

Brandeis University
Summer School 2008

Chemistry 11A
General Chemistry I - Principles of Material Evolution

General Information (Syllabus)

Class Time

M, T, Th, F 9:00-11:00 am [Session 1]

Note that there will be one class that meets on Wednesday, June 20.

Instructor

Dr. Meledath Govindan, Professor of Chemistry

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Text and Materials for the Course

- 1) N. J. Tro, Chemistry – A Molecular Approach, 1th Ed., Prentice Hall, **required (ISBN: 0-13-100065-9)**. *If you purchase the book from sources other than the Brandeis bookstore, Make sure it comes with access to Mastering General Chemistry (ISBN:0-13-615669-X) ,the on-line home work and quiz web site. Otherwise you have to purchase separately. **If you don't have these by the end of the first day of class, you will fall behind.***
- 2) Solution Manual, Prentice Hall, optional but highly recommended (ISBN: 0-13-61515110-8).

Your primary responsibility in this course will be for the material covered in the lecture, assigned readings from the text, the sample exercises and practice exercises within the chapters, and the assigned problems at the end of each chapter. The problems will assist you in learning the material. I will try to follow the text as closely as possible but writing good notes and asking questions in the class is important.

Working problems is the only way to learn chemistry and I ask that you do work them with paper and pencil. It is common nature that one looks at a problem and thinks that is easy and doesn't have to work it out, but this is not true. By writing down the answer you are actually writing it down in your memory and this is important for later recollection.

Course Objectives and Expectations

This course provides an introduction to chemistry. This session will cover basics, stoichiometry, structure of matter from atomic structure through the chemical bond to molecular structure including atomic and molecular orbitals, thermochemistry, and the

gas laws. The natures of the liquid and solid states are considered as well as changes between states. Solutions and colligative properties are also discussed. The course covers more or less the same material as presented in CHEM 11a to all science majors during the academic year. The small class size allows the instructor to set the pace of the course in accord with the needs of students who have had varying exposure to chemistry in high school.

The emphasis of this course is one of understanding, not rote memorization. At times you may be required to memorize something, but it has to be done after you understand the material. The course is designed to prepare you further study of chemistry – organic, analytical, physical, inorganic, and biochemistry. Since the course is condensed into 5 week, the pace will be intense and students are expected to spend a considerable amount of time each day reviewing material taught in the class that day, doing the assigned problems from inside the chapters and end of the chapters. You are also expected to read ahead for the next day.

Exams and Grading

The most effective way to study chemistry is to keep up with it as we go along. **The lecture notes as well as the pertaining material in the textbook should be reviewed each day and the problems should be attempted on a daily basis.** In addition, you should read ahead the next day's lecture material from the text so that you will be in a better position to understand the lectures. ***If you do not keep up every day, do not expect a good grade at the end of the course.***

There will be **two** mid-term examinations and a final examination. Make-up exams will be given only under extenuating circumstances that will have to be documented. You are expected to contact me before the exam or immediately thereafter if there are problems.

Electronic quizzes (on-line) are assigned for each chapter. These are due on the indicated days on the syllabus. At the end of each chapter you are asked to go to the textbook website and do the assigned homework.

Final Grades

Hour-exams	200 points
Final exam	100
Quizzes and Homework	100
Total	400 points

Attendance Policy

In a relatively difficult subject like chemistry, keeping up with the material is essential. In a short summer schedule we will cover considerable amount of material in one class. Thus, attendance in the class every day is very important and I expect no one to miss classes. If you have to miss a class, be sure to study the material missed before coming to class the next day. Make-up examinations will not be given, except

under extreme circumstances, and with proper documentation, in which case the exam will be 33% more difficult.

Academic Integrity Policy

Your attention is drawn to the appropriate sections on academic integrity in the Brandeis University Student Handbook – see:

http://www.brandeis.edu/studentlife/sdc/rr/html/rr_section4.html. Rules and regulations contained in the Handbook will be strictly applied. There will be some experiments in which you will be working with a partner in collecting the data. However, you are expected to write the laboratory report independently.

The relevant paragraphs pertaining to academic integrity are quoted below:

4.0 Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other sanctions (see Section 21). A student who is in doubt regarding standards of academic honesty in a course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. A student's lack of understanding is not a valid defense to a charge of academic dishonesty.

