

SYLLABUS: CHE 1143 (Section 001, CRN 16557) Principles of Chemistry I, Fall, 2010

Instructor: Dr. Donald M. Kurtz

Time and Place for Lectures and Exams: MWF 10-10:50 A.M., Location TBA

General Course Information

CHE 1143 Principles of Chemistry I (3 hours credit) is designed for chemistry majors and other students interested in the chemical sciences. Course content includes an introduction to atomic and molecular structure, the periodic table, chemical equations, stoichiometry, chemical bonding, kinetic-molecular theory of gases, liquids, intermolecular forces, states of matter, solutions, chemical equilibria, introduction to acids and bases.

The goals of this course are to provide students with a solid foundation in the fundamental aspects of chemistry listed above and to prepare students for subsequent courses in chemistry and related fields.

The course content will partially overlap but **WILL NOT DUPLICATE** that of CHE 1103 (General Chemistry I) and will be covered at a somewhat more advanced and accelerated level than in CHE 1103.

Concurrent enrollment in the laboratory course, CHE 1122, is recommended. CHE 1122 is separate from CHE 1143. Dr. Kurtz cannot provide any information about CHE 1122.

Useful course information and announcements will be posted on BlackBoard (<https://bb.utsa.edu/webct/entryPageIns.dowebct>). **STUDENTS ARE RESPONSIBLE FOR ALL COURSE INFORMATION POSTED ON BLACKBOARD.**

Text

Required: Chemistry: A Molecular Approach, Author, N.J. Tro, ISBN-10: 0-13-100065-9

Optional: Selected Solutions Manual for Chemistry: A Molecular Approach, ISBN-10: 0-13-615116-7

Instructor Office Hours and Communication

Dr. Kurtz's Office Hours: 3:30 – 4:30 P.M. Mondays and Tuesdays in Room 4.324 BSE Building.

The best ways to communicate with Dr. Kurtz outside of class:

1. Immediately after class.
2. During office hours.
3. Via BlackBoard mail message (Dr. Kurtz will NOT respond to campus e-mail or phone messages).

Class Lecture and Attendance Policies

The enrollment in this section is relatively small. Therefore, asking questions during lecture is **ENCOURAGED**.

Please turn off cell phones and related electronic devices at the beginning of lecture.

Recording of lectures is NOT permitted.

Class attendance is required; attendance records will not be kept. However, a total of ten unannounced pop quizzes will be given in class. These pop quizzes CANNOT BE TAKEN AT ANY OTHER TIME. Pop quizzes may be given in consecutive lecture periods and lecture periods immediately preceding or following mid-term exams. See **Grades** for information on course credit for pop quizzes.

Students are expected and encouraged to take handwritten notes during class lectures. These include writing reactions, solving problems and hand drawing of molecular structures. Taking notes on PCs or other electronic devices is, therefore, discouraged.

The instructor's PowerPoint lectures slides will be available on BlackBoard AFTER the chapter's material has been covered in class and/or before mid-term exams. These lecture slides are NOT a substitute for class lectures and note taking.

Students are responsible for all material covered in lectures and for all announcements made in class. Absence from class does not relieve students of this responsibility.

The lectures and slides are a supplement to, not a substitute for, the textbook material. Students are responsible for reading and studying all assigned textbook material (See **Reading Assignments for Lectures**).

Exams

Four mid-term exams will be given during regular class periods. Exam dates will be announced well in advance. The lowest mid-term exam score will be dropped (see **Grades** below). Exams will contain a combination of multiple choice and short essay type questions. Hand drawing of structures, diagrams and graphs may be required. Exams are NOT machine-graded.

Exams will be administered ONLY on the announced dates and times. NO MAKEUP EXAMS will be given. If a student misses a mid-term exam for ANY reason, that is the exam score that will be dropped. If a student misses more than one mid-term exam, the course grade will be based on the other exams and quiz scores and the total possible points for these other exams and quizzes. Missing more than two mid-term exams or the final exam may result in a failing grade.

If and only if a student has a conflict with an exam date due to AN OFFICIAL UNIVERSITY FUNCTION, the student will be permitted to take the exam a day or two EARLIER than the announced exam date. In order to do so the student must contact Dr. Kurtz SEVERAL DAYS PRIOR to the announced exam date and show appropriate documentation.

Exams given during previous years of this course are available on BlackBoard. These exams will not necessarily reflect the exact material or chronological order of coverage in Fall, 2010.

Only non-graphing, non-programmable calculators will be allowed during exams. It is highly recommended that students use pencil (and a good eraser), not pen to answer exam questions. Students must furnish their own pencils (two are recommended) and erasers.

Additional material provided for all exams:

1. A Periodic Table with elemental symbols, atomic numbers and atomic weights similar to that on the inside front cover of the textbook.
2. A list of conversion factors and physical constants. The backs of these pages can be used as scratch paper

Announcements about material covered for each mid-term exam will be made in class and posted on BlackBoard at least two days prior to the exam date.

Final Exam is Wed Dec. 8, 7:30-10:00 A.M. in the same lecture room. The final exam will be cumulative, i.e., it will cover material from the entire semester.

