

CHEM 300A - Spring 2020 – Chemistry in Modern Society

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Lectures will be held on Monday and Thursday from 1:00-2:20 pm in Cornet A121

Office hours: TBA; you can also e-mail me to make an appointment.

Website: web.uvic.ca/~djberg/Chem300A/

Objectives: This is a general course intended for students who have a limited background in chemistry. Chemistry 12 and a first year chemistry course may be beneficial. The course will cover aspects of chemistry in the world around us including our uses of chemicals in industry and everyday life. Timely topics will be covered with an emphasis on how the chemistry works, and advantages and disadvantages of its application. Students will work on projects related to two of the following topics.

Course format

The course will consist of lectures, a few in-class activities and project development. The lectures will provide a general overview of the uses of chemistry in society. Most classes will have some time devoted to developing the group projects. Participation in class activities is mandatory.

Groups of about 6-8 students will be established for each project and these groups will work collaboratively during the course. Each project will consist of written report and a brief class presentation on that report. At the end of each project, each student will provide the instructor with an evaluation of the peers in their group (*format to be explained as we near the end of Project 1*).

The tentative deadlines for the submission of the reports are: **Feb 14 - Project 1 and Apr 6 - Project 2**. Class presentations will take place in the week just before the final report is due and will be about 10 minutes in length.

Project Topics (to be refined)

1. Energy, Pollution, Food or Agrichemicals
2. Materials, Household/Personal Care Products, Pharmaceuticals

Notes

1. *Plagiarism.* Copying or other forms of cheating will lead to a zero grade and may have more severe penalties. You should familiarize yourself with the UVic policy on academic integrity <https://web.uvic.ca/calendar2020-01/grad/academic-regulations/academic-integrity.html>.
2. *Important deadlines.* You are required to familiarize yourself with the various Academic Year Important Dates (<https://web.uvic.ca/calendar2020-01/general/dates.html>)

Evaluation

This course has **no midterm OR final examination** but evaluation will be ongoing based on a number of components listed below. Many activities for the development of the projects will be developed during class time, but activities outside class time will also be required. Active participation in your group activities is strongly recommended because this is usually reflected in your peer evaluation scores. This year, there will also be three short (30 minute) in-class quizzes **based on the lecture material** in response to student feedback from earlier versions of this course.

Grading components:

Project 1	20%	Project 2	20%
Presentation Project 1	7%	Presentation Project 2	7%
Peer evaluation Project 1	5%	Peer evaluation Project 2	5%
Quiz 1-3	12% each		

Lecture Topics (*tentative*)

1. **Energy:** Petroleum, alternative oil resources, nuclear energy, radiation, nuclear waste
2. **Pollution:** Atmospheric chemistry, acid rain, smog, ozone depletion and CFC's
3. **Foods:** Energy content, fats, anti-oxidants, carbohydrates, artificial sweeteners, proteins, vitamins, food additives
4. **Agrochemicals:** Herbicides, insecticides, GMO crops
5. **Polymers:** Plastics, thermosets, elastomers, biodegradable options, recycling
6. **Household and Personal Care Products:** Surfactants, cosmetics, toothpaste, shampoos, deodorant
7. **Pharmaceuticals:** Analgesics, narcotics, depressants, stimulants, steroids, allergy medications, heart medication, anti-acids, antibiotics, cancer therapies.