the answer key.)**

ALL ERRORS NEED TO BE BROUGHT TO THE INSTRUCTOR'S ATTENTION WHEN THEY OCCUR. DO NOT WAIT UNTIL THE END OF THE SEMESTER.

**The first semester Chemistry covers material that is relevant for students interested in taking upper level chemistry classes and is a prerequisite for certain engineering disciplines.**

**Key topics covered are Atomic structure and the periodic table, stoichiometry, Chemical Equations, Gases, thermochemistry, quantum mechanical approach to the atom, bonding theories, Liquid and Solid States, Intermolecular forces.**

### **GRADING POLICY:**

The grading will include a total of six exams:

3 common exams worth **100 points each**

3 in-class quizzes worth **40 points each**

1 final worth **250 points**

1 project worth **70 points**

Basic and regular HW worth **260 points**

**Total points = 1000**

A course point total of > 88% will be considered an A.

## **COURSE CONTENT:**

Chemistry 125H covers the following chapters in the text book roughly at the rate of 1.5 chapters each week. The correlations with the Gen Chem 125 Tro book are provided in parenthesis for your benefit.

### **Zumdahl (Tro) Chapters**

Chapter 1 (1): Matter, Measurement, and Problem Solving

Chapter 2 (2) : Atoms, Molecules and Ions (not covered in Chem 125).

Chapter 3 (3) : Stoichiometry

Chapter 4 (4): Types of Chemical Reactions and Solution stoichiometry

Chapter 5 (5) : Gases

Chapter 9 (6) : Thermochemistry

Chapter 12 (7): The Quantum-Mechanical Model of the Atom

Chapter 13 ( 8): Bonding: General Concepts

Chapter 13-14 (9 -10) Bonding--Lewis Theory, VSEPR, VBT

Chapter 16 (11, 12) Liquids, Solids, and Intermolecular Forces

Chapter 17 : Solutions

Chapter 18: Representative Elements

**Common exams: Monday 4:30- 5:45pm**– 9/25/17, 10/23/17, 11/20/17

9/28, 10/26 and 11/21 are the dates for the in-class supplement quizzes

HONORS project assigned in November and due on the last day of class.

The professor reserves the right to make changes to the content in the syllabus

**Prof. Balasubramanian**