

GRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING

POLLUTION CONTROL AND WASTE MANAGEMENT OPTION (2011 – 2012)

PRIOR TO REGISTERING FOR COURSES, STUDENTS SHOULD CONSULT WITH THEIR RESEARCH SUPERVISOR OR THE GROUP LEADER DR. E. HALL 822- 2707 OR ehall@civil.ubc.ca.

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|-----------------|---------------------------|-------------|---|
| M.A.Sc.: | Core Credits | (19) | (includes CIVL 564 OR CHBE 575) |
| | Elective Credits | (2) | |
| | Thesis Credits | (12) | (Register for CIVL 599C) |
| | Total Credits | (33) | |
| M.Eng.: | Core Credits | (16) | |
| | Elective Credits | (11-17) | |
| | Project Course (optional) | (3- 6) | CIVL 596 (Limited availability) |
| | Total Credits | (33) | |
| Ph.D.: | Core Credits | (19) | |
| | Elective Credits | (11) | |
| | Thesis Credits | (0) | (Register for CIVL 699) |
| | Total Credits | (30) | (Minimum required beyond Bachelor's degree) |

Prerequisites: Students entering Pollution Control and Waste Management (PCWM) are required to have the following prerequisite courses (or equivalents). If no equivalent has been taken, the student may be required to take the course in their first fall semester. In some cases, a student may be able to take the missing background course concurrently with the required core course; otherwise, the required core course may have to be deferred for one year. A final possibility is to take the prerequisite on an Audit basis, depending on the total course load in the first term.

| PREREQUISITE COURSES | | CREDITS | TERM |
|----------------------|---|---------|--------|
| MICB 201 | Introductory Environmental Microbiology | 3 | 1 or 2 |
| CHEM 301 | Aqueous Environmental Chemistry | 3 | 1 |
| CIVL 416 | Environmental Hydraulics | 3 | 1 |

With prior departmental approval, course exemptions and/or substitutions will be allowed in special circumstances.

| CORE COURSES | | CREDITS | TERM |
|-----------------------|---|---------|------|
| CIVL 407 | Environmental Lab Analysis | 3 | 1 |
| CIVL 565 | Physical-Chemical Treatment Processes | 3 | 1 |
| CIVL 566 | Transport and Mixing of Pollutants in Aquatic Systems | 2 | 1 |
| CIVL 569 | Biological Wastewater Treatment | 4 | 1 |
| CIVL 597 ¹ | Graduate Seminar | 1 | 1/2 |
| CIVL 562 | Environmental Contaminant Analysis Lab <i>(required for M.A.Sc. & Ph.D. students only; prerequisite is CIVL 407)</i> | 3 | 2 |

¹ Students register only once for the course, but must attend seminars for the duration of their program.

All graduate students are required to have formal training in at least three media. Water and wastewater are covered in the above core courses; students must then select their third medium by choosing one of the following two courses:

| STUDENTS MUST SELECT <u>ONE</u> OF THE TWO FOLLOWING COURSES | | CREDITS | TERM |
|--|---------------------------------------|---------|------|
| CIVL 564 | Engineering Management of Solid Waste | 2 | 1 |
| OR | | | |
| CHBE 575 | Air Pollution Control | 3 | 1 |

| APPROVED ELECTIVE COURSES | | CREDITS | TERM |
|--|--|---------|-------------------------|
| CIVL 405 | Environmental Impact Studies | 3 | 1 |
| CIVL 541 | Environmental Fluid Mechanics | 3 | 2 |
| CIVL 555 | Analysis of Civil Engineering Systems | 2 | 1 |
| CIVL 557 | Toxic and Hazardous Wastes Treatment | 2 | 2 |
| CIVL 559 ¹ | Advanced Water and Wastewater Treatment (prerequisites are CIVL 565 & CIVL 569) | 2 | 2 |
| CIVL 563 | Unit Operations and Processes | 3 | 2 |
| CIVL 567 | Water Pollution Control Engineering | 2 | Nof offered in 11/12 |
| CIVL 572 | Environmental Geotechnique | 3 | 2 |
| ¹ Offered every other year only. Next offering: January, 2013 | | | |

ADVICE TO ASSIST YOU WITH REGISTRATION:

- Please check the UBC Course Calendar for course availability as some of the listed courses are not offered in every academic year.
- Students are encouraged to take a selection of Civil and non-Civil courses as elective credits that best reflect their research and professional interests. Course approval must be made in consultation with the student's supervisor or the specialty advisor.
- Students must **obtain permission from the instructor** for courses they would like to take that are within Civil, but **outside** their area of specialization, as well as for courses in other UBC departments.
- Students may take a **maximum of six (6) credits of 300/400 level Undergraduate Courses**.
- Students may register for a **maximum of six (6) credits towards directed studies coursework**.
- All students, including those who have been approved to make substitutions to the above core course list, must register for a minimum of 12 credits of Civil Graduate Level Courses (500-level and above, excluding M.A.Sc. thesis credits).
- Students requiring remedial course work at the 100/200 level should register to **Audit** the course(s) (this requires submitting a Change of Registration Form) as registering for the course under your degree program for credit will mean the mark obtained will contribute to your overall program GPA.
- All students are individually responsible for ensuring that they meet all requirements of their specialty, the Department of Civil Engineering and the Faculty of Graduate Studies (Faculty of Applied Science for MEng).

For more information, please visit the website at http://www.civil.ubc.ca/current_students/graduates/.