

GRADUATE STUDIESWINTER, SUMMER AND FALL 2020



WHY CHOOSE POLYTECHNIQUE MONTRÉAL?

It is one of Canada's leading engineering education and research institutions. Founded in 1873, Polytechnique Montréal has built its reputation through its 60 research units and a corps of professors comprised of worldrenowned experts in their fields. Numerous discoveries are made each year, leading to hundreds of scientific articles and patent applications and many businesses have been launched as a result of these innovations.

Polytechnique Montréal's mission? To develop the next generation of top-tier engineers and scientists through its 17 graduate specialities. Equipped with superior infrastructure and research tools, Polytechnique Montréal has earned the title of one of North America's premier centres of scientific knowledge and technology.

Polytechnique Montréal conducts international-quality research that lays the cornerstone of our programs at the masters and doctoral level, as well as responding to the needs of industry and of society as a whole. This affords us significant influence and interaction with other researchers in Canada and beyond. Would you like to be a part of it, to make your own contributions? Explore all the possibilities that await you at Polytechnique Montréal and don't let the language barrier stop you from studying in one of the best-ranked engineering schools in Canada.

Options offered for research-based programs:

- Attend classes and lectures at English-language universities;
- Write and defend your thesis in English.

POLYTECHNIQUE MONTRÉAL IS:

- 8,600 students, of whom more than 2,200 are in graduate studies;
- 18 Industrial Research Chairs and 25 Canada Research Chairs;
- 274 professors;
- \$81-million research budget;

- more than 12.800 scientific and technical publications by Polytechnique professors and researchers over the last decade;
- \$280 million in research infrastructure;
- nearly **51**,000 graduates since 1873.

MONTRÉAL AMONG STUDENTS' FAVOURITE CITIES

(jechoisismontreal.com/en

Which city affords all the advantages of a large urban centre without being cold and impersonal? Montreal, of course! Rated year after year as one of the best North American cities and among the best cities in the world to study, as ranked in the prestigious QS Best Student Cities produced by the Quacquarelli Symonds Institute, Montréal will not disappoint!

The city that welcomes some 35,000 international students every year occupies a special place in their hearts. Students appreciate the city's friendliness, safe environment, festive ambiance, affordable housing, manageable cost of living, and harmonious marriage of North American and European influences. Add to this a stimulating cultural life, numerous sporting activities, splendid green spaces, and a welcoming, inclusive, open and bilingual population.

For many years, Montréal has been at the crossroads of knowledge, innovation and advanced technology and is distinguished by the dynamism of its job market and low unemployment rate, which inspires more and more international students to remain in Montreal permanently to launch their careers.

SETTLING IN QUÉBEC

By way of Québec and Canadian government measures, qualified graduates have access to alternative means of staying in Canada to work, or to establish themselves. For additional information and details, please consult:

- (k) immigration-quebec.gouv.qc.ca/en
- n canada.ca/en/immigration-refugees-citizenship.html

RECOGNIZED EXPERTISE IN MANY AREAS OF RESEARCH

Pursuing graduate studies at Polytechnique Montréal offers the opportunity to not only evolve in one of Canada's premier engineering education and research institutions, but also to benefit from recognized expertise in many areas of research.

These six centres are highly strategic and competitive, touching on areas of engineering that will have a major impact on the world of tomorrow. Here are six examples of significant advances made by researchers at Polytechnique Montréal that may well revolutionize the future!

Aerospace and Transportation



A paint finish that protects against lightning strikes

Professor Daniel Therriault and his team in the Department of Mechanical Engineering have developed a type of paint that protects airplanes from lightning strikes! The paint is composed of nanoparticles that improve the electrical conductivity of airplane parts so that some of the copper coating now used on aircraft can be replaced by this lighter covering. This new material will reduce the consumption of fuel as well as the aircraft's carbon footprint

A revolutionary anti-cancer probe

Teams headed by Professor Frédéric Leblond and by oncology neurosurgeon Kevin Petrecca from the Montreal Neurological Institute and Hospital have developed a probe no bigger than a pencil to help surgeons detect and remove the largest number of cancer cells during operations. Equipped with fibre optics, sensors and lasers, the probe will improve the efficiency of therapies and increase the chances of patient survival.