Grades

Course grades will be based on the following scale:

Highest three out of four mid-term exam scores: 100pts each x 3	= 300 points (57%)
Cumulative final exam:	= 175 points (33%)
Highest five pop quiz scores: 10pts each x 5	= <u>50 points</u> (10%)
Course Total:	525 points (100%)

Extra Credit: 10pts each x 5 pop quizzes = 50 points

The course point total will include earned extra credit points, but the course letter grade will be based on 525 points = 100%. It is, therefore, theoretically possible to score up to 110% (575 points). Due to the extra credit points and the extra mid-term exam, **EXAM AND COURSE GRADES WILL NOT BE CURVED.**

Letter grading scale: A, 110-90%; B, 89-80%; C 79-70%; D 69-60%; F <60%.

Reading and Problem Assignments (from the Tro textbook, listed in chronological order of lecture coverage)

<u>Chapter</u>	<u>Suggested End-of-Chapter Problems (to be assigned later)*</u>
1 – Matter, Measurement, and Problem Solving	See below Expected Prior Knowledge for this course
2 – Atoms and Elements	34, 36, 38, 42, 44, 50, 52, 53, 56, 60, 66, 68, 70, 74, 86, 88

3 – Molecules, Compounds and Chemical Equations	24, 32, 58, 60, 66, 72, 80, 92, 96, 100
4 – Chemical Quantities and Aqueous Solutions	28, 32, 38, 42, 46, 50, 52, 62
8 – Periodic Properties of the Elements (8.1-8.2, pp. 334-335 of 8.6, pp. 341-348 of 8.7-8.8)	60, 62, 72, 76, 78, 96
9 – Chemical Bonding I: Lewis Theory	40, 42, 44, 52, 54, 56, 58, 62, 66, 68, 72, 74, 82
10 – Chemical Bonding II: Molecular Shapes (10.1-10.5)	30, 32, 34, 42, 46, 48
7 – The Quantum Mechanical Model of the Atom	7, 32, 34, 40, 42, 44, 64, 68
8 – Periodic Properties of the Elements (8.2-8.5)	13, 14, 15, 16, 18, 26, 27, 46, 50, 52, 54, 66, 68, 92
10 – Chemical Bonding II: Valence Bond Theory, Molecular Orbital Theory (10.6-10.8)	8, 9, 18, 22, 23, 30, 32, 34, 46, 48, 56, 58, 64, 70, 76, 78
5 – Gases (5.1-5.8)	7, 20, 21, 30, 36, 38, 42, 46, 50, 52, 54, 58, 62, 66, 74, 80a.-c., 88
11 – Liquids, Solids, and Intermolecular Forces (omit 11.7, 11.10-11.13, omit heats of vaporization)	11, 15, 22, 50, 54, 56, 58, 59, 63, 64, 83, 84
12 – Solutions	29, 30, 31, 35, 36, 51, 57, 60, 63, 64, 65, 66, 76, 81, 82
14 - Chemical Equilibrium	22, 24, 29, 33, 34, 35, 37, 39, 42, 48, 51, 54, 61, 65, 67
15 – Acid and Bases (Sections 15.1-15.6 through page 684, also Section 4.8)	

*End-of-chapter problems will not be graded. They represent the types of problems students should be able to answer on exams. The Solutions Manual has detailed solutions to the problems.

Expected Prior Knowledge for this course

The following material is covered in Tro Chapter 1. It may not be covered explicitly in class, but **WILL** be used throughout the course, including exams. It is the student's responsibility to review and, if necessary, master this material as needed:

1. Scientific Notation and Experimental Error. Knowledge of scientific notation and significant figures is presumed.
2. SI Units, Unit conversions, and Physics for General Chemistry. Knowledge of SI units, metric prefixes, and the unit factor method of units conversion is presumed. Physics material will be covered as needed.
3. Mathematics for General Chemistry. Basic knowledge of algebra and graphing is presumed. Calculus will not be used explicitly in

Students with a Disability

If you will need special consideration because of a disability, please discuss your situation with Dr. Kurtz at the very beginning of the course. If you are registered with Disability Services and anticipate having your exams administered in a manner that varies from that of other students, please make arrangements with Dr. Kurtz well in advance of the first exam. Information about Disability Services is available at <http://utsa.edu/disability/students.htm>

Academic/Scholastic Honesty

ACADEMIC OR SCHOLASTIC DISHONESTY WILL NOT BE TOLERATED. Students are expected to be familiar with The University's definitions of and policies regarding scholastic dishonesty and initiation of disciplinary proceedings, which can be found at <http://www.utsa.edu/infoguide/appendices/b.html#ssc>.

Disclaimer

This Syllabus is provided for informational purposes regarding the anticipated course content and schedule of this course. It is based upon the most recent information available on the date of its issuance and is as accurate and complete as possible. The course instructor reserves the right to make any changes I deem necessary and/or appropriate. Changes in the syllabus will be communicated in a timely manner, both in class and on BlackBoard. Students are responsible for being aware of these changes.