

M.Sc. Applied - Bioresource Engineering - Environmental Engineering Option Registration Guide 2021-22

This program consists of 45 credits and its typical duration is 16 to 20 months. **Please note that International students must be registered as full-time students (min. 12 credits each term) in order to meet their study permit obligations.** Students are permitted to be part-time in last semester of program. The exception is the summer term in which 1) student may choose to be registered part-time for their 6-credit Project course or 2) to not register and do their 6-credit project course in a later term, e.g. when a project becomes available.

In the table below are the overall program requirements summarized according to course availability in Fall & Winter terms. A course that is “not offered” means it is not being offered in that term. “Open” means the course is available for registration. “Temporarily closed” means the course is temporarily closed but should open in the near future. Some **approved alternatives** have also been suggested, in case the regular courses are not offered or there are timetable conflicts.

At the end of this document you will find an example of a non-conflicting course schedule for Fall 2021 and Winter 2022.

Research Project: Students must first complete two terms of lectured coursework before registering for the project. Students will normally aim to do their M.Sc.A. Project or Internship in the Summer semester, but other semesters are possible as well. **Summer term registration opens in MARCH.**

Certain courses **have a pre-requisite or require permission of the instructor** in order to register. You can e-mail the instructor directly to request a permit to register for the course on Minerva, stating 1) the reason you would like to take the course, and 2) proof of any required pre-requisites. You also need to provide your name, McGill ID, and the name of the program you are in (M.Sc.A. Bioresource Engineering - Environmental Engineering) and the Faculty in some cases, if the course is in another faculty. Contact information for faculty and staff can generally be found here: <https://www.mcgill.ca/directory/staff/>

If a course is full: you may also try contacting the instructor to see if there are any extra spaces possible, particularly if it is required for your program.

The approval of your Program Advisor is required for:

- 1) Elective courses not found in the lists below
- 2) Any proposed alternatives to complementary courses in the program (due to course cancellations, for example)

To explore other course possibilities, please browse through the course listings at <https://www.mcgill.ca/study/2021-2022/courses/search> or search within Minerva's registration menu (advanced filters) in related Departments and verify permissions and pre-requisites. **ALL COURSES MUST BE 500-level or higher.** It's also possible to take a course in another Quebec university (<https://www.mcgill.ca/transferecredit/iut>) or another university in Canada.

Important to consider when choosing a course: It is strongly recommended you e-mail the course instructor to confirm that you have the **appropriate background to succeed in a course.** You should confirm the course requirements before registering for a course. **McGill Graduate Grading Policy:** The minimum passing grade for a graduate student is **B- or 65%.** **McGill Graduate Failure Policy:** After a second course failure a student will be withdrawn from the university.

Program Requirements (Total 45 credits)

Research Project (6 credits)

BREE 671 (6) Project 1	Normally done in third or fourth term of program. More information will be given to students in the first term of program.		
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Required Courses (9 credits)

	Fall 2021	Winter 2022	
BREE 533 (3) Water Quality Management	Open	Not offered	
CHEE 591 (3) Environmental Bioremediation	Open	Not offered	
CIVE 615 (3) Environmental Engineering Seminar	Open	Not offered	

Complementary Courses* (19 credits)

***As some courses may not be offered in a particular year, some approved alternatives have been included.**

Data Analysis Course (3 credits from the following):	Fall 2021	Winter 2022	
AEMA 610 (3) Statistical Methods 2	Open	not offered	alternative
AEMA 611 (3) Experimental Designs 1	not offered	not offered	
AEMA 614 (3) Temporal and Spatial Statistics 1	not offered	Open	alternative
CIVE 555 (3) Environmental Data Analysis	not offered	Open	
CIVE 609 (4) Risk Engineering	not offered	Open	alternative
ENVB 506 (3) Quantitative Methods: Ecology	not offered	Open	alternative
PSYC 650 (3) Advanced Statistics 1	Open	Not offered	
Toxicology Course (3 credits from the following):	Fall 2021	Winter 2022	
OCCH 612 (3) Principles of Toxicology	Open	not offered	
OCCH 616 (3) Occupational Hygiene	Open	not offered	
Water Pollution Engineering Course (4 credits from the following):			
CIVE 651 (4) Theory: Water/Wastewater Treatment	not offered	Open	
CIVE 652 (4) Bioprocesses for Wastewater Resource Recovery	Open	not offered	
CIVE 660 (4) Chem.&Phys. Treatment of Waters	not offered	Open	
CIVE 677 (4) Water-Energy Sustainability*	not offered	Open	alternative
<i>* cannot be used to fulfill more than one section in program requirements</i>			
Air Pollution Engineering Course (3 credits from the following):			
ATOC 512 (3) Atmospheric and Oceanic Dynamics	Open	not offered	alternative
CHEE 592 (3) Industrial Air Pollution Control	not offered	not offered	
MECH 534 (3) Air Pollution Engineering	not offered	Open	
<i>or an approved 500-, 600-, or 700-level alternative course.</i>			
Environmental Impact Course (3 credits from the following):			
CIVE 677 (4) Water-Energy Sustainability*	not offered	Open	alternative
GEOG 530 (3) Global Land and Water Resources	Open	not offered	alternative
GEOG 601 (3) Advanced Environmental System Modelling	not offered	not offered	replaces GEOG 501
GEOG 551 (3) Environmental Decisions	not offered	not offered	
IGFS 611 (3) Advanced Issues on Development, Food, and Agriculture	not offered	Open	alternative
NRSC 612 (3) Environmental Assessment and Sustainable Development	not offered	Open	alternative
<i>or an approved 500-, 600-, or 700-level alternative course.</i>			
<i>* cannot be used to fulfill more than one section in program requirements</i>			
Environmental Policy Course (3 credits from the following):			
SEAD 530 (3) Economics for Sustainability in Engineering and Design	not offered	Open	alternative
URBP 506 (3) Environmental Policy and Planning	Open	not offered	
URBP 530 (3) Urban Infrastructure and Services in International Context	not offered	Open	alternative
<i>or an approved 500-, 600-, or 700-level alternative course.</i>			

Electives: Further complementary courses (balance of coursework to meet the 45-credit program requirement) (11 credits):

Remaining Engineering or Non-Engineering courses from an approved list of courses, at the 500, 600, or 700 level, from the Faculty of Engineering, Faculty of Agricultural and Environmental Sciences, Faculty of Law, Faculty of Religious Studies, Desautels Faculty of Management, and Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Occupational Health, Political Science, Sociology, and the McGill School of Environment.

List of Approved Elective (Remaining Complementary) Courses. In addition to the below, any course from the Complementary list above may be used as an elective. Ensure that your background meets the requirements of the course. Permission from course instructor may be required; email instructor. **If you want to take a course NOT on the approved list, you must email your Program Advisor to ask for permission to apply it to your program (cc Laura Wittebol).**

	Fall 2021	Winter 2022	
BREE 510 (3) Watershed Systems Management	Open	not offered	
BREE 518 (3) Ecological Engineering	not offered	Open	
BREE 529 / ENVB 529 (3) GIS for Natural Resource Management	Open	not offered	
BREE 608 (3) Special Topics - Independent Project	Open	Open	
BREE 672 (6) Research Project 2	Open	Open	see your Advisor
CHEE 511 (3) Catalysis for Sustainable Fuels and Chemicals	not offered	Open	
CIVE 520 (3) Groundwater Hydrology	not offered	Open	
CIVE 521 (3) Nanomaterials and the Aquatic Environment	not offered	Open	
CIVE 550 (3) Water Resources Management	not offered	Open	
CIVE 557 (3) Microbiology for Environmental Engineering	Open	not offered	
CIVE 584 (3) Mechanics of Groundwater Flow	not offered	Open	
ENVR 540 (3) Ecology of Species Invasions	not offered	Open	
EPSC 549 (3) Hydrogeology	not offered	Open	
GEOG 505 (3) Global Biogeochemistry	not offered	Open	
GEOG 535 (3) Remote Sensing and Interpretation	not offered	Open	
MIME 556 (3) Sustainable Materials Processing.	not offered	Open	
NRSC 670 (3) Principles of Environmental Health Science 1	Open	not offered	
NRSC 671 (3) Principles of Environmental Health Science 2	not offered	Open	(pre-req NRSC 670)
OCCH 605 (6) Physical Health Hazards	not offered	Open	NOTE this is 6 credits!
OCCH 608 (3) Biological Hazards	not offered	Open	
PARA 515 (3) Water, Health, and Sanitation	not offered	Open	
SEAD 510 (4) Energy Analysis	Open	not offered	email: tised@mcgill.ca
SEAD 520 (3) Life Cycle-Based Environmental Footprinting	not offered	Open	email: tised@mcgill.ca
SEAD 540 (3) Industrial Ecology and Systems.	Open	not offered	email: tised@mcgill.ca
SEAD 550 (3) Decision-Making for Sustainability in Engineering and Design	Open	not offered	email: tised@mcgill.ca

Examples of non-conflicting combinations of required, complementary, and elective courses for Fall 2021 and Winter 2022. Other combinations are possible.

Env Eng Fall 2021 - Sample Schedule

BREE 533 (3) Water Quality Management	Required
CHEE 591 (3) Environmental Bioremediation	Required
CIVE 615 (3) Environmental Engr. Seminar	Required
OCCH 612 (3) Principles of Toxicology OR OCCH 616 (3) Occupational Hygiene	Toxicology
GEOG 530 (3) Global Land and Water Resources	Env. Impact

Env Eng Winter 2022 - Sample Schedule

CIVE 555 (3) Environmental Data Analysis	Statistics
CIVE 651 (4) Theory: Water/Wastewater Treatment	Water Pollution
MECH 534 (3) Air Pollution Engineering	Air Pollution
SEAD 530 (3) Economics for Sustainability in Engineering and Design	Env. Policy
Elective (Remaining Complementary course) from approved list above	Elective*

Project and remaining lectured courses can be taken in subsequent terms, i.e., summer/fall or fall/winter as decided by the student.