

COURSE SYLLABUS



COURSE TITLE:	CIVE 278 – Water and Waste Management
CLASS SECTION:	X01
TERM:	Winter 2022
COURSE CREDITS:	4.0
DELIVERY METHOD(S):	Lecture/Lab

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and WSÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>.

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME:	Perry Peterson
EMAIL:	petersonp@camosun.bc.ca
OFFICE:	TEC 105, Phone or Text 250 812 2214
HOURS:	I am generally available (24/7) if you need my assistance, check the schedule on my door. Call/Text my number to arrange meeting online/inlab/@office/discuss by phone - your choice.

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

Students learn the theory and practice of domestic water supply and distribution as well as the collection, treatment, and disposal of wastewater. The impact of waste discharges to the environment and the management of solid waste are presented. Water quality concerns and common pathogens in Canada and other parts of the world are also discussed.

Global issues relating to engineering practice, environmental issues, law, and ethics are presented in terms of water and wastewater management practice. The course uses a combination of activities - Lectures, Interactive Activities & Discussions, Case Studies, and Field Trips – to provide a framework for the learner. These will offer opportunities for the learner to consider, discuss and describe the role of the Civil Engineering Technologist as a member of the water and wastewater project team. Engaged classroom participation is key to successful outcomes of this course.

PREREQUISITE(S): C in CIVE 271, CHEM 180

CO-REQUISITE(S):

EXCLUSION(S):

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of this course a student will be able to:

- Describe environmental issues such as water supply and waste management in a civil engineering context.
- Identify common domestic water supply contaminants, their maximum allowable concentrations (MAC) and their effects on human health.
- Describe the public health and environmental effects of wastewater discharges.
- Describe water and wastewater treatment options for removal of common contaminants and possible reuse of treated wastewater.
- Relate applicable laws and regulations to water supply and effluent discharges.
- Describe options for the treatment, disposal, and beneficial reuse of sewage sludge.
- Describe disposal of treated effluent with respect to legal and technical requirements.
- Select components and design small on-site wastewater treatment and disposal.
- Predict flow patterns and hydraulically size components of a water or wastewater treatment plant.
- Describe of common methods of odour control and other operational considerations within wastewater collection and treatment systems.
- Identify components of an engineered landfill
- Discuss waste reduction programs and developments in energy recovery initiatives.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Text – Research Assignments and Multimedia (Video) presentations will be a major component of the course assigned from the course D2L site.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK	ACTIVITY or TOPIC	OTHER NOTES
1	Properties of Domestic Drinking Water <ul style="list-style-type: none">• Introduction to common mineral contaminants• Introduction to waterborne microbiology: Virus vs Bacteria, Common pathogens• Measuring Contaminates: EColi, NTU, Log Removal, mg/L(ppm)• Legislation and Guidelines The ORID analytical model Case Study #1 - Minamata	
2	Sources of Domestic Water: Properties of Groundwater Introduction to municipal water treatment. <ul style="list-style-type: none">• Components of a conventional water treatment system• Disinfection: Free Chlorine, breakpoint calculation• Filtering incl. membrane filter• Particulate, metals, and hardness removal Case Study #2 - Flint	
3	Introduction to water distribution system design. <ul style="list-style-type: none">• Components of a conventional water distribution system• Flow and Pressure: Fire protection	

WEEK	ACTIVITY or TOPIC	OTHER NOTES
	<ul style="list-style-type: none"> Design Methodology Case Study #3 – London, Walkerton	
4-5	Introduction to water distribution system design <ul style="list-style-type: none"> Components of a conventional water distribution system Flow and Pressure: Fire protection Design Methodology Case Study #4 – Bangladesh	
6	Water Resource Planning, Legislation and Water rights Dams and Reservoirs Case Study #5 – Aral Sea, Dead Sea and Cochabamba	
7	Reading Week	
8	Review; Water Exam Case Study #6 – Colorado River	
9	Properties of Sewage <ul style="list-style-type: none"> Harm to environment: Concentrating nutrients, metals, pharmaceuticals Measuring Contaminates: EColi, BOD, NTU Components of a conventional activated sludge treatment system Preliminary and primary treatment Case Study #7 - London	
10	Components of a conventional activated sludge treatment system continued... <ul style="list-style-type: none"> Clarifier Operation Secondary Treatment Breakpoint analysis Case Study #8 – Los Angeles	
11	Components of a conventional activated sludge treatment system continued... <ul style="list-style-type: none"> Tertiary treatment Odor control Sludge processing and disposal Case Study #9 - Victoria	
12	On-Site and Package treatment options <ul style="list-style-type: none"> • Designing a Septic System 	
13-14	<ul style="list-style-type: none"> Values and Ethics Sustainable Opportunities Introduction to solid waste management, engineered sanitary landfill	
15	Final Exam	

Note: This planned course content and schedule may change. Updates will be posted to the course D2L Site

EVALUATION OF LEARNING

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

DESCRIPTION	WEIGHTING
Assignments: Case Studies, Design Labs, Video Log	60%
Water Exam (Midterm)	20%
Waste Exam (Final)	20%
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please see me as soon as possible. Refer to the [Grade Review and Appeals](#) policy for more information.
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

Communication with the instructor outside of the class time should be a normal part of your studies if you require assistance.

- Attendance at lectures and labs is required. If you are unable to attend a class, you must notify the instructor by email prior to the class.
- Assignments will be due as indicated in D2L. If submitting an assignment late is unavoidable, student must email the instructor with an explanation prior to the due date. In all cases, assignments submitted after assignments have been graded will not be marked.
- You must complete all assignments prior to the final exam to be permitted to write the final exam.
- A minimum of 50% must be achieved in the course to pass it.

SCHOOL OR DEPARTMENTAL INFORMATION

Your suggestions on how to make your experience here better are encouraged and appreciated. You are encouraged to speak with the instructor directly first about ways to improve your experience at Camosun. The department chair would be pleased to discuss matters that you feel are more appropriately dealt with by her.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Support Service	Website
Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning

Support Service	Website
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.