Life Sciences and Engineering



Multimedia, Information Technologies and Communications



Improving Internet of Things (IoT/IdO) security

The ecosystem of items connected by the internet reduces the boundaries between cyberspace and the physical world, which renders users more vulnerable to attacks by cybercriminals. To avoid falling prey to these malicious agents, professors José Fernandez and Gabriela Nicolescu are leading research projects on the security of the Internet of Things for both consumer products and on critical structures within the industrial context.

Biological granules that remove and recover resources from wastewater

Professor Yves Comeau of the Department of Civil, Geological and Mining Engineering and his team are working on the development of an aerobic granular sludge process for the recovery of phosphorus from wastewater. These rapidly settling biological granules also allow the removal and recovery of organic matter and nitrogen through compact, economical and resilient purification processes.

Energy, Environment and Sustainable Development



Systems Science and Engineering



A robotic arm that responds to touch and eye movement

Professor Sofiane Achiche and his team in the CoSim Laboratory (Intelligent Systems and Mechatronics) have fine-tuned technology that can control a robotic arm via eye movement and artificial sight. The arm can help those with reduced motor skills to accomplish daily tasks.

The science of the infinitely small

Professor Oussama Moutanabbir and his team in the Department of Physical Engineering are world leaders in the development of processes that aim to control materials on an atomic scale. The methods that have been developed allow access to new nanoscopic properties and quantities and the ability to develop innovative, high-performance devices that can be applied to such varied sectors as solar energy to quantic information.

Leading-Edge Materials and Nanotechnologies



PROGRAMS

nolymtl.ca/futur/es/en/programs

Not offered to international students

PROGRAMS	MICRO- Program	DESS	NON-THESIS Master's	RESEARCH- BASED MASTER'S	DOCTORATE (PhD)
	4 to 8 months	8 to 12 months	16 to 24 months	16 to 24 months	3 to 4 years
Aerospace engineering			•	•	
Biomedical engineering	•	•	•	•	•
Chemical engineering	•	•	•	•	•
Civil engineering	•	•	•	•	•
Computer and Software engineering		•	•	•	•
Electrical engineering	•	•	•	•	•
Energy and Nuclear engineering		•	•	•	•
Ergonomics and Software ergonomics	•	•			
Industrial engineering	•	•	•	•	•
Materials engineering	•	•	•	•	•
Mathematics		•		•	•
Mechanical engineering	•	•	•	•	•
Mineral engineering	•	•	•	•	•
Physics Engineering		•	•	•	•
Strategic ecodesign		•			
Sustainable development	•	•	•		
Technology	•	•			



MICROPROGRAMS¹

Microprograms are intended for those wishing to enhance their knowledge or acquire new skills in their original field of specialization or who want to improve their capabilities in the use of new technologies in their working environment.

SPECIALIZED GRADUATE DIPLOMA (DESS)

The specialized graduate diploma (DESS) are short-duration programs that provide the foundation for a specialty through the taking of courses.

NON-THESIS MASTER'S

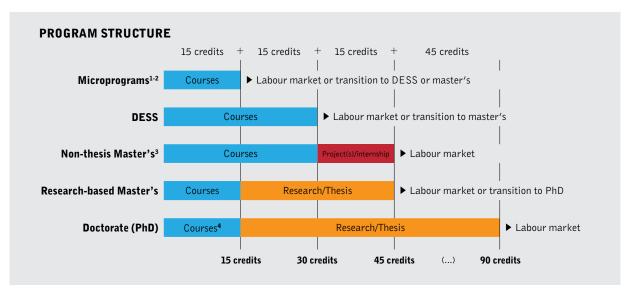
The non-thesis Master's profile is focussed on the development of knowledge for students pursuing a specialty. Activities are mainly centred on courses and the completion of a project or internship.

RESEARCH-BASED MASTER'S

The research-based Master's profile emphasizes the scientific portion of the student's training in engineering, the development of knowledge and an introduction to research. Two-thirds of the program is dedicated to the completion of a research project and the other third to courses related to the field of research. The work is done under the guidance of a research supervisor.

DOCTORATE (PhD)

Doctoral programs in engineering are aimed at helping the candidate develop an advanced level of knowledge, intellectual rigour, scientific curiosity and creativity, which are essential skills in cutting edge professional activities, scientific research as well as in higher education. The work is conducted under the guidance of a research supervisor.



Notes

- ¹ Microprograms are not available for international students.
- ² Microprograms are comprised of 9 to 15 credits.
- ³ For the non-thesis Master's the number of credits assigned to classes may vary from 30 to 39.
- ⁴ Students can receive course credit exemptions if they have studied at a graduate level after obtaining their engineering diploma. An exemption of more than 6 course credits may affect the fees payable. See the study cost chart for more information.

PARTICIPATING IN RESEARCH

nolymtl.ca/futur/es/en/research

Polytechnique Montréal is one of the largest universities in Canada conducting applied research. Each year, a large number of discoveries and technological innovations lead to the publication of hundreds of scientific articles and multiple patent applications. Some have resulted in the creation of new businesses, in some cases, with the support of the Poly-UdeM Entrepreneurship Centre that helps members of the university community launch their business projects.

RESEARCH, IT'S APPLIED!

Students who pursue their studies in research are given the opportunity to work on stimulating and concrete projects that can change the world, one innovation at a time.

For these students, participating in research means:



"Developing methodology that reduces the cost of operating a pulp and paper mill."

Émilie Thibault Research-based Master's in Chemical Engineering



"Contributing to the development of innovative materials for more sustainable construction."

Kim-Séang Lauch
Doctorate in Civil Engineering



"Improving the quality of life for scoliosis patients by designing better orthotics."

Aymeric Guy
Doctorate in Mechanical
Engineering

CHOOSING A PROJECT IS CHOOSING A FIELD OF EXPERTISE!

Polytechnique Montréal counts 274 professors among its faculty who not only teach, but are also actively involved in research in various fields of expertise. More than half of our professors' research activities are conducted in collaboration with industry, whereas the remaining research actitivies constitute basic research, a pillar of innovation and the application of new technologies.

Their expertise is anchored in key industrial sectors and they benefit from an international-calibre research infrastructure. They work on current issues and the achievement of results depends on talented and engaged students. Will you be the one who joins one of their research teams?





ENLISTING THE SUPPORT OF A PROFESSOR

To maximize your chances of being admitted in the program of your choice and to work on a project that meets your research interests, we encourage you to contact by email one or more professors working in your preferred field of interest.

- If you receive a positive response to your request from the professor, you may proceed with submitting an application form.
- If you cannot find a professor to supervise your work, you may still submit your application. Your application will be circulated within the department and a professor interested in your profile and interests may contact you or accept your application.



CONTENT OF YOUR EMAIL MESSAGE

Introduce yourself, mention the highlights of your CV, indicate precisely the program you are interested in and at what level you wish to study. Be concise. Add some information on the following:

- Explain which aspects of the professor's work you are interested in. Show them that you are familiar with the subject from the start.
- Ask if the professor is available to oversee your studies.
- Raise the financial aid question and mention if you have a scholarship or if you are seeking financial aid.
- Include any other pertinent information or question.



SUPPORTING DOCUMENTS

Make sure to submit your CV as an attachment as well as all pertinent documents supporting your request for supervision.

