Department of Civil and Environmental Engineering
Carleton University

ENVE 4005 WASTEWATER TREATMENT PRINCIPLES AND DESIGN

Fall 2021

Instructor: Jordan Smyth, P.Eng., M.A.Sc.
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Office hours for Prof. Smyth: Please contact me directly via e-mail if you have any questions. If you would like to meet and go over concepts and design problems, I will set up a zoom meeting.

Reference text books
These books are available in the library and you are not expected to purchase them.

1. Wastewater Engineering: Treatment and Reuse.

2. Wastewater Treatment Plant Design.
Edited by P. Aarne Vesilind. Publisher: Water Environment Federation and IWA Publishing.


Course Outline

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<th>Week</th>
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<tr>
<td>Week 1</td>
<td>Introduction to wastewater treatment</td>
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<td>Week 2</td>
<td>Wastewater characteristics and flow rates</td>
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<td>Week 10</td>
<td>Biosolids treatment and disposal</td>
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<td>Week 11</td>
<td>Decentralized and on-site wastewater treatment</td>
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<td>Week 12</td>
<td>Presentation of the design projects</td>
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Grading
Mid-term 20%
Final 50%
Laboratory reports 15%
Design project 15%

Teaching
Classes will be taught online via Zoom from 6:05-7:25pm. Remainder of lecture to be prerecorded and posted online at 7:30pm. All recorded lectures will be made available to students as well as the teaching material.
Labs
Labs will be 50% online and 50% in-class.

Lab reports
Your reports should have the following parts: Introduction, Materials and Methods, Results, Discussion, and Conclusions. Experimental data will be shared within a group for those who are completing the labs online and each group will submit one report. Students who have registered for in-class laboratory sections will collect their own experimental data and each group will submit one report. Sharing data, graphs, reports with other groups is not allowed.

Design Project
Consulting firms (teams of three to four students) will work on the design project together throughout the term. Each group will submit one report (maximum 5 pages of text, single space, font size 12 - excluding supporting graphs and figures). Sample calculations should be included in the Appendix. You will evaluate your team members based on effort and contribution at the end of the term.

Late policy
For each late design project or laboratory report, 5% of the grade will be deducted for everyday late. Weekends are included.

Special arrangements
You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities
The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (if applicable).
Survivors of Sexual Violence
As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities
Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline