Course Selection Guide

Exchange Students at École Polytechnique
International Academic Exchange Program

Academic Year 2020-2021

This guide is intended to help exchange students at École Polytechnique understand their courses’ options and choose courses effectively.

Exchange students take courses with regular full-time students. They enroll in the International Academic Exchange Program (PEI) and receive ECTS credits for courses validated during their exchange period.

Exchange students enroll in one specific level of study (undergraduate or graduate) and choose their courses in that level of study.

We ask them to choose their courses in the same year of study (that is in the 1st, 2nd or 3rd year of the Bachelor program at undergraduate level; and in the 2nd or 3rd year of the Ingénieur Polytechnicien Program at graduate level). Under specific conditions, exchange students may also attend courses from other levels if they meet all conditions for entry, including language and academic requirements and if the different courses schedules allow it.

1. Basic requirements

At undergraduate level, eligible students must have completed at least one year of their program of study in science or engineering.

At graduate level, eligible students must have completed at least two years of their program of study in science or engineering and at least three years to have access to upper level courses (see below).

Exchange students must observe the same rules as regular students from our institution about registration for courses, attendance to courses, exams, use of computers, etc.

2. Enrollment

Exchange students typically take 3 or 4 scientific courses per period. In some cases, an extra 5th course may be added. One of the courses may be replaced by a scientific project.

We expect exchange students to register for a minimum of 20 ECTS per period.

Please be aware that all courses’ credits must be taken from courses in your level and year of enrollment for the entire exchange period.
Exchange students can also follow humanities, management, language courses and sport classes in their level of enrollment. These courses give ECTS credits.

3. Approval process

We organize the following approval process to guarantee that chosen courses meet the language and academic conditions and to let exchange students register to courses prior to arrival on campus.

- Each student is required to submit a plan of study when applying at the end of March each year. Mobility team and academic advisors can help them to finalize it;
- Academic exchange program advisors assess it and the selection committee approves it before the end of May each year;
- The courses registration is open to exchange students from Mid-June to Mid-July; during the registration process, we come back to students to set up their official learning agreement;
- Courses will start between late August and Mid-September or on January.

Exchange students need to register on the course registration platform after their admission.

NB: we try our best to guarantee your registration to courses but we ask you at the same time to be flexible when discussing your study plan with your home institution, as we cannot guarantee that all classes included in the course catalogue will be available and as timetables are subject to change.
Overview of the academic Offer of l’X

Overview of the Bachelor Program’s Structure

Overview of the Ingénieur Polytechnicien Program’s Structure
You are interested in
- Undergraduate level courses
- Graduate level courses

You would like to study
- Mathematics – Applied Mathematics – Physics – Computer Science – Economics
- Mechanics, Energy, Electrical Engineering, Chemistry, Biology
- Humanities and Social Sciences
- Innovation Management and Entrepreneurship
- Improve your language skills
- Sports

You would like to join us for
- Fall term or the whole year
- Spring term

Do you have any troubles in finding courses on Synapses?

Further Resources to help you prepare your stay

Need for help?

Please contact us at exchange-international@polytechnique.fr
You are interested in Undergraduate level courses

You can join our Bachelor Program. Courses are taught in English only and exams are to be taken in English as well. Your English proficiency must be high.

The first year of studies focuses on the acquisition of the fundamental skills and knowledge. For their second and third years, students choose between three double majors:
- Mathematics and Physics
- Mathematics and Computer Science
- Mathematics and Economics

For each double major, students have the opportunity to pursue a minor:
- Mathematics and Physics: Minor in Biology or Chemistry
- Mathematics and Computer Science: Minor in Biology
- Mathematics and Economics: Minor in Computational Mathematics

Exchange students have access to the whole course catalog, minor included provided that they have the academic pre-requisites.

As the course load may be quite dense, we ask you to choose your courses in the same Double Major and in the same year to avoid timetable conflicts.

Please note that Semester 1 and Semester 3 courses go through the month of January, while those of Semester 5 end in December. Please note that Semester 6 starts in April and ends in June.

Exchange students can carry out a Bachelor Thesis. Please note this opportunity is open to students staying the whole year and joining the 3rd year of the program only. Final registration is subject to academic approval. Exchange students must register for it at the beginning of their application.

If you want to add one course at graduate level, you can ask for it. It will be subject to academic approval to check if you have the basic academic and linguistic prerequisites to follow courses in an upper level. Please note that calendars are not similar and exams may be set up the same day. In any case, exchange students are responsible for checking the compatibility of their schedules.