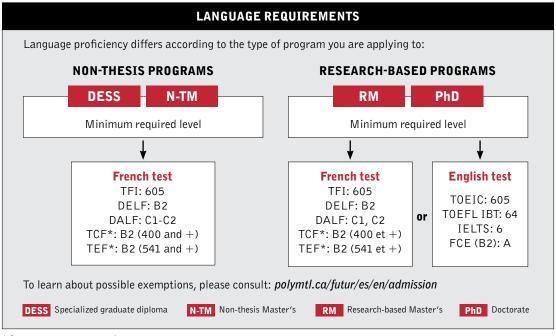
ADMISSION REQUIREMENTS

polymtl.ca/futur/es/en/admission

CANADIAN UNIVERSITY PRE-REQUISITES

MASTER'S, DESS		DOCTORATE (PhD)		
Degree	Minimum required average	Degree	Minimum required average	
Bachelor in engineering, in science or other relevant discipline	2.75/4.0 3.0/4.3 B 70% 7/10	Non-thesis Master's, research- based Master's or Master's degree in engineering, in science or other relevant discipline	3.0/4.0 3.0/4.3 B+ 75% 7.5/10	





^{*} Some tests are not accepted.



GRADUATE SUPERVISION

Non-thesis programs

All students registered in a professional program must have an advisor. It is not necessary to take steps before applying to secure an advisor. One will be assigned to you once you have been admitted.

Research-based programs

Before being admitted to a research-based Master's program or a doctorate, a professor must accept becoming your supervisor. It is strongly recommended you contact one or several professors working in an area of research you are interested in to secure a supervisor before applying.

To consult the directory of professors and their expertise: polymtl.ca/futur/es/en/research

UNIVERSITY PRE-REQUISITES FOR ADMISSION FOR CANDIDATES WITH DEGREES COMPLETED ABROAD

	MASTER'S, DESS		DOCTORATE (PhD)		
Country ¹	Degree ²	Minimum required average	Degree	Minimum required average	
Algeria	Engineering diploma/state engineer/Engineering diploma (Institute), DES in science, Master	12/20	State engineer + DEA, Magister or Master	14/20	
Belgium	Engineering diploma, Bachelor's degree, Licencie, Licentiaat in science	12/20	Master of specialization, Master's degree, Maîtrise, DEA	14/20	
Brazil	Título de engenheiro, Bacharelado, Licenciatura, Título profissional (in science)	7/10; 70/100	Mestrado, Master's degree	8/10; 80/100	
Cameroon	Engineering diploma, Bachelor's degree, Master's degree, Maîtrise in science	12/20	Excellence of academic record		
China	Engineering diploma, Xueshi in science	75/100	Graduate diploma, Master's degree, Shuòshì	80/100	
Colombia	Engineering diploma, Licenciatura, professional diploma in science	3.6/5	Magister	3.8/5	
France	Recognized engineering diploma CTI, Master in science	Diplôme des Grandes Écoles, 12/20; others, 13/20	Engineering diploma + DESS, DEA, Master recherche or Master spécialisé	13/20	
India	BTech, BEng, Bachelor's degree in science	Indian Institute of Tech, 7.5/10; Others, 8/10; 1 st Class/1 st Division	Master's degree, MTech, MEng, MSc (Eng)	1 st Class/ 1 st Division	
Iran	Bachelor's degree in science (Karshenasi)	14/20	Master's degree, Karshenasi Arshad, Fogh-Licence	16/20	
Italy	Laurea in engineering, Laurea in science	Politecnico di Milano, 22/30; Others, 24/30	Laurea Specialistica/Laurea Magistrale, Diploma di Specializzazione di 1 livello (DS1), Master Universitario di 1 livello (MU1), Diploma di Laurea (DL)	Politecnico di Milano, 25/30; Others, 26/30	
Ivory Coast	Engineering diploma, Master in science, DEA or DESS	14/20	Excellence of academic record		
Lebanon	Engineering diploma, Maîtrise, Bachelor's degree in science	12/20; B; quite good	Engineering diploma + Master, Magistère, DES or DEA	14/20	
Mexico	Licenciatura in science, engineering diploma, Licenciado	8/10; 80/100; B; good	Maestria	8.5/10; 85/100	
Morocco	State engineer diploma, Master in science, Licence (4 years), MST	12/20	State engineer diploma + Master recherche, DESA or DESS	14/20	
Senegal	Engineering degree, Master in science	13/20	Excellence of academic record		
Switzerland	Engineering diploma, Staatsdiplom, Diplôme/Diploma, Licence/Lizentiat, Bachelor in science	5/6; 2.5/5 (reverse scale); 7/10	Master	5/6; 2/5 (reverse scale); 7.5/10	
Tunisia	National engineering diploma, Master in science, Maîtrise in science	12/20	National engineering diploma + Master recherche, Master spécialisé, DEA, DESS or Mastère	14/20	
Venezuela	Professional engineering diploma, Licenciado in science	14/20	Magister/Maestria	15/20	

Note: University pre-requisites and minimum averages set by country are used for reference. Candidates with foreign diplomas must meet other admission criteria. Under no circumstances does satisfying minimum requirements guarantee admission to Polytechnique.

 $^{^{\}rm 1}$ If your country is not listed, please consult <code>polymtl.ca/futur/es/admission.</code>

² A minimum of four years of study at the university level is necessary for admission to a graduate program.

COST OF STUDY

TUITION AND RELATED FEES 2019-2020

(Increases in costs are re-evaluated each year)



(N) polymtl.ca/futur/es/en/finances

NON-THESIS PROGRAMS

Students enrolled in non-thesis programs pay their tuition fees and various service fees by semester according to the number of credits taken. A normal course load is between 9 and 12 credits per semester.

Type of program	International students	Quebec ¹ , French or Francophone Belgian students	Out of province Canadian students
MICROPROGRAM		1 credit: \$85	1 credit: \$265
	Not eligible	Total cost (9 to 15 credits) ²⁻³ : Between \$765 - \$1,275	Total cost (9 to 15 credits) ²⁻³ : Between \$2,385 - \$3,975
DESS	1 credit: \$725 4	1 credit: \$85	1 credit: \$265
	Total cost (30 credits) ³ : \$21,750	Total cost (30 credits) ³ : \$2,550	Total cost (30 credits) ³ : \$7,950
NON-THESIS MASTER'S	1 credit: \$725 ³	1 credit: \$85	1 credit: \$265
	Total cost (45 credits) ³ : \$32,625	Total cost (45 credits) ³ : \$3.825	Total cost (45 credits) ³ : \$11,925

RESEARCH-BASED PROGRAMS

Students enrolled in research-based programs pay their tuition fees and various service fees by semester (3 semesters annually). These fees are fixed by semester and are determined according to the status of the student.

Type of program	International students	Quebec ¹ , French or Francophone Belgian students	Out of province Canadian students
RESEARCH-BASED MASTER'S	Year 1: \$20,400	Year 1: \$3,600	Year 1: \$9,700
	Year 2: \$9,000	Year 2 : \$3,400	Year 2 : \$5,400
DOCTORATE	Year 1 ⁵ : \$3,600	Year 1: \$3,600	Year 1 : \$3,600
	Year 2 ⁵ : \$3,600	Year 2: \$3,600	Year 2 : \$3,600
	Year 3 ⁵ : \$3,500	Year 3: \$3,500	Year 3: \$3,500
	Year 4 +5: \$3,300	Year 4 + : \$3,300	Year 4 + : \$3,300

ADDITIONAL YEARLY FEES TO CONSIDER

Arrival and move-in fees (1st year)	\$3,000
Health insurance (obligatory for international students, as well as dental insurance, health/vision/travel insurance (ASEQ))	\$1,300
Housing (on campus residence, individual or co-renting apartment)	\$4,800 to \$9,000
Personal expenses (clothes, food, hygiene, transportation, books, leisure, cell phone)	\$10,000

¹ To determine whether you are considered to be a resident of Quebec according to the ministère de l'Éducation et de l'Enseignement supérieur, see: education.gouv.gc.ca/en.

