

CAPILANO UNIVERSITY COURSE OUTLINE	
Term: FALL 2015	Course No. CHEM 300
Course: CHEMISTRY AND SOCIETY	Credits: 3.0 Section:
INSTRUCTOR Office: Tel: 604-986-1911 (Ext.) email: @capilanou.ca	

COURSE FORMAT: Three hours of class time plus an additional hour of supplemental activity delivered through on-line or other activities for a 15 week semester, which includes two weeks for final exams.

PRE-REQUISITES: 45 credits of 100-level or higher coursework.

COURSE DESCRIPTION:

In the last century, chemistry and related sciences have taken on an increasingly central role in human society, with many consequences that are both helpful and harmful for the survival of our species. This course is intended to help students in developing perspective on the contributions of chemistry to society. There will be a strong emphasis on the critical analysis of a variety of areas in contemporary chemistry, particularly focusing on their social, cultural, and environmental impacts.

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

- apply the scientific method to problem solving;
- analyze and critique current news, recent research, and new developments in chemistry and related disciplines; and
- engage in informed debate on controversial topics in chemistry.

COURSE WEBSITE: Course resources will be delivered via Moodle. The instructor will provide information on how to access the Moodle site in the first lecture.

REQUIRED COURSE MATERIALS:

Textbook: *Chemistry and Society*: custom e-book published for Capilano University incorporating material from *Chemistry in Context*, 7th ed. (2012) C.H. Middlecamp, S.W. Keller, K. L. Anderson, A.K. Bentley, M.C. Cann, and J.P. Ellis. American Chemical Society and McGraw-Hill.

COURSE CONTENT:**Part I: Introductory material**

- 1) **Introduction to Science:** The Scientific Method; Science vs. Technology; historical and contemporary impacts of science in society
- 2) **History of Chemistry:** Origins of chemistry in Ancient Egypt, Greece, and Persia; Alchemy; Chemistry in the Renaissance and beyond; Chemistry in the Modern Era
- 3) **Matter and Energy:** Definitions; Conservation laws; Introduction to Thermodynamics
- 4) **Atoms, Molecules and Reactions:** Definitions; Classification of atoms and molecules; Important types of chemical reactions

Part II: The instructor will select material from the following areas:

- 5) **Chemistry of Life:** Chemical basis for life; Origins of life; Major types of biological molecules; Molecular basis of evolution
- 6) **Biological and Medicinal Chemistry:** Overview of metabolism; Nutritional and food chemistry; Immunochemistry; Medicinal chemistry; Pharmaceuticals, herbal remedies, and traditional medicines; Antibiotics and vaccines
- 7) **Materials science:** Metals; Polymers; Plastics; Nanotechnology
- 8) **Environmental Chemistry:** Atmospheric chemistry; Pollutants; Greenhouse Effect; Chemistry of water; Nuclear energy; Alternative sources of energy
- 9) **Archaeological and Paleological Chemistry:** Carbon dating; Paleobiology; Chemistry as an archaeological tool
- 10) **Cosmochemistry and Astrochemistry:** Stellar chemistry and the synthesis of new elements; Planetary chemistry; Terraforming; Life on other planets?

ASSIGNMENTS: Assignments will consist of a term paper, review of a recent chemistry news article, presentation on a selected topic, group activity.

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Term Paper	20%
Article Review	10%
Presentation	15%
Group Activity	10%
Participation	10%
Final Examination	35%
TOTAL	100%

SUPPLEMENTAL 4TH HOUR ACTIVITY:

Supplemental activity might be a scheduled tutorial, an on-line activity, a group meeting, or some other activity as indicated by your instructor.

GRADING PROFILE:

Letter grades will be assigned according to the following guidelines:

A+ = 90 - 100%	B+ = 77 - 79%	C+ = 67 - 69%	D = 50 - 59%
A = 85 - 89	B = 73 - 76	C = 63 - 66	F = 0 - 49
A- = 80 - 84	B- = 70 - 72	C- = 60 - 62	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

OPERATIONAL DETAILS:***University Policies:***

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other education issues. These and other policies are available on the University website.

Attendance:

The student is responsible for all information given in the lectures and laboratories, including times of examinations and assignment deadlines.

Missed Exams:

Normally, a score of zero will be given for a missed exam, test, quiz, etc. In some exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks.

The situations in which a score of zero may be avoided are those for which the student meets **all** of the following conditions:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. They do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.

2. The student has notified the instructor (or the Pure and Applied Science office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, lab, etc.
3. Proof of the circumstances must be provided. Proof of illness or injury requires a note from a doctor, who may also be consulted.
4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. **Fully participating means attending almost all classes and turning in almost all assignments in the course.**

The options offered to the student who meets the four conditions are decided by the instructor. They will not necessarily meet the convenience of the student.

Final Exam Period: Students should note that the final exam period is from **(date)** (and that they can expect to write exams at any time during this period including Saturday. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

Cheating/Plagiarism: Students caught cheating on a test will normally receive a grade of "F" on the course and may be expelled from the University. Plagiarism (including the copying of any part of assignments, laboratory reports, and essays) is a serious offence and is a form of cheating.

Incomplete Grades: Incomplete grades ("I") are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare. A student receiving an "I" grade should see the instructor.

English Usage: Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile. Please refer to the guidelines provided in the Capilano Guide to Writing Assignments (available from the University bookstore).

Emergency Procedures: Please read the emergency procedures posted on the wall of the classroom.