

University of Waterloo

Faculty of Engineering

**Exchange to
École Polytechnique
fédérale de Lausanne**

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for the International Studies in Engineering Option

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Introduction

I took part in an exchange to the École Polytechnique fédérale de Lausanne (EPFL) in Lausanne Switzerland from September 2005 to February 2006. This replaced my 3B Computer Engineering term at Waterloo. The experience was incredible, and there were surprisingly few hassles in making it all happen.

Lausanne is a beautiful city situated on the edge of Lake Geneva (Lac Léman in French). While a small city, it is very lively, and offers a lot to do, whether at day or night. It is most well known as being home to the headquarters of the International Olympic Committee and the Olympic Museum. It also features a lively cultural scene, and owing to its large student population, plenty of bars and clubs. Lausanne is centrally located, only 40 minutes from Geneva, an hour from Bern, and about four hours from Paris by train. Excellent skiing in the alps is about 90 minutes away (and you can take a train right to the base of the ski hills).

As for the university, EPFL is a technical school offering degrees in engineering, computer science, physics, and the like. In Switzerland, students studying engineering must go to either EPFL or to ETH Zurich, so the academic program at EPFL is very strong, and the university is well known. EPFL is adjacent to the Université de Lausanne (UNIL), a large arts-oriented school, and there is a nearby athletics facility on the lakefront operated jointly by EPFL and UNIL.

This report will attempt to give some guidance to other students planning an exchange to EPFL, covering everything from course selections to accommodations and transportation.

My Experience

Having never left North America (except for a brief trip as a toddler) before going on exchange, I was excited to be leaving for Switzerland. I had taken French immersion since grade seven, and while I was reasonably adept before I left, I wanted to go to a French-speaking university in order to improve my fluency. Once I saw all the nearby skiing opportunities, I was convinced that I wanted to go to Lausanne, and I submitted my application.

Once I got to Lausanne, I was immediately in love with the city. I was living across the street from the lake, the alps visible in all directions, with great housemates in a residence that was convenient to everything. I couldn't have asked for more!

I arrived in September, in time to start an intensive French course that was designed for international students coming to EPFL, or for Swiss-Germans who decide to come to EPFL and study in French. The course was during the morning, four hours a day for four weeks, which was

great in that it left plenty of free time to explore the city or to make afternoon trips. This made for a very smooth adaptation to my new surroundings, and not having to worry about engineering classes for the first month was a great relief! After the course, I was up to speed on my French, and quite comfortable going around town and speaking the language. I found that the Swiss speak French very clearly and are easily understandable. Anyone who can understand even a quarter of what a native Québécois speaker says will have absolutely no problem in Lausanne.

After the course was over, there was a two-week break before the beginning of classes. I used this time to take a trip through the South of France and up to Paris and Amsterdam before coming back to Lausanne for the start of the semester.

At the beginning of the semester, I found myself very indecisive about what courses I wanted to take. There were four core courses that I required, but I also wanted to take a German course, and there were two potential technical electives that seemed interesting. In the end, the profs for the electives and the German course were so good that I decided to take them all, and I ended up being enrolled in seven courses. While this will sound completely ludicrous to a Waterloo student, it was quite manageable (and even “normal”) at EPFL.

Around Christmas, there is a two-week break. Some exchange students go home, while I decided to stick around and travel in Europe, much to my parents’ disappointment. I made a trip through Germany and to Prague, spent an incredible New Year’s Eve in Berlin, and then went back to Switzerland to go skiing for a week with some of my friends from Lausanne.

The rest of the semester wrapped up quickly. During the Olympics in February, I was able to make a trip to Torino with some of my German housemates and two other UW exchange students to watch a Canada vs. Germany hockey game and a biathlon event. (Canada won the game and us Canadians had to buy the unhappy Germans a round of beer.)

There is another one-week break between the end of courses and the first exams, and then the exams are spread over three weeks in February and into the beginning of March. Professors at EPFL are generally quite accommodating of exchange students. Most professors will give exchange students a “second chance” on any failed examinations if you ask nicely, and I was able to get an exam rescheduled to allow me to catch an earlier flight home.

Course Selections

EPFL has two semesters a year, one from October to February (Winter semester), and the other from March to July (Summer semester). The intensive French course usually begins around our Labour Day and wraps up around the beginning of October. Some Waterloo students complete a full year (Winter and Summer), while others like myself just do the Winter semester. If you have the time and can fit it into your schedule, I would highly recommend staying for the full year.

One of the few regrets of my exchange experience is that I had to leave at the end of February while the rest of my friends were all staying for a second semester.

