
ÉCOLE
POLYTECHNIQUE
INSTITUT
POLYTECHNIQUE
DE PARIS
Bachelor
of Science



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WELCOME TO FRANCE

Europe is home to some of the world's most prestigious and respected universities. Pursuing an education in Europe can open the door to outstanding career opportunities and global recognition. France, in particular, has a long-standing tradition of academic excellence—especially in Mathematics and the sciences—making it a natural choice for students passionate about these fields. According to a 2024 study published in the Journal of Economic Surveys, studying abroad grants students key career skills—like adaptability and cross-cultural communication—that lead to better job prospects and higher salaries.

3rd Best In Europe

5th Best Country Globally

Educations.com, 2024

Why Choose France

France offers a high standard of living, a strong sense of safety, and a rich cultural environment. Academically, France ranks at the top and has numerous English taught programs which are recognized by institutions worldwide. It is also home to many world-renowned research institutions and consistently ranks among the best countries in Europe for Mathematics education and innovation.

Choosing France not only means benefiting from academic excellence but also gaining proximity to the rest of Europe and the potential for Permanent Residency for international students.

France has also been ranked the **#1 most attractive country for foreign investment in Europe** for five consecutive years. Its deep historical roots, diverse culture, and vibrant lifestyle promise an enriching and unforgettable student experience—both academically and personally.

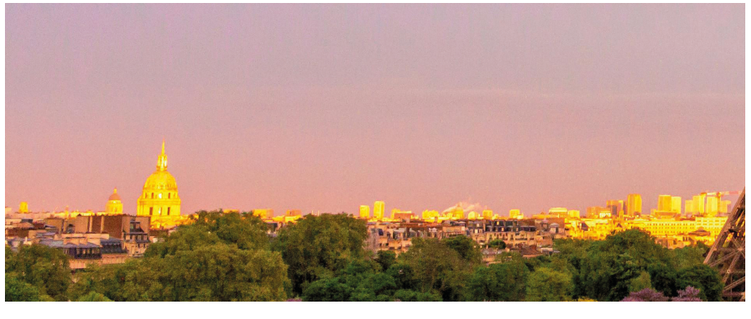
#1 most attractive country for foreign investment in Europe

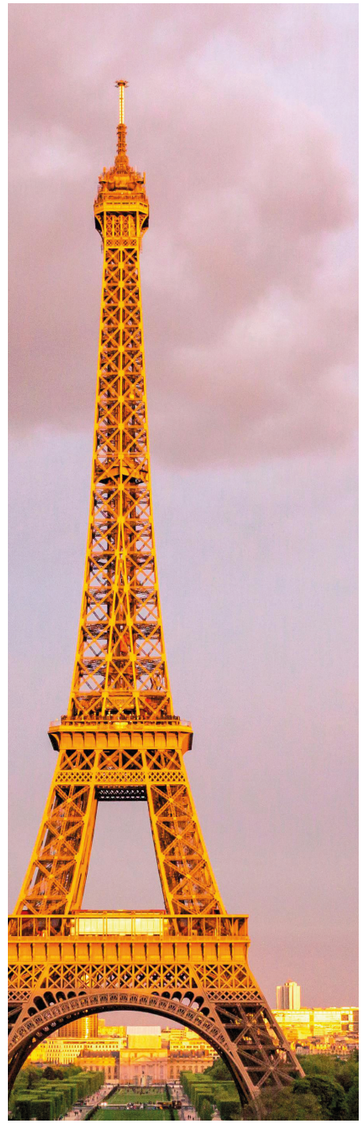
While the Eiffel Tower and the Louvre are iconic landmarks, Paris offers so much more to those willing to explore beyond the tourist spots. From the charming streets of **Montmartre** and the grandeur of **Versailles,** to hidden gems like the **Panthéon** and **Montparnasse,** the city is full of surprises that reflect its deep heritage and architectural beauty.

As a student in Paris, your student card opens the doors to countless advantages:

- Free or discounted access to over **14 major museums, 16000 libraries**, exhibitions, co-working spaces, and study centers
- Reduced prices at restaurants, shops, and on public transportation

The suburban campus of Ecole Polytechnique offers an environment that fosters both personal and intellectual growth—just a short journey from the center of Paris. Our campus in **Palaiseau** is surrounded by greenery and is within easy reach of major cultural and innovation hubs like the **Château de Versailles,** the **Saclay research cluster** which is France's very own **Silicon Valley.**





ECOLE POLYTECHNIQUE



#1 **France** Best Engineering School (L'Étudiant 2024)

#1 **France** Computer Science & Information Systems (QS 2025)

#1 **France** Mathematics (QS 2025)

#1 **France** Graduate Employability (QS 2024)



Founded in 1794, École Polytechnique has built a reputation of academic excellence and innovation. For more than two centuries, it has been recognized as one of France's most prestigious institutions, blending rigorous scientific training with a strong international outlook.

Polytechnique has been home to brilliant minds who have made major contributions in fields such as Physics, Economics, Mathematics, and Computer Science. Its alumni include **Nobel Prize laureates** and field medalists such as Maurice Allais (Economics, 1988), Albert Fert (Physics, 2007) and Alain Aspect (Physics, 2022), as well as **renowned Mathematicians** like Henri Poincaré, and Laurent Schwartz. It is a place where culture meets cutting-edge research—and where students are encouraged to think big and aim high.

Our community reflects this global vision: **73% of our bachelor students are international,** representing **62 different nationalities,** and **41% of our faculty** come from outside France. This diversity fosters a dynamic, inclusive environment where ideas and perspectives from all over the world come together.

#41 **World** University Rankings (QS 2025)

#20 **World** Mathematics (QS 2025)

#14 **World** Graduate Employability (QS 2025)

#21 **Europe** Times Higher Education (THE 2025)



THE PROGRAM

Admission to the Bachelor of Science program at Ecole Polytechnique is **highly selective.** We look for students who combine strong academic performance—especially in Mathematics and science—with curiosity, motivation, and a willingness to push boundaries.

Each year, we welcome a diverse group of talented individuals from around the world. This international environment fosters **intellectual and personal growth,** creating a learning environment where **students challenge and inspire each other** both inside and outside the classroom. **All courses are taught in English,** ensuring accessibility for all students and reinforcing the program's global outlook. Through group projects, research opportunities, and campus life, students form lasting connections that extend well beyond graduation.

The program is **accredited by the French Ministry of Higher Education, Research and Innovation** to award the "grade de licence", France's official undergraduate degree. This allows graduates to pursue Master's or graduate-level programs in France or internationally. The academic **rigor of the program** builds a solid foundation and resilience that prepare students for success on a global scale, whether in academia, research, or industry.

Research Oriented Learning

Students benefit from access to our **23 cutting-edge** research laboratories and some of our partner universities. Students can take part in research projects across numerous fields throughout the curriculum. This approach develops critical thinking, curiosity, and practical problem-solving—essential skills for future scientists and researchers. Our professors are active researchers themselves, bringing their expertise directly into the classroom to enrich the learning experience.

Mathematics At Its Core

Mathematics is at the heart of our Bachelor program. From the very beginning, students explore its many concepts and applications—from Machine Learning to Quantum Physics, Statistics, and more. The Maths curriculum is divided into two thirds of pure Maths and one third Applied Maths. It is designed to support all three specialization tracks:

- Mathematics & Physics
- Mathematics & Economics
- Mathematics & Computer Science

Year 1

Laying the Foundation

The first year focuses on building strong intellectual tools and mastering the fundamentals that will be essential throughout your academic journey. It is also a year of discovery, where you explore different subjects to better identify your interests and choose the right path for you. During the last semester you will choose your double major from the previous list as well as the track you would like to pursue.



Year 2

Choosing Your Path

In the second year, you dive deeper into **one of the three double majors.** Students who demonstrate strong academic performance may choose—**with the guidance of academic advisors**—to **pursue a minor** alongside their major. Minors offer the chance to explore additional fields of interest like **Biology, Chemistry and Computer Science** (only for Economics majors) allowing you to build a more personalized and well-rounded academic profile.

