Faculty of Engineering

Department of Civil Engineering

COURSE OUTLINE

CIVE 480B – Special Topics:

Drinking Water Contaminants – Chemistry, Toxicology and Greener Interventions

Term – Summer 2019 (201905)

Territory Acknowledgement

We acknowledge with respect the Lkwungen-speaking peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

Instructor	**Office Hours**
Dr. Heather Buckley	Days: by email appointment
E-mail: hbuckley@uvic.ca	Location: ECS 418

List all prerequisites and co-requisites: CIVE 310

LECTURE DATE(S)

Section: A /CRN30122	Days:	Time:	Location:
	Monday	08:30 to 09:50	ECS 130
	Thursday	08:30 to 09:50	ECS 130

TA Name	**E-mail**	**Office**
Claire Remington	cremington@uvic.ca	

Required Text	
Title: Environmental Engineering, Fundamentals, Sustainability, Design.	
Author: Mihelcic, Zimmerman	
Publisher/Year:	
Reference Materials: Additional reading materials will be supplied by instructor.	

COURSE OBJECTIVES: This course is centered around a final design project that resembles a consulting opportunity, proposing interventions in the life cycle of trace metals in drinking water to protect human health and the environment. We will cover chemistry in water with a focus on metals, drinking water treatment technologies, toxicology, materials flow and life-cycle thinking, regulations, and an understanding of function in an industrial process. All assignments in the course are designed to feed your knowledge and understanding to better prepare you for your design project.

LEARNING OUTCOMES: At the end of this course, students will be able to:

Content:

- Describe the major chemical processes take place in an aquatic environment, and apply the principles of

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these processes to predicting behaviour of a particular metal
- Evaluate the impacts of drinking water treatments on metals in water
- Describe the fundamentals of toxicology, and explain why understanding toxicology and hazard is important to public health outcomes
- Identify the reasons hazardous chemicals are used in industrial processes
- Propose design alternatives at various stages in the process that reduce potential for harm, and evaluate the tradeoffs inherent in these alternative solutions

Process:
- Work effectively in a team on a design challenge, managing time, task distribution and group dynamics
- Communicate complex technical ideas clearly and effectively in written and oral form
- Search and review scientific literature and evaluate quality of information

CLASS STRUCTURE:

Class is a combination of instruction, guest lectures, and in-class team meetings. Students should spend approximately 9 hours/week on the course; 3 in class and 6 outside of class, including at least one team meeting per week outside of class.

A detailed schedule of in-term class content and deliverables will be discussed in the first week of class. These may be subject to modification during the semester.

COURSE CALENDAR

The course calendar is provided as a separate document, and may change to reflect availability of visiting lecturers. Any changes to deadlines of deliverables will happen at least one week in advance.

ASSESSMENTS:

Deadline	Assignment	Individual/Group	Weight
Fri 17 May	Chemistry Self-Assessment	Individual	1
	Pre-Class Reading Questions, Quizzes	Individual	4
Thurs 6 June	Chemistry Test	Individual	10
	In Term Individual Deliverables (presentations, written)	Individual	15
	In Term Group Deliverables (presentations, written)	Group	20
Mon 29 July or Thurs 1 Aug	Final Presentation	Group	15
Thurs 8 Aug*	Final Report	Group	20
	Peer Evaluation	Individual	5
	Participation	Individual	10

*Test date may need to be slightly altered to accommodate schedule of visiting guest lecturers. Any rescheduling will occur at least one week in advance.
**Final Report deadline will be discussed in the first week of class.

ASSIGNMENTS

Assignments should be submitted as .docx files (preferred) or .pdf files (also fine, particularly if you are using LaTEX or similar) on Coursespaces unless otherwise noted, and are due by 8 am on the indicated date unless otherwise noted. Group Assignments can be submitted by any member of a group and should have the names of all team members at the top of the first page. Presentations should be uploaded as .pptx files (preferred) or converted to .pdf files (also fine) by 8 am on the first day of a set of presentations.

Assignments are listed on the Course Calendar document, and details for each assignment will be provided as a separate document.

PROJECTS:

The Design Project and Final Report and Presentation are described in detail in a separate document.

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

COURSE EXPECTATIONS

All of these expectations go both ways. These are things that I expect from you as a student, and they are things that you can also expect from me as an instructor.

Respect:

In this class, we value diversity of ideas, diversity of backgrounds, diversity of ethnicities, diversity of gender identities, diversity of sexual orientations, diversity of affiliations, diversity of technical and personal strengths, diversity of personal and family lives, and diversity of life objectives. All people both within and outside of our class are first and foremost human beings, and all have equal value.

