ENVE 4005 WASTEWATER TREATMENT PRINCIPLES AND DESIGN
Fall 2017

Instructor: James Diak
E-mail: james.diak@carleton.ca
Office Hours: TBD

Teaching Assistant: Muhammad Salam
E-mail: muhammadsalam@cmail.carleton.ca
Office: ME 2378
Office Hours: TBD

Teaching Assistant: Amitesh Malhotra
E-mail: amitesh.malhotra@carleton.ca

Lectures: Wednesdays & Fridays 13:05-14:25, UC 378
Labs: Tuesdays (A1O/A2E) or Wednesdays (A3O) 14:35-17:25, 1040 MC
Tutorials: Fridays 8:35-9:25, SA 318

Course Prerequisites: ENVE 3001, ENVE 3002

cuLearn will be used for all course content (lecture slides, reading material, lab handouts, etc...)

Textbooks


Course Outline

Week | Subject
--- | ---
1 | Wastewater Engineering Overview
2 | Design Process: Preliminary Considerations
3 | Wastewater Characteristics
4 | Preliminary Treatment
5 | Primary Treatment
6 | Chemical Unit Processes
7 | Aerobic Biological Treatment Processes
8 | Advanced Wastewater Treatment
9 | Disinfection Processes
10 | Biosolids Treatment and Disposal
11 | Anaerobic Treatment
12 | Design Project Presentations

Field Trip: We will try to visit one of the local wastewater treatment plants at the end of the term.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory reports (5)</td>
<td>15%</td>
</tr>
<tr>
<td>Design project</td>
<td>15%</td>
</tr>
<tr>
<td>Mid-term examination</td>
<td>30%</td>
</tr>
<tr>
<td>Final examination</td>
<td>40%</td>
</tr>
</tbody>
</table>

Labs

Attendance is mandatory. Experiments are conducted bi-weekly, Tuesdays (A1O/A2E) or Wednesdays (A3O) in MC 1040. Lab safety protocol must be followed at all times.

Lab Reports

Lab reports are to be submitted individually. Experimental data will be shared within a group, however the lab report including all tables and figures must be your own work. Reports with copied parts will not be graded. Reports are due the Friday of the week following an experiment (9-10 days) and must be submitted at the beginning of the tutorial. Reports should have the following sections:

- Introduction
- Apparatus, Materials and Methods
- Results and Discussion
- Conclusion
- References
- Appendix
**Design Project**
Consulting firms (teams of 3 or 4 students) will work on the design project together. The individual tasks of the design project are due on dates that will be announced in class. This is a group project and all team members should work on the design project together. The design project will consist of several individual reports, and a final report (maximum 5 pages of text, single space, font size 12, with additional graphs, drawings, sketches). Sharing graphs and other illustrations with other groups is not allowed. You will grade your team members based on effort and contribution at the end of the term. These evaluations will be kept confidential and can potentially impact your final grade if you do not contribute equally to the project. Teams will give a presentation at the end of the term.

**Late Policy**
For each late design project or laboratory report, 10% of the grade will be deducted for every day 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*: write to me 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:  
[www.carleton.ca/equity](http://www.carleton.ca/equity)

*Religious Obligation*: write to me 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:  
[www.carleton.ca/equity](http://www.carleton.ca/equity)

*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](mailto: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](http://www.carleton.ca/pmc)) for the deadline to request accommodations for the formally-scheduled exam (if applicable).
Sharing Course Material
Classroom teaching and learning activities, including lectures, discussions, presentations, etc., by both instructors and students, are copy protected and remain the intellectual property of their respective author(s). All course materials, including PowerPoint presentations, outlines, and other materials, are also protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

Student Access to Final Exams
In accordance with the Faculty of Engineering and Design policy, marked final exams will not be returned to students.

Carleton University Policy Regarding Academic Integrity
“Carleton University is a community of scholars dedicated to teaching, learning and research. Sound scholarship rests on a shared commitment to academic integrity based on principles of honesty, trust, respect, fairness and responsibility. Academic misconduct, in any form, is ultimately destructive to the values of the University. Conduct by any person that adversely affects academic integrity at Carleton University is a serious matter. The University demands, unequivocally, academic integrity from all of its members, including students. Misconduct in scholarly activity will not be tolerated. The Academic Integrity Policy is concerned with student academic integrity. The integrity of a student's academic work is critical to enabling student success. Students who violate the principles of academic integrity undermine the quality of their education and the value of a Carleton University degree.” The university’s academic integrity policy can be found in its entirety online at: