

## **ECOLE POLYTECHNIQUE SCHOLARS PROGRAM: PARTICIPANT COMMENTS 2017 & 2018**

### **Tristan Nee '19 - Computer Science Caltech & Informatiques Ecole Polytechnique FALL 2018**

I am writing this during my 7th week here at Ecole Polytechnique (I'X). My first body paragraph is about life in general in France and at I'X, the second is about extracurriculars on campus, the third is about traveling, and the fourth is an academic comparison between I'X and Caltech.

One of my main goals for my study abroad was to improve my French speaking. Although I am taking a French class that focuses a lot on writing and reading, I find it most useful to know how to speak fluently because it makes visiting places in France a lot more enjoyable and easier. Even though everyone at I'X speaks English pretty well, it is still useful to know French because many notes are French and sometimes professors or students explain things better in French. Furthermore, when you go outside of I'X and talk to vendors or random people in Paris for example, they might not know English, so it's very useful to know how to speak and understand French. So yes, I'd say improving my fluency is a huge goal for me here, and that can be challenging because most of the exchange students talk to each other in English, since that is what we are most comfortable with. There is a mix of Germans, Swiss, Italians, Argentinians, Iranians, Chinese, Nigerian, and (a few) Americans in which the best language in common in the group is English. Fortunately, I joined the soccer team at I'X, and in that team everyone speaks French, so I get some good practice there and would definitely say that after 4 weeks of being with the team, my French has already improved. The food at I'X is pretty good. During lunch, I eat with either the exchange students or the soccer team at the cafeteria called Magnan, and it serves pretty typical French appetizers like small pieces of bread, typical French cheese like camembert. I'd say the overall quality of the food at I'X is better than Caltech dining service. And the food at Magnan is pretty cheap (I can get a pretty filling meal with meat, veggies, and pasta/rice/grain for under 2 euros). For dinner, I usually cook with the people in my dorm (which is about 50 people, but only maximum of around 15 people eating at once), and I usually make pasta with pesto. I would note that people here eat dinner so much later than people at Caltech do. I usually eat around 8 pm here with a few other exchange students. To buy food and go shopping, I usually go to a huge shopping district which is only one stop away on the RER (a train service) from Polytechnique's closest RER stop Lozere. The district features an enormous grocery store where you can find anything food/housing supply related, and also many other nice stores like H&M, Fnac (electronics store), and Intersport (athletic apparel store).

I have 2 main extracurricular activities: piano and soccer. I've been able to do both of those as much as I wanted at I'X. For piano, there are about 6 very nice quality stand up pianos about a 1-minute walk away from my dorm, each in their own little shack. You just have to request access for them and you can use them whenever someone else is not using them. One of the things I am most happy about here is how invested students at I'X are in sports. In fact, every polytechnicien (I'X students not counting exchange students) must do 6 hours of sports every week. Also, since this is France, there are a lot of soccer players, and on average they are usually a lot better than Americans. During my stay here, I know that there are about 90 polytechniciens playing soccer, and 3 teams that they can be placed in (so about half of those 90 aren't in a team). I joined X1 (the top team at I'X), and the level of soccer in this team is awesome. We won our first match 7-1 against a team in our division (D2), and also beat a D1 team 1-0. I'm looking forward to the rest of our matches and the bus trips with the team. The players on the team are all very nice and welcoming too and that is mostly where I learn French slang. There are also so many other sports here at I'X. Even though the campus at I'X is probably not as aesthetically pleasing as Caltech's campus, I'd say it's a more fun campus because it has so many more sports facilities than Caltech has. I'X has horses for the horseback riding classes, they have a lake for rowing classes and competitions, they have climbing classes, judo, kickboxing, karate, swimming, rugby, and many other sports. For these sports, if you come here as an exchange student, you can choose to do them recreationally, or competitively with other polytechniciens. There is also an orchestra that you can join.

Another thing that's super nice about being at I'X is how easy it is to travel to different places. If you take the RER, it would take you about 45 minutes to get from I'X to the center of Paris, where there is so much to do. I go to Paris almost every weekend for sightseeing, and occasionally parties (of which there are almost every day somewhere in Paris). Also, traveling to other nearby countries is super easy. For the week of vacation that we have at the end of October (Toussaint), I am going to be traveling to Athens, Greece (and neighboring islands) for 6 days, and then to Munich for 2 days. I will also be visiting Barcelona and watching FC Barcelona play. The round trip for Barcelona only cost 40 euros! I also have been visiting Chartres a lot, which is about 1.5 hours away from Paris and I take the TER to get there. Basically, if you want to study abroad and also visit many other places, choosing I'X is a great choice because it is super easy to travel to other places. I still have more than half of my study abroad left and plan to travel a lot more.

