

# Reflection & Evaluation Erasmus EPFL (Lausanne, Switzerland)

## Lausanne

Lausanne is a lovely small city in the French speaking part (south) of Switzerland, located on the shores of Lac Léman near Geneva. It hosts two universities: Université de Lausanne (UNIL) and École polytechnique fédérale de Lausanne (EPFL). Both universities are known in Switzerland and have a lot of students. As a result, almost 30% of Lausanne's population consists of students. Lausanne itself is also very popular among Swiss students from nearby cities for partying during the weekends.

Housing is a big problem in Lausanne. In Switzerland, high school students already have to make their higher education decision in February. So during February and March they all start searching for an apartment or a room. So it is important for Erasmus students to join this hunt as soon as possible. There are a lot of student rooms available at FMEL, but also these places are reserved soon.

The whole urban agglomeration of Lausanne is decently reachable by public transportation which is in general well organized and punctual. TL provides bus and metro services, SBB-CFF is the railway company. Subscriptions for TL can be bought weekly, monthly or yearly. All of them have student reductions. Train tickets in Switzerland are expensive and if you plan to travel often (which I definitely recommend!), you really should consider buying the SBB-CFF demi-tarif and voie7 subscription. These are yearly subscriptions for students which allows you to travel to every location in Switzerland for half of the price during the day and for free after 19h! After three trips the subscription already pays off.

Life in Switzerland is generally more expensive than most other European countries, but there are a lot of tricks to overcome this issue. There are two big supermarket chains: Migros and Coop. Both of them offer you a member card with which you can collect points to redeem vouchers. Every day they have products on sale and you can get reductions up to 50%. Buying the store brand products and cooking yourself will also help you to reduce your expenses.

## EPFL

The polytechnic university of Lausanne is together with ETH (Zurich) one of the highest rated in Europe. It is very international too; around 50% of the students at EPFL are foreigners. It is located outside the city center and can be easily reached by a 15 minutes metro ride. The campus is really big and can be considered as a small village. It hosts several bars and restaurants, an SBB-CFF office, a travel agency, a post office, banks (Credit Suisse) and a supermarket. Every week a small market is held on the esplanade and during lunch time several catering companies can be found scattered throughout the campus. Together with the student restaurants, you have a huge variety in meals. Lots of students who have their room nearby practically live on the campus. Using your student card (CAMIPRO) you can get reductions in most of these places.

In general, EPFL students have a high workload. It really depends on each course, but you can expect weekly tests and assignments for several courses. As a result, you will see students working everywhere, at each period of the day and at each day of the week. There is even a building dedicated to students who want to work (Rolex Learning Center). This is just one example of how good the services for students are. Using your student card you can access buildings any time of the

day. Printers and scanners are numerous present. Wi-Fi and outlet plugs can be found everywhere. A mobile app (PocketCampus) is available which serves a lot purposes, like restaurant menus, a map of the campus, course schedules, etc. Language courses are offered for free to students. There is a free computer helpdesk (Poseidon), free health point, free lockers, a bike rental/repairing place, clothing & skiing equipment sales and tons of other services. Most of the courses have multiple teacher assistants who are easy approachable and are very willing to help you. There is also a small business office complex on campus which hosts several companies where students are welcomed to ask for a bachelor/master project or an internship.

Besides the services offered by the university, there are also a lot of student organizations. These are significantly different from the Belgian ones. They are not per faculty but they have a certain purpose. There exist student organizations for photography, chess, satellite building, golf, business & career development, biking, skiing and much more. Then there is also ESN (Xchange), the Erasmus Student Network which organizes trips and other activities every week. With their ESN member card you will have a lot of discount on their events and in some other places too.

## Courses

The grading system at EPFL works differently than in Belgium. They have a scale from 0 to 6 with 6 being the highest grade. To pass a course you will need 4 out of 6. They do have two exam sessions like in Belgium in January and June, but they can't retake a failed course in August. Generally speaking, bachelor courses are given in French while most master courses are taught in English. While picking courses you should pay attention to the ECTS credits. Courses with a high ECTS value tend to have a huge workload, sometimes more than the ECTS indicates.

### Biometrics (4 ECTS, Andrzej Drygajlo)

The Biometrics course will give you an introduction to all different biometric techniques: which traits are useful in a given occasion, how to collect the samples and how the recognition and detection systems work. The course will cover the basic understanding of the internal working mechanisms but doesn't go much into detail since the course is also part of the forensics education program. The grading of the course solely exists of the result of the oral open-book exam.

### Satellite Communication Systems & Networks (3 ECTS, John Farserotu)

During the Satellite Communication classes you will learn what you need and how to design and build a SATCOM system. The course is going from the low-level physical requirements to high-level satellite applications, while covering topics like closing carrier links, modulation & coding techniques and multiple access solutions. The pace of the lectures is pretty high since a good knowledge of radio and telecommunication is assumed. Combined with the fact that the professor is a native English speaker who tends to speak fast, I found it sometimes difficult to follow the lecture well. Throughout the semester you have to hand in three assignments which are extended versions of the exercise sessions. The course is graded by means of a written open-book (and laptop) exam where you will have to design a whole satellite system given a set of parameters and requirements.

### TCP/IP Networking (5 ECTS, Jean-Yves Le Boudec)

This course covers the whole TCP/IP stack (both IPv4 and IPv6) together with other relevant protocols like those for routing purposes. Sometimes I had the impression that the lectures were a bit unstructured and thus confusing to follow. In the labs you are required to implement several network topologies and answer questions about specific testing cases. These are really interesting,

but they do take a lot of time. Every two weeks you are required to hand in a lab assignment and every other two weeks you'll get a small test about the previous two lectures. The exam (written) consists of a few test cases like seen in the labs, but now you are required to answer questions about them rather than configuring them.

### [Cryptography & Security \(7 ECTS, Serge Vaudenay\)](#)

In this cryptography course you will get an extensive introduction to the history of crypto systems, symmetric encryption, public-key cryptography, key-exchange protocols and integrity & authentication systems. Before subscribing to this course, you should be aware of the prerequisites of the course. These topics are considered as known well and won't be rehearsed. The workload for this course lies pretty high. Next to the lectures, there are a lot of weekly exercises. The exercise sessions are managed by three teacher assistants who are really competent and willing to help. Halfway the semester you will get a midterm which counts for 40% of the continuous grade, another 30% can be earned by six assignments which have to be solved on computer. These assignments take a lot of time but are fun to do. Then the last part of the continuous grade consists of pop quizzes which are held after each finished chapter. The final exam is written and will contain both mathematical proofs and exercises similar to the ones given during the semester.

### [IT Security Engineering \(4 ECTS, Philippe Janson\)](#)

These classes give a broad overview of the security concerns in informatics and their solutions. Also other related topics like privacy protection and the near future trends and developments are covered. The course is brought in a way that people without a technical background can follow it too so it won't go into details. To understand and practice the technical details, you should take the labs too (IT Security Engineering TP). During the first half of the semester a lot of lectures are given, followed by a midterm. Afterwards, exercise sessions start together with the preparation of a presentation which should cover one of the selected security topic papers. These presentations are brought in groups of three people. The course is graded based on the results of the midterm, the presentation, pop quizzes and the final written exam. Note that this course can significantly differ in the future since the professor will retire at the end of the academic year 2014-2015.

### [IT Security Engineering TP \(2 ECTS, Philippe Janson\)](#)

The IT Security theory course can be extended by these labs. They are really hands-on and the course consists of basic ethical hacking exercises like software vulnerability testing and forensics analysis. Some are really difficult and require a lot of time to solve them, but they are really fun to do and you will learn a lot. The labs are definitely worth more than 2 ECTS; the lecturers are aware of this but are unable to get more credits for it. However, most students who took this course (including me) are really positive about it. The teacher assistant is really great and the course is only graded by the exercises solved during the labs.