CHEMISTRY 105: General Chemistry II (Winter 2018)

Instructor  Prof. Allan East.  Office: RI-312 (up the elevator, turn left, turn left and down the hall)
Phone  585-4003.  E-mail: allan.east@uregina.ca.  Visiting hour: 10h30-11h30 weekdays, or by appointment.  Assignment questions and answer keys: http://urcourses.uregina.ca.

Textbooks
2) Laboratory Manual for Chemistry 105.

Course Outline

Chapter 10: Gases (2 lectures)
   Properties of gases, ideal gas law, gas mixtures.
Chapter 11.6 & 11.4: Liquids and Intermolecular Forces (1 lecture)
   Phase diagrams, phase changes
Chapter 14: Chemical Kinetics (5 lectures)
   Elementary rate laws, temperature effects (Arrhenius), multistep mechanisms, catalysis.
Chapter 15: Chemical Equilibrium (3 lectures)
   Equilibrium constants and applications, Le Châtelier’s principle.
Chapter 16: Acid-Base Equilibrium (5 lectures)
   Brønsted-Lowry acids and bases, pH, strong and weak acids and bases, Lewis acids and bases.
Chapter 17: Applications of Aqueous Equilibria (5 lectures)
   Common ion effect, buffers, acid-base titrations, solubility and precipitation.
Chapter 19: Chemical Thermodynamics (4 lectures)
   Entropy S and Gibbs free energy G, and applications.
Chapter 20: Electrochemistry (4 lectures)
   Oxidation states, redox reactions, electrochemical cells and cell potentials, batteries and fuel cells.
Chapter 12: Solids and Modern Materials (4 lectures)
   Metals, ionic solids, molecular solids, covalent-network solids, polymers, nanomaterials.
Chapter 21: Nuclear Chemistry (3 lectures)
   Radioactivity, transmutations, half-lives, fission and fusion reactions, uses, radon.

Laboratory
The labs commence the 2nd week of classes.  Be prepared before you arrive!  The Chem 105 labs have their own URCourses website.

Grading Scheme
Homework assignments 5%
Laboratory 20%
Midterm examination (Wednesday, February 28) 15%
Final examination (Monday April 23, 09h00) 60%

To receive a passing grade of 50%, you must pass both the laboratory and the non-laboratory portions of the class; otherwise, the maximum grade you can receive is 45%.  Failing (<50%) both the midterm and the final exam will also result in a maximum mark of 45%.
**Examinations**
You will be evaluated for the lecture section of the course by a 50-minute midterm exam and a 3-hour final exam. The examinations will cover the lecture and the assigned readings. The examinations will consist of multiple choice and short answers. If you have to miss the midterm examination due to illness or family emergency, you should immediately inform your instructor. A dated, signed medical certificate or, for family emergency, other supporting documentation must be provided. Arrangements will be made on case-by-case basis. However, final examination will not be given at any other time.

**Homework Assignments**
The constant practice of chemistry problems is essential to learning. Assignments and answer keys will be posted on UR Courses. All assignments must be turned in to the instructor BEFORE THE START OF CLASS on the due date. Late assignments will NOT be accepted. **Doing problem sets with a friend:** This practice is acceptable (and even beneficial) if it helps you to learn, but you MUST AVOID PLAGIARISM (copying) and you should ensure that you are getting as much problem-solving practice as your friend is. So, if you want to work with a friend, do this:
(i) try each problem at the same time but without consulting,
(ii) if one is stuck, consult verbally first,
(iii) try to avoid showing your solution to another student, and if you do, don't let it leave your hands. Lending it to them will tempt them into plagiarism.

**Academic Misconduct**
All forms of academic misconduct, including cheating, copying, falsifying lab results, misrepresentation, plagiarism, and others, are considered serious offences within the University community. If the assignments of two students have even one identical-looking response to a question, both assignments will score zeroes. A second offense will cause more serious problems. Cheating, including possession of notes during an exam, will result in an immediate zero and expulsion from the room. Try as best you can to control sideways glancing during the midterm exam, since your neighbour’s exam is regrettably in very close proximity.

**Special Needs**
Any student with a disability who may need accommodations should discuss these with the course instructor after contacting the Coordinator of the Centre for Student Accessibility, RC 251.15, at 585-4631.