At Caltech, I major in CS, and at I'X, I'm taking 4 Informatiques (CS) classes. If I were to compare the academics, I'd say that the complexity and intellectual level of the classes at I'X are at about the same level as Caltech CS classes. I'm taking two classes that have a very practical focus (instead of theoretical), which is a nice change from many of Caltech's theoretically inclined classes. But the two other

courses I'm taking are pretty theoretical and are about as challenging as a Caltech CS class. I'd say the main difference is the amount of homework we're assigned here. In my opinion, there is much less homework at l'X, and instead most of the work you do is done in the "practical session", which is usually a 2-hour session right after the lecture. So, in this practical session, you basically do what you'd have to do as homework, but with the help of the professor or TA. It's kind of like an office hour actually, but many times (in 2/4 of my classes), the work done in the practical session is not work you have to turn in for it to be graded, but rather work that trains you so you can pass the final exam, which is the bulk of your final grade. So, these practical sessions are pretty important to attend, but they are nice and constructive.

Overall, I am very happy that I am here for 3.5 months at l'X, and very thankful for this opportunity. I definitely wish I could spend more time here, but I know I will come back to visit France.

**Wenqing (William) Xu '19 – Mathematics and Computer Science, Caltech & Informatique, Ecole Polytechnique  
FALL 2018**

You know, the often-repeated saying "Caltech Bubble" has never been clearer than when I was studying abroad. Now don't get me wrong, my first 3 years at Caltech were extremely enjoyable and I learned a lot in my classes. However, there was always a feeling that there was something more out there. I just couldn't put my finger on it. I always felt stuck in a grind. Now, I can point at so many different aspects of Ecole Polytechnique and say, "This is exactly how you get out."

As expected, settling into a new college in a new country was rough. There was a lot of paperwork to fill out to attend classes, do sports, and deal with the housing office. In addition, we had to make a French bank account to pay rent, which was annoying because the bank gave me the runaround when I deposited a check. My French was also rusty when I first landed, which led to some awkward situations. Another thing about Polytechnique is that it operates under the French military, so you often must interact with French army officers. Although this was disconcerting at first, they are all very nice and will help you with your stay. But eventually, I overcame these obstacles and France felt like home!

Studying abroad at Ecole Polytechnique is more than just studying at Caltech but in French. The subjects may look familiar, and course descriptions also seem mundane, but teaching styles are not. Classes at Ecole Polytechnique are usually divided into 2 sections: a 2-hour lecture, and a 2-hour practical session. The lectures are average, but I especially like the practical sessions. The practical sessions are when the professors hand out problem sets and help you with some of the problems. This is immensely helpful because it gets you on track to completing the entire set and allows you to get to know the professors. With regards to classes in

French, I had a little trouble adjusting to the new vocabulary, but since I took mainly math-based CS classes, I adapted quickly. Getting help from other French students was also no problem and was also another opportunity to practice my French. Another striking thing was how Polytechnique and Caltech approaches the same topic. For example, graph problems at Ecole Polytechnique automatically assume that they are weighted, while Caltech does not. I feel like these different viewpoints will be extremely helpful when I collaborate with someone from France for research. Since Polytechnique is a small school like Caltech, class sizes are also very small. Although, classes at Polytechnique tend to drag on for too long, I still thoroughly enjoyed them. I also did research there on genetic algorithms. In fact, I would say the research at Polytechnique is even more encouraged than at Caltech because I heard announcements about research/internship activities in all my classes. ***At Polytechnique, I felt an eagerness to learn that I had not felt in years.***

Another striking feature of Polytechnique is the vibrant student life on campus. There are several sports teams living in the dorms, as well as countless other sports and student clubs. I was a member of the Ultimate Frisbee sports team, and I felt accepted by the other members. Playing in a sports team also helps you practice thinking on your feet in French and has led to true moments of camaraderie. There is also a vibrant night life on campus, with occasional fireworks over the campus bar. In most dormitories, there is a communal kitchen which acts as a place to cook, eat, and hang out. Sometimes groups of people will work together to cook a meal for the other students, which is always fun. French food was also amazing, to say the least. Meals in the school cafeteria were better than those by Caltech Dining Services. In addition, I suspect the food is subsidized, because there is no way appetizers and desserts this good should cost this little. The close-knit social atmosphere at Polytechnique reminds me a lot of the house system at Caltech, one aspect of the "Caltech Bubble" I do not miss!"