The goal of this course is to create an environment where ideas can be freely exchanged. This requires an atmosphere of respect in which everyone feels at ease to express ideas and ask questions. As Shunryu Suzuki said, “In the beginner's mind there are many possibilities, but in the expert's mind there are few.” With so many different disciplines being discussed, your instructors will strive to avoid discipline-specific jargon, and will gladly explain unfamiliar terms and concepts. We expect the same from all of the students.

Participation:

By taking this course, you are engaging with being part of a team for the entire semester. To contribute to your team and classmates, you need to be doing the following:

- Showing up to class, both physically and mentally. Communicating with your instructor as well as with your teammates if extenuating circumstances force you to miss class.
- Silencing and putting away your cell phone for the duration of the class.
- Keeping your laptops and other electronics away during lectures, presentations, guest speakers, brainstorming sessions, etc. These should only be used if we are using online search tools, or if you are working as a group to write together.
- Being diligent about your individual assignments and readings so you are familiar with the content and ready to participate in discussion.

- Being prepared to defend your ideas with evidence, and being prepared to learn new things and change your mind.
- When you disagree with someone, doing so professionally and respectfully. Disagreement is healthy and challenging each others' ideas and defending our ideas is how we become better scientists and engineers. We always centre our discussions and disagreements around ideas rather than around people.
- Taking a "yes, and…" approach to brainstorming sessions.
- Noticing who in your group is the loudest, and encouraging equality of contribution. Amplifying the voices and ideas of those who are less likely to speak out.

Communication:

Above all, I expect you to communicate with each other and with me. I can only know that something is problematic (or that something is awesome) if you talk to me. This applies to matters pertaining to the course and to other aspects of your life. Within the limits of my legal obligations as an employee of UVic, if you ask me to keep something in confidence I will do so (and I will clearly communicate these limitations if they become relevant). I may not always have solutions to challenges you are facing, but I will work with you to identify resources that help you to be a happier, more successful student and human being.

COURSE LECTURE NOTES

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.

There will be no supplemental examination for this course.

Syllabus statement

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

Counselling Services - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.* https://www.uvic.ca/services/counselling/

Health Services - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.* http://www.uvic.ca/services/health/

Centre for Accessible Learning - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations* https://www.uvic.ca/services/cal/. *The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

Elders' Voices - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.* *https://www.uvic.ca/services/indigenous/students/programming/elders/index.php*

GENERAL INFORMATION

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

"Attendance

Students are expected to attend all classes in which they are enrolled. An academic unit may require a student to withdraw from a course if the student is registered in another course that occurs at the same time….

An instructor may refuse a student admission to a lecture, laboratory, online course discussion or learning activity, tutorial or other learning activity set out in the course outline because of lateness, misconduct, inattention or failure to meet the responsibilities of the course set out in the course outline. Students who neglect their academic work may be assigned a final grade of N or debarred from final examinations.

Students who do not attend classes must not assume that they have been dropped from a course by an academic unit or an instructor. Courses that are not formally dropped will be given a failing grade, students may be required to withdraw and will be required to pay the tuition fee for the course." UVic Calendar, (2019-2020)
http://web.uvic.ca/calendar/undergrad/info/regulations/attendance.html

Accommodation of Religious Observance

The University recognizes its obligation to make reasonable accommodation for students whose observance of holy days might conflict with the academic requirements of a course or program.
Students are permitted to absent themselves from classes, seminars or workshops for the purposes of religious or spiritual observance.
In the case of compulsory classes or course events, students will normally be required to provide reasonable notice to their instructors of their intended absence from the class or event for reasons of religious or spiritual observance. In consultation with the student, the instructor will determine an appropriate means of accommodation. The instructor may choose to reschedule classes or provide individual assistance.
Where a student's participation in a class event is subject to grading, every reasonable effort will be made to allow the student to make up for the missed class through alternative assignments or in subsequent classes. Students who require a rescheduled examination must give reasonable notice to their instructors. If a final exam cannot be rescheduled within the regular exam period, students may request an academic concession.
To avoid scheduling conflicts, instructors are encouraged to consider the timing of holy days when scheduling class events. For further information, including a list of days of religious observances, please contact the Equity and Human Rights Office or visit their website: <web.uvic.ca/eqhr>

Discrimination and Harassment Policy (GV0205)

http://web.uvic.ca/calendar/general/policies.html

Standards for Professional Behaviour

"It is the responsibility of all members of the Faculty of Engineering, students, staff and faculty, to adhere to and promote standards of professional behaviour that support an effective learning environment that prepares graduates for careers as professionals…."

You are advised to read the Faculty of Engineering Document Standards for Professional Behaviour which contains important information regarding conduct in courses, labs, and in the general use of facilities.
https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

Policy on Academic Integrity

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the Undergraduate Calendar http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html for the UVic policy on academic integrity.

Equality

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Resource Centre for Students with a Disability located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members."