Year 3

Research & Thesis

Students who applied to **study abroad** during the previous academic year will be considered by the Exchange Committee, depending on their project and the quality of their semester abroad application. Selected students will have the opportunity to spend the first semester of their third year abroad. Semester abroad is not available for students enrolled in the Dual Degree program. During the second semester, all students complete a **research-based Bachelor Thesis,** which includes a written report and an oral defense along with classes during their second semester.

COURSES

Core Courses

- Linear Algebra
- Introduction to Analysis
- Mechanics & Heat
- Introduction to Economics
- Introduction to Computer Programming
- Discovery Labs
- How to Write Mathematics
- Calculus
- Integral & Differential Calculus
- Advanced Programming
- Electromagnetism & Light
- Introduction to Algorithms
- Introduction to Numerical Analysis
- Languages
- Sports
- Humanities
- The Art of Engineering
- Project in Global Engineering
- Design & Entrepreneurship
- Resource Management

Mathematics Major

- Topology & Multivariate Calculus
- Probability & Statistics
- Euclidean & Hermitian Spaces
- Series of Functions, Differential Equations
- Topology & Differential Calculus
- Algebra & Galois Theory
- Complex Analysis
- Measure & Integration
- Differential Geometry
- Linear Algebra & Optimization
- Mathematical Statistics
- Convex Optimization & Optimal Control
- Probability: Stochastic Processes
- Image Analysis
- Numerical Methods for ODEs

Computer Science Major

- Object Oriented Programming
- Design & Analysis of Algorithms
- Logic & Proofs
- Machine Learning
- Computer Architecture
- Formal Languages
- Networks
- Compilers
- Functional Programming
- Constraint Logic Programming
- Complexity
- Concurrent & Distributed Computing
- Computer Graphics
- Formal Methods & Model Checking

Physics Major

- Classical Mechanics
- Wave Optics & Radiation
- Advanced Labs
- Classical Electrodynamics
- Quantum Physics
- Atoms & Lasers
- High Energy Physics
- Thermodynamics & Statistical Physics
- Condensed Matter Physics
- Classical Mechanics
- Geophysics
- Solid Mechanics
- Fluid Mechanics

Economics Major

- Microeconomics
- Macroeconomics
- Econometrics
- Finance
- History of Economics
- Advanced Microeconomics
- Advanced Macroeconomics
- Economics of Blockchain
- Industrial Organization
- Corporate Social Responsibility for Business
- Experimental Economics
- Research Frontiers
- Computational Economics
- International Trade

Extra Courses

- Biology
- Chemistry
- Mathematical Modeling
- Web Programming
- Applied Physics
- Molecular Genetics
- Environment & Energy
- Lab Research Project
- Biology Practicals
- Technological Tools for Chemistry
- Cancer Biology
- Chemistry Synthesis & Transformation
- Management & Innovation

Please note: this list is only to give you an idea of the courses you might be taking. It is not finale and is subject to change. Please check the QR code to stay updated on any changes.

STEM courses

Non-STEM courses

Only for students enrolled in the Dual Degree program.

PARTNER UNIVERSITIES

Every year, around 50% of third year students do a semester abroad.

McGill
Dalhousie University
University of Toronto
Polytechnique Montréal
University of Waterloo
University of Chicago
Columbia
Brown University
University of Berkeley
UC San Diego
Tecnologico de Monterrey
ITAM

DTU
King's College
ULB
CTU
ETHZ
TUM
EPFL
Politecnico di Milano
Bocconi

Universidad de Chile
PUC Chile



I was able to pick my classes and discovered what I actually enjoy studying. -Johanna BX25

Peking University
KAIST
University of Tokyo
Science Tokyo
Postech
SNU
Keio Univeristy
Osaka Institute of Technology
SJTU
HKUST
NYCU
IIT Delhi
IIT Bombay
NTU

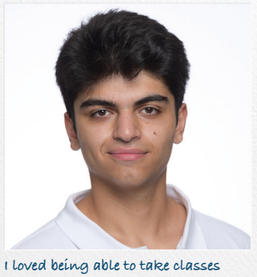


An experience that was academically enriching and personally fulfilling. - Magda BX25

University of Melbourne



An incredible opportunity to challenge myself academically and meet inspiring people! - Emma BX25



I loved being able to take classes outside my major and try out new subjects. - Thomas BX24

GLOBAL DUAL DEGREE TRACK

COLUMBIA UNIVERSITY

Ecole Polytechnique and the FU Foundation School of Engineering and Applied Science at Columbia University have partnered to offer a highly selective five-year engineering program. It is designed for students who are **passionate about solving the world's most pressing challenges**—from climate change and sustainability to resource management and artificial intelligence.

This program brings together the strengths of two top institutions to deliver a comprehensive curriculum focused on **Mathematics, research, engineering and global perspective.** Students graduate with a truly international experience, they will be able to solve complex problems thanks to their strong scientific foundation.

The dual degree track follows the same overall structure as the Bachelor of Science program—with the exception of minors, exchange semester and a few tailored classes—with a greater emphasis on engineering. **During the first year, all students share a common academic foundation before choosing their academic track,** which paves the path for their following two years.

At the end of the third year, students will get the chance to continue their studies with an **18-month master's program at Columbia University in New York** (subject to Columbia's conditions). This opportunity offers a unique blend of scientific depth and global exposure, providing a powerful springboard for high-impact careers in engineering, technology, and research.

Columbia's Masters Degrees

- Applied Mathematics
- Data Science
- Biomedical Engineering
- Mechanical Engineering
- Earth and Environmental
- Materials Science and Engineering
- Computer Science
- Applied Physics
- Financial Engineering
- Operations Research



LEARNING SUPPORT



Academic Officers

Students will be supported by academic officers who will welcome new students and take part in their integration on campus. Academic Officers provide quality support and service to guarantee the best possible educational experience for Bachelor students throughout their studies. Their role is to guide students in their studies within the program, as well as post-graduate career. They provide one on one consultations to help students choose their double major, applying for studies abroad, advising them in personal, financial or academic difficulty and connect them with specialized support services if needed. Academic officers' main purpose is to establish a trust-based relationship with students and student representatives, facilitating interactions with academic representatives.

Summer Internship

During the summer, students can complete a summer internship. This experience allows them to explore professional and reseacrh environments, gain hands-on exposure to real-world challenges, and begin building valuable career skills and networks early on.

Tutoring

Tutoring is available to Bachelor students in need and is provided by teacher assistants and PhD students. These weekly small-group sessions allow students to ask questions about their courses, review exercises they find challenging, and seek additional guidance. They are designed to offer personalized support and help track each student's progress throughout the semester.

From Theory to Practice

You will gain hands-on experience through lab work, where you will test theories, conduct experiments, and work with advanced equipment. Whether it is in physics, chemistry, biology, or computer science, this practical learning builds confidence and prepares you for scientific or technical careers.

Hear from the Experts

In your free time and throughout the program, you will have the opportunity to attend talks and workshops with renowned alumni—Nobel Prize winners, CEOs, and thought leaders in science, research and technology. These sessions provide firsthand insights into the professional world and show you how to shape your own path forward, both academically and professionally.
Many of these events take place on campus, offering a chance to engage in Q&A sessions, network with guest speakers, learn about the careers they have built and the milestones they have achieved. Giving you valuable perspectives on the countless possibilities that lie ahead.

Guided Learning Process

At Ecole Polytechnique, you will learn from top professors and researchers who are leaders in their fields. All their expertise is a door knock away from you, it will guide you through the fundamentals and beyond, helping you explore, question,
and deepen your understanding.

BEYOND THE CLASSROOM

Building a Well-Rounded Profile

In addition to a rigorous scientific curriculum, students follow a multidisciplinary path that includes courses in Humanities and Social Sciences such as Geopolitics of Cyberspace, History of Science, Technology and Law.

They also study foreign languages and cultures—options include Chinese, French, German, Spanish, Italian, Japanese, and more—broadening their global perspective. **All non-French speakers are required to take French as a Foreign Language and reach B2 level to graduate.**

Personal Development

Students are expected to take personal development courses like The Art of Decision Making or participate in the speech contest which will **expose them to multiple communities and human experiences.** The goal of these sessions is to get them to know themselves and open up to others.

To complete the program, students must validate a minimum of two Humanities and two Personal Development courses over the three years as well as a minimum of 5 hours of sports per semester.



Student Organization

The L'ORE plays a key role in the campus life of Bachelor students. They organize events, sports activities, social outings, trips, job fairs, and more. L'ORE also supports student-led initiatives and committees based on your interests—creating a vibrant, inclusive community.

Student Life Coordinateurs

As part of the Student Life Team, they are here to support students in their daily lives, providing guidance and assistance with various aspects such as discipline, and community living. They also oversee the sports curriculum and play an active role in fostering students' human development throughout their journey.

Psychologist

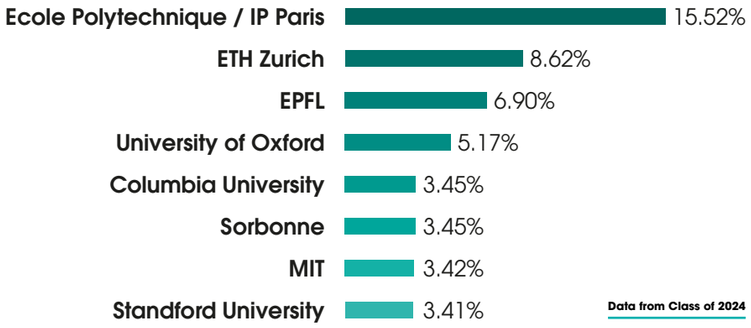
We offer dedicated on-campus psychological support, providing free and fully confidential services. The psychologist provides a safe space to discuss personal, academic, or emotional challenges and helps students navigate stressful situations. The goal is to ensure students' well-being and mental health throughout their journey at the school.

WHAT COMES NEXT

With a solid scientific foundation and a strong emphasis on research, our graduates are exceptionally well-prepared for the next stage of their journey. Whether they **continue on to top-tier Master's or PhD programs** or launch careers in cutting-edge industries, they leave Ecole Polytechnique equipped to lead, innovate, and make an impact—wherever they go.

Top Universities our students choose

80% stay in **Europe, 20%** study in **North America, or elsewhere.**



Data from Class of 2024

11%

Of students enter the **job market or conduct personal projects** directly after graduation taking on crucial roles as interns or full-time employees.

89%

Pursue a **Master's or PhD**

The majority of our graduates go on to pursue advanced degrees in some of today's most exciting and high-impact fields:

- Mathematics
- Theoretical Physics
- Operations Research
- Smart Cities
- Quantum Engineering
- Cybersecurity
- Nuclear Engineering
- Mechanical Engineering
- Artificial Intelligence
- Astrophysics
- Optics and Photonics
- Aerospace Engineering
- Financial Engineering



LIFE ON CAMPUS

Housing

We highly recommend and **guarantee on-campus housing** for all Bachelor students **during their three years.** Living on campus provides convenience, comfort, and a sense of belonging throughout your studies.



- **Shared Kitchen**
  With 3 or 4 other students to prepare your own meals and meet new friends.
- **Private Rooms**
  Fully furnished bedroom with ensuite bathroom. The internet, electricity, and water are all included in your rent (18 m^2).
- **Close to Everything**
  Dorms are just steps from classrooms, labs, sports centers, and libraries.
- **Cafeteria & Restaurant**
  Available on-site for daily dining six days a week with meat, fish and vegetarien options.



+200 Student Associations

Including cultural, artistic, scientific, and social groups.

+164 Hectares

Our campus offers everything you need for a rich and balanced student life. Whether you are looking to focus on your studies, join a club, or relax in nature, there is space for all of it—including a peaceful lake that's perfect for a quiet walk, a picnic with friends, or simply taking a break between classes.

Num' X

Our very own online science museum, showcasing two centuries of innovation and discovery.

Library

Fully equipped with scientific resources, it is an ideal space for group projects, focused independent study, or in-depth research.

Sports

Students have access to over 15 sports, from team games to individual disciplines—perfect for staying active, unwinding, and making the most of their free time on campus.



ADMISSIONS

At Ecole Polytechnique, the admissions process is highly selective. We welcome around **200 students** from all over the world each year, seeking individuals who not only excel academically but are also curious, passionate, and eager to grow.

We use a holistic approach to select our students. While we value strong grades—we also look at sustained achievement in any area: academic, creative, scientific, or community-based, leadership, initiative, and personal commitment.

Application Process

The application process is fully online and is divided into two main stages:

Preselection Criteria

- Have an overall strong academic average.
- Have taken advanced Mathematics courses, and at least one advanced science course.
- Have a solid level of English (Level C1).
- Must currently be enrolled in their last year of secondary education, to be completed before the start of the Bachelor Program.
- Or have recently graduated from secondary education (either currently taking a year off or be currently enrolled in post-secondary education).



1. Application

We offer three rounds of applications, starting in **September**. The sooner you apply, the sooner you get your results.

There are no quotas per round and no nationality-based limits. A waiting list may be put in place, you will be informed in due time if this applies.

If you are applying through Parcoursup, be sure to follow the instructions and deadlines on parcoursup.fr.

A **€95 application fee** is required and can be paid by credit card.

Candidates may only apply once per academic year to the Bachelor Program, either via Parcoursup or directly through Ecole Polytechnique's online application platform—not both.

Check the list of required documents

2. Interview

A few weeks after the application deadline, you will be informed if you have been shortlisted for an interview. You will also recieve all the information needed to prepare for it.

The interview is conducted online via video call and lasts **about 50 minutes, entirely in English** and is divided into two parts:

- 30 minutes focused on **Mathematics exercises.** Their main goal is to assess your potential and reasoning.
- 20 minutes on your **scientific interests, general knowledge, and motivation.**

Your English fluency will also be assessed, so we recommend practicing in advance to feel confident and prepared.
All complete applications are reviewed by a selection board made up of faculty members and program program management team members. Final admission decisions take into account both the written application and the interview.
Once accepted, your admission will be conditional on successfully completing your high school diploma and your English test.
If you are not admitted, you are welcome to reapply the following year if you are able to show improvement to your original application.

Please note: all admitted students join in Year 1 of the program—regardless of previous university experience.

TUITION FEES



Tuition fees are determined by the **student's nationality** (EU/EEA or non-EU).

All **students pay the same fees regardless of track.** For Dual Degree students, once they begin their Master's program at Columbia University, tuition will be set according to Columbia's policies and rates.

Please note that **the academic workload is very demanding,** making part-time jobs incompatible with the program.

Scholarships & Financial Aid

To maximize their chances of receiving support, students seeking financial aid are encouraged to apply during the early admissions rounds. Please note that the annual administration fee is mandatory for all students and is non-refundable.

Full Scholarships for International Olympiad Medalists

We award **two full scholarships** to medalists from International Academic Olympiads for any of the double majors of the program as recognition of their exceptional achievements.

Excellence Scholarships

Top-performing students admitted with honors are eligible for **Excellence Scholarships,** awarded for outstanding academic ability, motivation, and potential to represent the program as ambassadors. This scholarship provides **€4,800 per year** across the three years.

Women in Science Scholarship

To support gender equality in STEM, Ecole Polytechnique offers scholarships to female students admitted to the program. These provide **€4,800 per year** across the three years.

Need-Based Financial Aid

Three options are available, depending on your background:

- **French & assimilated students** are eligible for CROUS bursaries, which include tuition waivers and living stipends.
- **EU/EEA students** may apply for CROUS starting in their second year.
- **Other students** may apply for aid from Ecole Polytechnique or its foundation, including tuition waivers and interest-free loans.

ÉCOLE POLYTECHNIQUE

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