You are interested in Graduate level courses

You can join the 2nd and 3rd years of our Ingénieur polytechnicien Program and ask to add up to 2 courses per period in the first year of a one of our Masters of Science and Technology (MSc&T).

Ingénieur polytechnicien Program - Year 2

Courses are taught in French only and exams are to be taken in French as well. Your French proficiency must be high.

Year 2 is divided into 3 periods and provides a multidisciplinary scientific education.

Exchange students are advised to choose 3 or 4 scientific courses per period.

Exchange students can choose only one Applied Laboratory Module (MODAL) during their Exchange period. Please note that this project is subject to numerus clausus but do not hesitate to ask for it and we will help you to find the right project at the right time of the year.

You can ask to add one to a maximum of two courses from the 3rd year (3A) or from a Master of Science and Technology (MSc&T). In that case, please note that for enrollment into a MSc&T, you should have completed at least three years of undergraduate program. Due to numerus clausus, it will be subject to academic approval to verify if you have the academic and linguistic prerequisites to follow courses in an upper level. Please note that calendars are not similar and exams may be set up the same day. In any case, exchange students are responsible for checking the compatibility of their schedules.

Restriction: Group Science Projects are not open to exchange students.
Ingénieur polytechnicien Program - Year 3

Courses are taught in French and/or English depending on the subject.

Year 3 is divided into 3 terms: the first two terms consists in scientific courses and have a duration of 3 months each while the third term is dedicated to a scientific research internship (for a duration up to 6 months). The exchange student can join us for 1, 2 or 3 terms.

Courses are divided into scientific concentrations. Exchange students are asked to choose 4 courses per term only and in the same concentration track, one of them is a Practical Lesson (called EA or “Enseignement d’Approfondissement”). One course can be chosen in another concentration track if the timetable allows it.

Please be aware that Practical lessons are subject to numerus clausus.

Students can add a scientific project, which duration is of 1 or 2 terms depending on the concentration track (please contact us for further information) and/or undertake a research internship in Spring term. For scientific projects, students may enroll but due to limited seats, it will depend on the approval of the course instructor.

Research internships are open to exchange students who stay the whole year and if the internship is completed at an École Polytechnique’s laboratory. Please note that you cannot do a research internship and follow courses at the same time.

If you want to add one to two courses in the 2nd year (2A) or in a Master of Science and Technology (MSc&T), you can ask for it. Please note that for enrollment into a MSc&T, you should have completed at least three years of undergraduate program. Due to numerus clausus, it will be subject to academic approval. Please note that calendars are not similar and exams may be set up the same day. In any case, exchange students are responsible for checking the compatibility of their schedules.

Master of Science and Technology (MSc&T)

Courses in the Masters of Science and Technology are exclusively taught in English.

Provided that they have completed at least three years of undergraduate study, exchange students can ask to enroll in one to two courses taught as part of the first year of a Master of Science and Technology. Please that due to numerus clausus, final enrollment is subject to academic approval.

Restriction:

- Enrollment is limited to two courses maximum per period.
- The Master of Science and Technology Data Science for Business Program is not open to exchange students. Exchange students cannot enroll in courses taught as part of the 2nd year of a Master of Science and Technology.

You would like to study Mathematics – Applied Mathematics – Physics – Computer Science – Economics

A wide range of courses in Mathematics, Physics, Computer Science and Economics are available within the Bachelor and the Ingénieur polytechnicien programs

- To find out more on the Bachelor’s program syllabus
- To find out more on the list of courses available in the 2nd year of the Ingénieur polytechnicien Program
- To find out more on the list of courses available in the 3rd year of the Ingénieur polytechnicien Program

You would like to study Mechanics, Energy, Electrical Engineering, Chemistry, Biology
As part of their curriculum, **Bachelor students** have the opportunity to study a minor. This option gives students the opportunity to broaden their knowledge outside of their chosen field. Exchange students can ask to follow one of this course only if they have the academic pre-requisites.

**The 3rd year of the Ingénieur polytechnicien Program** enables students to choose a **Scientific Concentration**, within the following subjects: Biology, Bioinformatics, Chemistry, Economics, Electrical Engineering, 21st Century Energies, Computer Science, Technological Innovation, Pure Mathematics, Applied Mathematics, Mechanics, Physics, and Science for Environmental Challenges.

**You would like to add courses in Humanities and Social Sciences**
In addition to their education in fundamental sciences, École Polytechnique’s students follow several courses providing them with the complementary soft skills to round out their scientific background and knowledge. Through courses in humanities and social sciences, students discover artistic and literary masterpieces, learn about French and European political systems and discuss ethical questions related to sciences.