4.1 A student's name on any written exercise (e.g., examination, report, thesis, theme, notebook, laboratory report, computer program, etc.), or in association with an oral presentation constitutes a representation that the work is the result of that student's own thought and study. Such work shall be stated in the student's own words, and produced without the assistance of others, except for quotation marks, references, and footnotes that accurately acknowledge the use of other sources (including sources found on the Internet). Talking during an examination, or possession or use of unauthorized materials or equipment during an examination constitutes an infringement of academic honesty. Attempting to receive credit for work not originally submitted also constitutes an infringement of academic honesty.

4.2 In some instances, a student may be authorized by a faculty member to work jointly with (an)other student(s) in solving problems or completing projects. However, students may not collaborate on assignments without explicit permission from the instructor. To provide, either knowingly or through negligence, one's own work to assist another student in satisfying a course requirement constitutes an infringement of academic honesty. Aid from personnel associated with University-sanctioned tutoring services is acceptable; tutorassisted work submitted for a grade should be done with approval of the instructor.

4.3 Unless permission is received in advance from the faculty member in charge of the course involved, a student may not submit, in identical or similar form, work for one course that has been used to fulfill any academic requirement in another course at Brandeis or any other institution. A student who perceives the possibility of overlapping

assignments in courses should consult with the appropriate faculty members before presuming that a single effort will fulfill requirements of both courses.

Disability Statement

If you are a student with a documented disability, please see the Summer School Office staff immediately so that all appropriate accommodations can be made. No accommodations will be made retroactively. You should contact me immediately if you have any special need(s) requiring accommodations in the event that the classroom/building must be evacuated.

Internet Resources for Chemistry

Companion Website for the text: http://wps.prenhall.com/esm_tro_chemistry_1/

This on-line resource center contains many programs designed to assist you to learn chemistry and includes a Problem Solving Center, Chapter review, math review, visualization tools, student activities, and quizzes. I strongly encourage you to take advantage of all available resources.

<http://ocw.mit.edu/OcwWeb/Global/OCWHelp/avocw.htm>. MIT's open courseware. Video lectures freely accessible for all. These will be good supplements to our class.

<http://www.webelements.com/> This site provides information on each of the elements in the periodic table and many of their properties.

<http://www.chemfinder.com/> - a site maintained by American chemical society. Information on common chemicals can be found here. Also includes links to MSDS and other data on the chemicals.

<http://www.ilpi.com/msds/index.html> - A site that provides Material Safety Data Sheets of all chemicals.

<http://www.chem.ucla.edu/chempointers.html> A web site with links to many other sites.

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Textbook: *Chemistry – A Molecular Approach* by N. J. Tro

Tentative Schedule of Lectures

Date	Chapt.	Topic	Due Date On-line Quiz
June 2	1	Matter, Measurement, and Problem Solving	June 3
June 3	2	Atoms and Elements	June 5
June 5,6	3	Molecules, Compounds and Chemical Equations	June 8
June 9,10	4	Reaction Stoichiometry; Aqueous Solutions	June 11
June 12	1-4	I Exam (1 hour)	
June 12,13	7	Atomic Structure– Quantum Mechanical Model	June 13
June 16	8	Periodic Properties of the Elements	June 16
June 17	9	Chemical Bonding I – Basic Concepts	June 18
June 19,20	10	Chemical Bonding - Molecular Geometry	June 22
June 23	7-10	II Exam (1 hour)	
June 23,24	5	Gases	June 25
June 26,27	6	Thermochemistry	June 29
June 30, July 1	11	Liquids, Solids and Intermolecular Forces	July 2
July 3		Final Examination (9 a.m. – 12:00 Noon)	

- Schedule subject to change by the instructor.
- On-line quizzes are due by mid-night on the days indicated.
- Examination dates are tentative; but any changes will be announced well in advance. Final exam is scheduled by the registrar and cannot be changed.
- A set of assigned homework problems follows – these will have to be done and the answers checked against the solution manuals (available for purchase or kept on Reserve in the Library). I will be available during the office hours to help, if necessary.

Assigned Homework Problems

Note: I strongly suggest you do all the sample exercises and practice exercises within the chapters and the Visualizing Concepts problems at the end of the chapter. In addition, you are encouraged to work out as many problems as possible from the ends of the chapters. Depending on your level of previous knowledge you may need to do more or less.

TBA