² Microprograms are comprised of 9 to 15 credits. The total cost of the microprogram is based on the number of credits.

³ To this total amount, \$350 must be added per semester for students studying full-time, for various fees each fall and winter semester and \$35 for each summer semester.

⁴ The ministère de l'Immigration, de la Diversité et de l'Inclusion of Québec stipulates that international students must study full-time and carry an obligatory course load of 9 credits per semester.

⁵ Polytechnique Montréal offers international students registered in a doctoral program an exemption scholarship to cover the cost of the fixed fees imposed by the Government of Québec (value of about \$4,900 per semester). To maintain the scholarship, the student must complete at least 9 credits in compulsory courses during the first three registered semesters with a cumulative grade point average of 3.0/4.0. Failure to meet these requirements will result in an automatic cessation of the scholarship the following semester.

FINANCIAL AID AND AWARDS

(in French only)



SCHOLARSHIP DIRECTORY

polymtl.ca/aide-financiere/bourses/recherche (in French only)

Each year, students enrolled at Polytechnique receive more than \$3 million in internal and external scholarship funding that recognizes academic excellence, active participation in various activities benefiting society, academic perseverance, or other achievements.

GET FINANCIAL SUPPORT FOR YOUR PARTICIPATION IN A RESEARCH PROJECT

The objective of the "suggested amount of financial aid" (MAFS) is to propose a minimum rate of financial aid to make it possible for students enrolled in a research-based Master's or doctoral program to devote themselves to full-time studies and research work. Financial aid is not automatically given to all students. The research supervisor is responsible for deciding on a student's eligibility based on the quality of his or her academic records.

■ Doctorate: \$20,000 per year ■ Research-based Master's: \$17,500 per year

EXEMPTION FROM DIFFERENTIAL TUITION FEES

(h) *polymtl.ca/aide-financiere/exemption* (in French only)

In keeping with the regulations in effect in Québec, all international and Canadian students from out of province must pay differential tuition fees, which are higher than tuition fees for Québec students.

Agreement between the Québec government and some 40 countries

The Government of Québec has entered into agreements with some 40 countries and several organizations to allow students who come to study in the province to benefit from an exemption from the differential tuition fees. The number of students varies by country. Students must undertake appropriate steps with those responsible for the program in their own countries.

Exemptions offered by Polytechnique Montréal

Each semester, a limited number of exemptions from differential tuition fees are available for international students and Canadian students from outside Québec who are enrolled in a research-based Master's programs. These exemptions allow these students to have their tuition fees decreased to the level that Québec students pay.

At the PhD level, Polytechnique Montréal has established a waiver program from differential tuition fees that provides international and Canadian PhD students from outside Québec with tuition fees equal to that of Québec residents. The program aims to attract the best students to Polytechnique and better support them in succeeding with their studies.

APPLICATION

READY TO SUBMIT YOUR APPLICATION?

○ POLYMTL.CA/FUTUR/ES/EN/ADMISSION

To apply for study, an application form must be filled out online and required documents submitted by mail or in person. These documents will differ depending on your status in Canada.

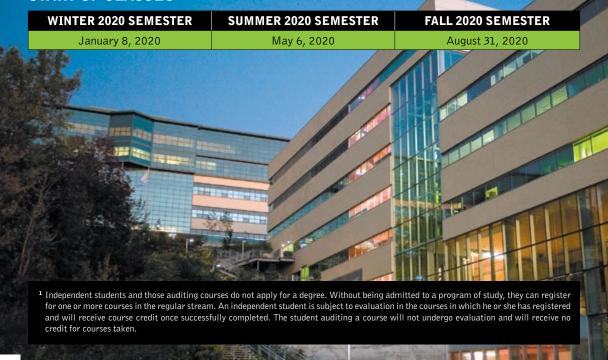
DEADLINES

	SEMESTERS			
STATUS IN CANADA	FALL (September - December)	WINTER (January - April)	SUMMER (May - August)	
Full Programs				
Canadian student and Quebec resident	May 1	October 1	February 1	
International (student visa)	March 1	June 1	November 15	
Independent students and auditors¹				
Canadian student and Quebec resident	August 1	December 1	April 1	
International (student visa)	Not eligible			