Courses in the department focused on these three main areas:

- ✓ Law, Economics and Political Science
- ✓ Literature and Humanities
- ✓ Arts and Architecture

Exchange students can ask to join per period one course if in the Bachelor program and one course and one seminar if in the *Ingénieur polytechnicien Program* **with no required approval and no added fees.**

Exchange student must take these courses in their chosen level of enrollment. Students enrolled in the *Ingénieur polytechnicien Program* who do not speak French can ask to follow Humanities and French Culture courses taught in English in the MSc&T, if their timetables allow it and if enough spot are still available (there are numerus clausus).

Please note that you must have a B2 level in French to attend classes (course and seminar) in the *Ingénieur Polytechnicien Program*. The list of courses is available here.

The courses given in the Bachelor programme (taught in English) can be found [here](#).

The courses given in the MSc&T (taught in English) can be found [here](#).

Please note that in the 3rd year of the *Ingénieur polytechnicien Program*, students cannot follow at the same time the seminar in Humanities & Social Science and the seminar in Innovation Management and Entrepreneurship).

**You would like to add courses in Innovation Management and Entrepreneurship**

The Department of Innovation Management and Entrepreneurship gives basic courses to all students and offers other specific courses in innovation management and entrepreneurship.

Exchange students can ask to join one course if in the Bachelor program (in semester 6), one course and one seminar if in the *Ingénieur polytechnicien Program with no required approval and no added fees.*

Exchange student must take these courses in their chosen level of enrollment.

Ingénieur Polytechnicien students in the 3rd year take courses addressing the concepts of financial analysis, strategy and team management to build their skills in organizations’ management.

Please note that the courses are taught in French and you must thus have a B2 level in French to attend it, except for some courses given within the Technological Innovation Specialization track. The list of courses for the *Ingénieur polytechnicien Program* can be found [here](#). For more information, please consult us.
Students enrolled in the Ingénieur polytechnicien Program who do not speak French can ask to follow courses taught in English in the MScT, if their timetables allow it and if enough spot are still available (there are numerous clausus and the list of courses is usually set up in late August or early September each year). The list of course for the MSc&T can be found here. For more information, please consult us.

Bachelor students have one course in innovation management and entrepreneurship taught in English that exchange students may register for, in semester 6. To find out more, please consult the Year 3 syllabus on the Bachelor website.

Please note that in the 3rd year of the Ingénieur polytechnicien Program, students cannot follow at the same time the seminar in Management and Entrepreneurship and the seminar in Innovation Humanities & Social Science.

You would like to improve your language skills

The Language and Culture Department offers a large choice of language courses: Chinese, English, German, Italian, Japanese, Spanish, Arabic, Russian, Hebrew and French as a foreign language.

Exchange students can ask to join one course of French as a foreign language with no required approval and no added fees. You must take these courses in your chosen program of enrollment.

In each program, French courses are open to beginners (A1, A2 levels), to intermediate levels (B1, B2 levels) and thematic courses are also available for students with an advanced level (C1, C2 levels). To find out more on the list of French as a Foreign Language's courses.

For beginner and intermediate levels enrolled in the Ingénieur Polytechnicien Program, professors set up a placement test each year at the end of September to offer you courses adapted to your level.

For advanced levels and students enrolled in the Bachelor Program, registration to courses may be made prior to your arrival on campus. That is the reason why we ask exchange students to provide us with a recent proof of their French Language’s level at the time of their application. Should you have pass an official French Language test such as TCF, DALF, DELF, please send us the certificate.

Exchange students can add one more course in another foreign language. If you would like to register to another foreign language course, please note that you should demonstrate a B1 level at least and approval will be subject to classroom availability. Please send us a proof of your level.

You would like to do Sports on campus

Exchange students can also practice sports and get to benefit from the campus’ great sport facilities. You can register for sport courses upon your arrival on campus.

There are 2 main options: either to do sports with regular full-time students (2 to 6 hours a week), or to do sports at École Polytechnique’s sports center (called CSX) together with students and staff; the second option will require small fees.

We advise exchange students to do sports with regular full-time students of their chosen level of enrollment, as this is the best way to network with other students on campus.

You would like to join us for the fall semester or for the whole year

At graduate level, fall term offers a large choice of courses. Should you stay the whole year, you will have the possibility to undertake a research internship in one of École Polytechnique’s laboratory.
For undergraduate students willing to undertake a research project or a Bachelor thesis, please note that this opportunity is open only for students registered in the 3rd year of the Bachelor program and for students staying the whole year.

