CHEM 141-004: Chemical Principles I
Meets TR 8:00-9:15 a.m.
Fall 2012

Instructor: ***Dr. Cielito "Tammy" D. King***
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Office Hours: W 11:15-12:05; T 9:15-10:15 or by appointment

Email communication is encouraged. Appointments can also be scheduled, but please call or email ahead of time. If my door is open and I am available, walk-ins are welcome as well. I ***strongly*** encourage you to come in and talk to me if you are struggling with the materials in class.

Required Text and materials: "Chemistry: A Molecular Approach" 2nd edition (2010) by N.J. Tro.
Calculator for daily in-class work and exams; safety goggles and bound notebook for the lab

Course description, goals and objectives:

Course Description: CHEM141 Chemical Principles I (4 credits). *Three hours of lecture and four hours laboratory weekly*. This is the first semester of a one-year course in introductory college chemistry designed for students majoring in biology, chemistry, earth sciences, and physics. Theoretical inorganic chemistry will be studied with emphasis on mass-energy relationships in terms of structure and physical laws. Laboratory work emphasizes quantitative techniques. All students are expected to have a background in high school math and algebra, including: fractions, percents, exponents/logarithms, scientific notation, writing and solving algebraic equations, plotting and reading graphs, and general problem solving methods. **Please note that ALL chemistry prerequisite courses require a minimum grade of C-.**

The ***primary goal*** of this course is to provide the student with a solid foundation in the basic facts and concepts of chemistry. This will be accomplished through the following ***objectives*** in the lecture and laboratory:

1) The course should build a solid footing of factual knowledge and fundamental principles upon which the theoretical models of chemistry can be constructed.
2) The course will help the student develop skills in rational thinking, problem solving, and decision making.
3) In the laboratory portion of the course students will develop the skills used by professionals in the field to gain new knowledge in chemistry.
4) The student should gain an appreciation of the importance of chemistry in society and in our everyday life.
5) Students will experience the benefits of working together in a group, cooperatively solving problems and learning new material.

Attendance: *Your attendance in each class period is mandatory and is included in the grading system* (see below). In addition, you are expected to arrive in class ready to work by 8:00 AM. If you miss class due to illness, participation in official university activities, personal emergencies, or religious holidays, you are responsible for obtaining lecture notes and missed assignments. *Class attendance will be taken on a regular basis starting at 8:05 AM*. Points will be subtracted from

your final grade after you have missed more than 2 classes, and the number of points subtracted will be proportional to the number of absences. However, if you miss more than 5 lectures, you will be asked to withdraw from the course.

Habitual tardiness will not be tolerated. For each time that three tardiness have accumulated one absence will be counted. Some of the information provided in class, but not necessarily all, will also be available on the website. *Laboratory attendance is mandatory*.

Grading: Course grades will be evaluated based on the following:

Exams (3 one-hour, worth 100 points each, and 1 final, worth 200 points)	45 %
Homework and Recitation Worksheet	25 %
Class participation and attendance	10 %
Laboratory	20%
Total	100 %

Your course grade will be assigned at the end of the semester, based *roughly* on the following scale: A's (90+), B's (80-89), C's (70-79), D's (60-69), F (<60). Each exam will be assigned a numerical raw score that will not be curved. There is no reason not to cooperate with other students in the learning process, as the success of other students in the class does not diminish your own work (i.e., everyone can get an "A"!).

"+ / -" grades will be used to help differentiate borderline scores. Class participation is strongly encouraged as it is one of the criteria for grading, together with attendance (discussed above). If the class average is significantly below 75%, minor adjustments to the grading scale will be made. In *no instance* will the scale be increased if the class average is above 75%.

Exams: Make up exams will generally **not** be given. If you have a conflict with a scheduled exam, you *must* contact me *well* in advance. Remedies for an excused absence will be handled on a case-by-case basis. Excused absences include those for medical reasons (obtain a note from physician), family emergency (obtain note from the Dean) or participation in an official university sanctioned activity (obtain note from the sponsor/director). If for any reason you miss an exam, you must contact me immediately if not sooner. While exams may not be moved to earlier dates, there is the possibility that an exam could be postponed to a later date.

Final Exam: The final exam time is listed below. The final exam will be cumulative.

TR 8 AM class **Tuesday, Dec. 18** **8:00 – 10:00 AM**

Problem Sets: Throughout the semester individual problems will be assigned to supplement the lecture materials. Some problems will be assigned at the end of a class period and will be due the next class period. Others will have a due date that may be a week to 10 days in advance. To receive full credit, *you must show all work* that was done to arrive at the answer. Students may work together on the problem sets but each student must turn in their own assignment. ***Direct copying of solutions is viewed as a violation of Academic Honesty***. Students are also not allowed to refer to solution manuals, previous year's keys or assignments (violations will be considered a violation of the honor code). It is highly recommended that you begin working on the problem sets when you receive them. Work ahead and do not wait until material has been covered in lecture. Late problem sets will accrue *at least a 20 % penalty per meeting late*. Once a problem set has been

graded and returned, late problem sets will not be accepted, *no exceptions*. They must be turned in at the beginning of the class period on the due date. It is your responsibility to check your problem sets with the posted answer keys to make sure your answers are correct.

Academic Integrity: From the College Handbook: "*At Bridgewater, academic honesty is expected of all students; plagiarism and cheating are not condoned and are subject to academic penalty, which may result in a failure for the course in which the violation took place. A record of the violation is kept and may result in suspension or dismissal from the college*". Academic ***dishonesty*** in CHEM141 may include cheating on exams, plagiarism, copying lab reports, problem assignments, or projects, removal of items from the course binders or bulletin board and may result in dismissal from the course with an F grade.

Online resources: Some information about the class will be posted online, such as problem sets, lecture notes, exam review guides and answer keys. It is your responsibility to check information posted in my website on a regular basis. Again, the URL for my homepage is http://webhost.bridgew.edu/c2king/

Recitation/Lab and Room: Recitation and pre-lab discussions are held in CON485 (Friday section) or CON489 (Tuesday section). Recitation and lab start the week of September 10. The recitation period will be used to supplement the lecture by going over review problems in the text. ***In order to receive a passing grade in the course, you must pass the laboratory***. *Laboratory attendance is mandatory*. ***There are no make-up laboratories***. ***Missing three laboratory periods will result in a failure for the laboratory and hence the entire course***. Prior to each laboratory period, you must read the experiment description in the manual and any assigned chapters in the text. There is a 50 min. recitation period at the beginning of each laboratory. In this recitation period you will work in groups to discuss: 1) the study skills expected of students taking introductory chemistry, and 2) problems and concepts related to the course lecture material. Additional details concerning the laboratory can be found in the laboratory link to my homepage. You will be expected to visit the webpage often for updates and to download specific experiments.

Tentative Course Outline and Exam Schedule – Fall 2012

The following is a list of topics to be covered this semester. Not all chapters or topics will be covered to the same degree. The list shows the approximate order that they will be discussed in lecture. Exam coverage is also approximate. Any changes will be announced prior to the exam date.

Ch. 1: Matter, measurements and problem-solving

Ch. 2: Atoms and elements

Ch. 3: Molecules, compounds and chemical equations

***** ***Exam 1 (Ch. 1, 2 & 3) – Thursday, Oct. 4*** *****

Ch. 7: The Quantum-Mechanical Model of the Atom

Ch. 8: Periodic Properties of the Elements

Ch. 9: Chemical Bonding I: Lewis Theory

***** ***Exam 2 (Topics covered after Exam 1) – Thursday, Nov. 1*** **

Ch. 10: Chemical Bonding II: Molecular Shapes, Valence Bond Theory

Ch. 11: Liquids, Solids, and Intermolecular Forces

Ch. 2, Section 2.9 and Ch. 3: Moles and Chemical Equations

Ch. 4: Chemical and Solution Stoichiometry (Sections 4.1-4.4)

***** ***Exam 3 (Topics covered after Exam 2) – Thursday, Dec. 6***

Ch. 5: Behavior of Gases

Ch. 4: Types of Chemical Reactions (Sections 4.5-4.9)

Ch. 6: Thermochemistry

***** **Final Exam (Semi-Comprehensive) – Tuesday, Dec. 18, 8-10 AM** *******