I found that all of the required 3B core computer engineering courses were available at EPFL in the Winter term. They are as follows (the name of the section offering the course is included in parentheses):

ECE 318	Modulation et Transmission (Génie électrique et électronique)
ECE 355	Software Engineering (Informatique)
ECE 380	Automatique I (Génie électrique et électronique)
ECE 427	Hardware Systems Modelling (Génie électrique et électronique)

For electives, there is no shortage of courses to choose from. I enrolled in TCP/IP and Mobile Networks, both from the Systèmes de Communication section, and both were accepted as technical electives by UW. Keep in mind that the bachelor/master system in Europe is structured differently than in Canada; in general, a masters course at EPFL will be treated as a technical elective at UW.

The SHS (Sciences humaines et sociales) elective courses offered at EPFL should be avoided by exchange students, because they are structured as multi-series courses that must be taken in a fixed order. However, exchange students wanting to take arts electives as a CSE are eligible to enrol in courses at the adjacent UNIL, which offers a much better course selection anyway. There is also a Centre de Langues at EPFL that offers language courses in French, German, Italian, etc., all of which should be acceptable as a CSE list D elective.

All of EPFL's course information is available online at <http://is-academia.epfl.ch>. Click on "Public access" and then "Fiches / descriptifs des cours" to see the list of courses available and a bilingual description of each. They're sorted by section, and by bachelor/master. The class schedules are also available under "Horaires des cours par classe", but are sorted by program and semester, according to when an ordinary EPFL student when take the course. For example, to look up the schedule for the Software Engineering course, you need to know that it is taken in Informatique bachelor semester 5 (by reading the *descriptif* for the course first), and then look up that schedule. Note that EPFL will not prevent you from taking courses that have scheduling conflicts, and as an exchange student taking courses from many different sections, you likely *will* have conflicts in your schedule. In most cases, if there is only a partial overlap of the scheduled classes, it is possible to work around these problems by talking to the professor.

The course descriptions will also detail whether the course is taught in English or in French. As EPFL is attempting to attract more international students, there has been a steady movement towards converting their masters-level courses to English-language instruction. In many ways, this gives English-speaking exchange students an advantage over native Swiss students; in my English-language courses I found myself explaining to some of the French students what things in the course notes meant. Of all the courses I took, only two were actually taught in French: Automatique I and Modulation et Transmission.

For those doing both 3B and 4A at EPFL, it is possible to complete the fourth-year design project while on exchange. Many professors will post lists of projects that they are interested in supervising on their web sites. It is necessary to find a project that is acceptable to both a professor at EPFL and the FYDP instructors at UW, a process that can be much more difficult and time-consuming than it sounds.

The courses at EPFL generally involve less work compared to Waterloo. Most courses do not have labs, and the ones that do don't require much out-of-class preparation or work. Generally, the teaching style is similar to Waterloo, with about 3 hours of lectures per week, and an "exercises" session similar to our tutorials. One major difference is that many courses do not have midterm exams, so the course mark is often 100% based on the final exam. This makes it extremely easy to slack off all term and cram for the final (not recommended!). In my case, I was able to pass everything, but other exchange students have had difficulties.

Exams at EPFL can be quite interesting. If the class is small enough, the professor will often conduct oral exams, where each student simply comes in to the room, is told to randomly select one or two problems to solve, and then has a fixed amount of time (usually 20 minutes) to present his/her solution to the professor. The entire mark for the course is then based on this 20 minute examination, which will likely only test one or two concepts from the entire course. The process is highly unnerving, but most professors recognize this and try to make it as painless as possible. If you are stuck solving the a part of the problem, the professor will often give you a partial answer and ask you to continue with the rest, and only deduct a few marks. Additionally, most professors will allow exchange students to present their solutions in English, even if the course is taught in French, although I did not take advantage of this. In the end, I had two oral exams, and both went well.

The written exams at EPFL are also slightly different compared to Waterloo. Exams are almost always open book, so you can bring all of your course notes and materials with you. Thus, the majority of the questions on the exams are of a problem-solving nature, and test whether you can apply the material. There are very few questions that ask for definitions or simple descriptions of a process, etc., as all of that information could be copied directly from the course notes.

Housing

The best option for housing in Lausanne is to live in one of the residences operated by the Fondation Maisons pour étudiants de Lausanne (www.fmel.ch). Apply early (as early as January or February for September accommodation) and continue to call them monthly until they find a room for you. I did not have a confirmed room until mid-July. Note that when applying, check "yes" to the question that asks if you are an Erasmus student. Erasmus is the name of the European exchange program system, and while Canadian students technically don't fall into the Erasmus program, you are an Erasmus student for all practical purposes.

Only one of the residences, Triaudes, is adjacent to the EPFL campus. The rest are scattered throughout Lausanne and the surrounding area. I lived in Cèdres, which offered the advantage of being within walking distance of downtown Lausanne, and right across the street from the lake. It is a beautiful new building, and I would definitely recommend it. Since the public transportation in Lausanne is so great, it isn't necessary to be close to the campus, and being within a downhill stumble of the Lausanne night-life scene was more of an advantage to me. Falaises is not recommended due to its location in a sketchier part of downtown, and Marcolet is in an inconvenient location far from both the school and the city. The rest are all great, and I would simply rank them in order of distance to the city centre: Cèdres, Rhodanie, Bourdonnette, Ochettes, Triaudes.