You would like to join us for the spring semester only

At undergraduate level, exchange students can join us in spring semester only to follow courses in semesters 2 or 4. Please note that courses in the semester 6 start in early April until end of June. Registration for the Bachelor thesis is only available to students enrolling for the whole year (see above).

Please note that at graduate level courses are only available from January to March (mostly in French in the 3rd year of the Ingénieur polytechnicien Program) and from January to June (in French only in the 2nd year of the Ingénieur polytechnicien Program). Therefore students willing to join us at graduate level in Spring semester must demonstrate a B2/C1 level in French prior to their arrival. Candidates are asked to do a placement test in French prior to their arrival.

Registration for the research internship will not be open for students joining us for the spring semester. Should you want to undertake a research internship only, please apply for the Internship program for International Students (deadline: end of January for internship in spring or in the summer).

How to find a course on Synapses (École Polytechnique’s Courses catalog)
For Bachelor Program, please consult the syllabi available online for updated version.

In the top right corner, please select the flag (French or English).

Then select your chosen program of enrollment.

Please note that for Master of Science and Technology (formerly Graduate Degree) you can select your chosen master courses at this stage. For Ingénieur polytechnicien Program, please select the program
first, then your year of enrollment and, if Year 3, your chosen Scientific Concentration track (called Programme d’Approfondissement or PA). **For Bachelor Program, please consult only the syllabi available online.**

For some Scientific Concentrations, you can choose the specialization in the “Program composition” section and then have access to the courses related to this specialization.

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### How do I know when the courses are taught?

- By looking to the courses’ codes

**Bachelor**

For example, **CSE 301: Advanced Programming in C++ taught in Year 3**

The 3 first letters indicate the field of study while the 3 last digits indicate the year for that course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Year and Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE 301</td>
<td>Advanced Programming in C++</td>
<td>Year 3</td>
</tr>
<tr>
<td>MAA 500</td>
<td>Advanced Algorithmics</td>
<td>Year 3</td>
</tr>
<tr>
<td>ECO 101</td>
<td>Economics</td>
<td>Year 1, 2</td>
</tr>
<tr>
<td>ECO 202</td>
<td>Advanced Economics</td>
<td>Year 3</td>
</tr>
</tbody>
</table>

**Ingénieur polytechnicien Program**

For example, **INF 550: Advanced Algorithmics taught in Year 3**

The 3 first letters indicate the name code of the department that taught it while the 3 last digits indicate the year and the semester for that course.

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<tbody>
<tr>
<td>INF 550</td>
<td>Advanced Algorithmics</td>
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</tbody>
</table>
For courses taught at graduate level, courses codes starting with 550 and 570 are generally taught in term 1 (Fall term), courses starting with 560 and 580 are generally taught in term 2 (Winter term) and codes starting with 590 refers to the research internship (Spring term).

### Further Resources

**SynapseS**
It’s an online platform with free access to our course catalog.

Once registered at l’X you will receive an email with your login/password. Your timetable will be available there and you will have access to the courses materials and supports and to your grades.

**MOOCs**
To prepare your stay, you have the possibility to watch our online courses and videos [here](#) (some courses in English).

For students with a B1 level in French, please have a look to this language course “Étudier en France: French Intermediate course B1-B2”.

**Courses**
Courses are broken down into lectures in amphitheater (approximately 100-200 students per course) and lessons in small groups (approximately 10-20 students per course).

**Courses taught in English**
At undergraduate and in the MScT, all courses are taught in English.

In the *Ingénieur polytechnicien* Program, some courses in the 3rd year are taught in English: you can find them on SynapseS by looking for courses whose titles are in English.

**Adding/deleting a course**
Once registered to a course, we will give you a few days after your arrival to finalize your choice.
Please note that you must first receive the approval of your home institution before adding or deleting a course.

**Attendance to courses**
Some courses have a limited number of participants. Due to classroom capacity, once a course is full we are unable to add more students and we do not use waiting list. If you enroll without going to the course, it means you are taking the place of another student.

Attendance in all scheduled courses is **mandatory** and **any absences must therefore be justified and documented**. According to each program's regulations, 3 unjustified absences in classes, labs, seminars, sports and language classes or tutorials will result in a maximum coursework grade of C.

**Having missed a lesson?**
Please contact your academic coordinator or registration office.

Should you anticipate some absences for personal or medical reasons, please give us a leave for absence as soon as possible.

**Exam schedule**
Detailed exam timetables will be released approximately one month before the exam. Exam timetables will be available on your student records page.