

GRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING

ENVIRONMENTAL FLUID MECHANICS OPTION (2011 – 2012)

PRIOR TO REGISTERING FOR COURSES, STUDENTS SHOULD CONSULT WITH THEIR RESEARCH SUPERVISOR OR THE GROUP LEADER DR. G. LAWRENCE (604-822-5371 OR lawrence@civil.ubc.ca).

M.A.Sc.:	Core Credits	(12-18)	
	Elective Credits	(0-6)	(Consult with Supervisor or Group Leader)
	Thesis Credits	(12)	(Register for CIVL 599C)
	Total Credits	(30)	
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M.Eng.:	Core Credits	(12-18)	
	Elective Credits	(12-18)	(Consult with Supervisor or Group Leader)
	Total Credits	(30)	
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Ph.D.:	Course Credits	(30)	(Consult with Supervisor or Group Leader)
	Thesis Credits	(0)	(Register for CIVL 699)
	Total Credits	(30)	(Minimum required beyond Bachelor's degree)

THE FOLLOWING COURSES ARE REQUIRED FOR THE M.A.Sc. AND M.Eng. PROGRAMS. WITH PRIOR APPROVAL, CORE COURSES MAY BE MODIFIED TO SUIT SPECIALIZED CAREER INTERESTS.

CORE COURSES (12-18 CREDITS)		CREDITS	TERM
CIVL 416**	Environmental Hydraulics	3	1
CIVL 417**	Coastal Engineering	3	2
CIVL 541	Environmental Fluid Mechanics	3	2
CIVL 543	Turbulence	3	Not offered in 11/12
CIVL 542	Physical Limnology	3	1
CIVL 547	Estuary Hydraulics	2	2
CIVL 597 ¹	Graduate Seminar (Required)	1	1/2

** Not required if equivalent course already completed (approval required)

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

APPROVED CIVIL ELECTIVE COURSES		CREDITS	TERM
CIVL 315	Fluid Mechanics II	4	1
CIVL 316	Hydrology Open Channel Flow	4	2
CIVL 407	Environmental Laboratory Analysis	3	1
CIVL 415	Water Resources Engineering	3	Not offered in 11/12
CIVL 544	Computational Open Channel Hydraulics	3	Not offered in 11/12
CIVL 545	Methods in Environmental Fluid Mechanics	3	Not offered in 11/12
CIVL 546	Fluvial Hydraulics	3	2
CIVL 551	Advanced Hydrology	2	Not offered in 11/12
CIVL 555	Analysis of Civil Engineering Systems	3	2
CIVL 558	Water Resources Infrastructure	2	1
CIVL 566	Transport & Mixing of Pollutants in Aquatic Systems	2	1
CIVL 567	Water Pollution Control Engineering	2	Not offered in 11/12
CIVL 568	Water Pollution Control Engineering and Its Ecological Impact	2	Not offered in 11/12
CIVL 569	Biological Waste Water Treatment	4	1

APPROVED NON-CIVIL ELECTIVES		CREDITS	TERM
BIOL 402	Aquatic Ecology I	3	1
EOSC 474	Marine Pollution	3	1
EOSC 476	Estuaries	3	Not offered in 11/12
EOSC 512	Advanced Geophysical Fluid Dynamics	3	1
GEOG 402	Air Pollution Meteorology	3	Not offered in 11/12
MATH 400	Applied Partial Differential Equations I	3	1 & 2
MECH 502	Fluid Mechanics	3	Not offered in 11/12
MECH 586	Turbulent Shear Flow	3	Not offered in 11/12

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 (or Faculty of Applied Science for M.Eng.).

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