If you live in an FMEL residence, the room will be fully furnished, and a trip to the nearby IKEA (Allaman station on the Lausanne-Geneva train line) will get you everything else you need.

Transportation

Switzerland has one of the best public transportation systems on the planet, and you can get just about anywhere on a train. Trains are very punctual – connections are timed to the minute – and come frequently. In many cases you can just show up at the station without bothering to check the schedule, knowing that something will come along soon enough. Schedules and information are online in English at www.rail.ch.

To get to Lausanne, there are direct trains from both the Geneva airport (1 hour away) and Zurich airport (2.5 hours away). If you're considering booking a flight that runs Toronto-Zurich-Geneva, it's better to just get off in Zurich and take the train from there, rather than dealing with the hassle of an extra flight connection to get to Geneva. It's also possible to fly to Paris and take a train from there, but this will involve hauling your luggage through the Paris métro to get to the Gare de Lyon for Lausanne departures.

Upon arriving in Switzerland, I recommend immediately purchasing a Half-Fare card and a Voie 7 (Gleis 7 in German) card from the train station in the airport. The Half-Fare card will save you 50% on all train trips in Switzerland (and also gets you a discount on Lausanne public transit), while the Voie 7 will allow you to travel for free on any train after 7 pm. These passes cost a combined Fr. 249, but you will very quickly recoup the expense.

For Lausanne public transit, you can purchase a bus pass for Fr. 41/month, or just pay the discounted Fr. 2 fare with your Half-Fare card.

Activities

EPFL has an excellent Erasmus Student Network (ESN, or simply Xchange) which organizes pub nights (every Wednesday during the semester), weekend outings, special dinners, parties, etc. While I was there, they organized a trip to a wine tasting festival, hiking trips in the mountains, a visit to CERN in Geneva, and a Christmas dinner celebration. Subscribe to their mailing list at <http://esn.epfl.ch>.

Around Lausanne, there is plenty to see. Some of my favourite trips were visiting Montreux during its Christmas market in December, hiking up to Rochers-de-Naye, and renting bikes (from the free rental service in Lausanne) to bike along the lake to Geneva. A good guidebook will give many more suggestions, and the tourist information centre in the train station also has a ton of information.

For skiing, there are many excellent places to go just a short distance away. The athletics centre at EPFL and UNIL owns a chalet near Les Diablerets, and organizes ski trips every weekend. These trips include accommodations, food, and two days of skiing for a really great price. Other good locations include Portes du Soleil, an enormous ski region that spans the France-Swiss border, and Verbier. There are many others, but I did not have the time to try them all. The train station sells “Snow and Rail” packages for most ski hills – this gets you a round trip train ticket to the hill and a discounted lift pass. Anyone planning to go out more than a couple times should consider renting skis or a snowboard for the season from one of the sports stores in Lausanne; this is much cheaper and more convenient than getting rentals each time you go skiing. I did this from Sports Discount in Lausanne, and paid about Fr. 150 for ski and boot rentals for the entire season.

Miscellaneous

There are some other tips that may be helpful to students going on exchange. If you have a cell phone from Rogers or Fido that supports the 900/1800 MHz frequencies, it will work in Switzerland. However, it is likely that the phone has been locked by the manufacturer to accept only Rogers or Fido SIM cards. You should get it unlocked before leaving Canada, so that you can purchase a Swiss SIM card and pop it in your phone. The cheapest phone services in Switzerland are, surprisingly enough, provided by the grocery stores, with M-Budget Mobile from Migros or Coop Mobile from Coop.

Although your Canadian debit card will work fine at ATMs all throughout Europe, it can be convenient to have a Swiss bank account. It's also pretty cool to be able to say “Just wire those funds to my Swiss bank account.” I was able to get a free account from PostFinance (run by the post office), but they gave me a card that would only work at their own ATMs. Other banks such

as UBS and Credit Suisse also have student accounts, but I do not have any experience with them.

Conclusions

My exchange to Switzerland was a terrific experience. I was able to visit so many places I had never been before, and learned so much about the culture of Switzerland and Europe. Doing the exchange had practically no impact on my academic progress, and even put me slightly ahead of my Waterloo counterparts, since I was able to complete 2 technical electives in addition to all my required 3B core courses while at EPFL. I was also able to complete a shortened work-term after I returned home in March, which CECS gave full credit for.

I would highly recommend EPFL to other students planning an exchange. Anyone considering EPFL who has questions about any aspects of the exchange is welcome to contact me at jlschofi@uwaterloo.ca.