

Brandeis University
Summer School 2008

Chemistry 11B
General Chemistry II - Principles of Material Evolution

General Information (Syllabus)

Class Time

M, T, Th, F 9:00-11:00 am [Session 2]

Instructor

Dr. Meledath Govindan, Professor of Chemistry
Office: Edison-Lecks 119; Tel: (781)736-2510
Home phone: 978-365-4448
e-mail: govindan@brandeis.edu

Text and Materials for the Course

- 1) N. J. Tro, Chemistry – A Molecular Approach, 1st 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).

As in the last session, your primary responsibility in this course will be for the material covered in the lecture, assigned readings, the sample exercises within the chapters, the assigned problems at the end of each chapter, and the online problem sets. 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

This course is a continuation of the introduction to chemistry that was begun last session. Much of the term will be spent on topics, such as, properties of solutions, chemical kinetics, chemical equilibrium, acid-base chemistry, aqueous equilibria,

chemical thermodynamics, electrochemistry, nuclear chemistry, coordination chemistry and environmental chemistry. The course covers approximately the same material as presented in CHEM 11b to all science majors during the academic year. The pace of the course will be fast and I expect that you have a thorough understanding of the concepts learned in Chapters 1-11 in the textbook. The emphasis of this course is one of understanding, not rote memorization. The course is designed to prepare you further study of chemistry – organic, analytical, physical, inorganic, and biochemistry.

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 not be given as a general rule except under extenuating circumstances with written proof such as a doctor's note.

Final Grades

Hour-exams	200 points
Online problem sets and other assignments	100
Final exam	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; tutor-assisted 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.

Brandeis University
Chemistry 11b
Summer 2008

General Chemistry II - Principles of Material Evolution

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

Tentative Schedule of Lectures

Chapter	Date	Topic	On-line Assignment Due Date
12	July 7, 8	Properties of Solutions	July 9
13	July 10, 11	Chemical Kinetics	July 13
14	July 14, 15	Chemical Equilibrium	July 16
12 - 14	July 17	I Examination	
15	July 17, 18	Acids and Bases	July 20
16	July 21, 22	Aqueous Ionic Equilibria	July 23
17	July 24, 25	Chemical Thermodynamics	July 27
15 - 17	July 28	II Examination	
18	July 28, 29	Electrochemistry	Jul 30
19	Jul 31, Aug 1	Radioactivity and Nuclear Chemistry	Aug 3
24	Aug 4	Coordination Chemistry	Aug 5
Various sections	Aug 5	Environmental Chemistry – Brief overview	
18, 20, 20, 24	Aug 7	Final Examination	

*On-line assignments at <http://www.masteringgeneralchemistry.com/>
Course ID: CHEM11ASUMMER08

Notes:

- Schedule subject to change by the instructor.
- The mid-term examination dates are tentative; but any changes will be announced well in advance. Note that the final exam is on **Thursday, August 7**.
- A set of assigned homework problems follows.

Homework Assignments

Important Note: I strongly suggest you do 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 and understanding the concepts you may need to do more or less. The following are selected based on the emphasis I will be placing in the course.

TBA