ONCE YOU RECEIVE YOUR ADMISSION LETTER

You must confirm acceptance of your offer of admission by accessing the online system at **admission.polymtl.ca** to modify "respond to the offer" under the tab *Update your file*.

START OF CLASSES



INTERNATIONAL STUDENTS



PREPARING FOR YOUR STAY

To help you prepare for your arrival and for an easier transition to your new surroundings, please consult the step-by-step information provided by Student Services at **polymtl.ca**/**etudiants-internationaux**, under the tab *Preparing for your stay*.

You will find, among other information, everything you need to know to begin your preparations for immigration, in obtaining:

- A letter of acceptance from Québec (CAQ) delivered by the ministère de l'Immigration, de la Diversité et de l'Inclusion (MIDI).
- 2. Study permit, provided by Immigration, Refugees and Citizenship (IRCC).
- 3. Depending on your country of citizenship, a temporary resident visa or an electronic travel authorization.

If you have any questions, please contact sep-international@polymtl.ca.

SETTING UP IN MONTRÉAL!

We advise you arrive in Montreal 15 days before your classes begin in order to settle. In addition, the week before classes start, all students newly arrived in Canada have to attend a welcome and orientation meeting that's crucial to getting off on the right foot in your new environment.

Please consult the back-to-school site at **polymtl.ca/rentree/en** for all the information you will need.

STUDENT TESTIMONIALS



Polytechnique Montréal

"The quality of teaching we receive from professors adds a human element that I have very much appreciated since I arrived."

> Elias Al-Haddad Lebanon



Choosing Montréal!

"With all the festivals and the languages spoken on the island, Montreal offers the most beautiful multicultural atmosphere that an international student could wish for!"

> Mengjiao Qi China



My first winter

"Coming from South America, I had to adapt to the cold but I quickly started to enjoy the snow and to appreciate its beauty."

> Natalia Restrepo Colombia

TO LEARN MORE

▼ CONSULT THE WEBSITE FOR **FUTURE STUDENTS**

To learn more about post-secondary studies, programs, admission, student life, services, etc. polymtl.ca/futur/es/en

▼ SUBSCRIBE TO OUR NEWSLETTER

To get the latest news you need, including research projects offered, deadlines and the various activities organized for future students. polymtl.ca/futur/infolettre-es (in French only)

✓ CONTACT A FUTURE-STUDENT ADVISOR

Our advisers for new students are available to answer your questions. Polytechnique Montréal holds no secrets for them! futur@polymtl.ca | 514 340-4928

✓ COME TO OPEN HOUSE

A golden opportunity to discover Polytechnique Montréal and the many facets of engineering and research.

- > Sunday, November 10, 2019, 10 a.m. to 4 p.m.
- > Tuesday, January 28, 2020, 4 p.m. to 8 p.m.

To consult the schedule:

polymtl.ca/portesouvertes (in French only)

▼ TAKE A GUIDED TOUR

Guided tours take place on the first Friday of the month, from 1:30 p.m. to 3 p.m., from September to May. These tours will let you discover your future learning environment and to meet current students of Polytechnique Montréal.

To learn more:

polymtl.ca/futur/es/en/activities

▼ PARTICIPATE IN AN INFORMATION SESSION

In Fall as in Winter, advisers for future students organize information sessions in Quebec as well as internationally.

See the schedule:

polymtl.ca/futur/es/en/activities

▼ FOLLOW POLYTECHNIQUE MONTRÉAL ON SOCIAL MEDIA

Stay on top of the latest news about Polytechnique Montréal and activities organized for future







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