A change in pace of daily life is also welcome. At Caltech, we are used to having most off-campus activities within walking distance or a long drive away. In France, there is a lot more walking and talking when you are getting groceries or going to Paris. I have cooked a lot more at Polytechnique than I ever did at Caltech. I even learned some new international recipes to try out! Going to Paris on the weekends is also fun. You just need to hop on a train for 40 minutes, and literally hundreds of museums, monuments, and attractions at your fingertips. Even better, since you are a student, most of them are free! The food in Parisian bakeries is also exquisite. Just make sure you find one away from the tourist traps. Because of this, I have learned so much about art, culture, and history, something I couldn't dream of doing at Caltech.

However, the most valuable experience during my study abroad period is the casual conversations I have had with French and other exchange students. Yes, classes are

nice, sports are fun, and Paris is amazing, but what makes and breaks an experience for me is the day-to-day interactions with other students. In addition to the French students, I took classes with international students from all over the world like Germany, Italy, Israel, and even Argentina. They brought with them their experiences, culture, and politics, leading to an active exchange of ideas. From this, I gained a new perspective on the world. There was more to the world than Caltech, and I must strive to discover it. I can confidently say that I will miss this part of my study abroad experience the most.

My recommendation for all incoming students is: try to put yourself out there in new situations. Whether you intend to go to industry or academia, studying abroad will broaden your horizons and diversify your thinking. Even though I have not taken as many classes here than I would normally, I still learned more than I ever could have at Caltech. In this globalized society, we will innovate the most when we reach out beyond our borders. And in today's increasingly nativist political discourse, something like that wouldn't be a bad thing at all.

### **Catherine Day '19 - Biology Caltech/Biologie Ecole Polytechnique FALL 2017**

I first heard about Ecole Polytechnique (l'X) in my high school French class while learning about the *grandes écoles* system, where students undergo two additional years of studies after high school before taking test in attempt to get into one of the celebrated *grandes écoles*. In short, l'X is the best technical school in all of France. As such, I set myself up to have high expectations of Ecole Polytechnique and of Paris. I'm happy to say that they more than fulfilled my hopes.

The structure of classes at Ecole Polytechnique is noticeably different from that of Caltech. Every class is accompanied by a *petite classe* where the emphasis is placed on solving problems rather than teaching new material. It's different from the homework given at Caltech as the point of the problems from the *petites classes* is that they are used for us to figure out how to apply the material to real life situations rather than just to learn the material. Because all of the problems are done in class with the professor, there is hardly any weekly homework to do. This sounds nice and all, but rather than being let completely off the hook, this style of teaching promotes a lot of individual accountability. There are no checkpoints during the trimester and students have the responsibility of keeping up with the class by themselves.

Because of the way classes work, there is quite a bit of time to invest in other activities. There are plenty of *binets*, or clubs, to join as well as a large variety of sports to choose from. At Ecole Polytechnique, their housing system is revolved around the sports teams, in which participation is required. Although I am not living with the Polytechniciens, I've found it quite easy to join the sports teams. I have been practicing with the girls' volleyball team and have also joined the rowing sports

club (note that there's a lake on campus!). Proud to say that I've gone from not knowing how to row at all to being able to race across the lake!

In addition to having time to exercise, I've also been able to make time to travel to Paris, other regions in France and other countries in Europe. There is a never-ending list of monuments and museums in Paris to visit. My friends and I often just wander the streets of Paris, take a coffee in a random café and sit in the many beautiful gardens. There's always a *boulangerie* or a *crêperie* around the corner if we get hungry after walking around for a few hours. It's amazing how little by little, it's possible to piece together the city of Paris. Paris is no longer just a conglomeration of famous tourist sites, but is a beautiful city that should be explored fully.

Because Paris is one of the most travelled to cities, it's easy to fly from Paris to any other French region or country in Europe. In the span of the 15 weeks that I have spent here, I'll have travelled to Bordeaux, various cities in Normandy, Lisbon (Portugal), Edinburgh (Scotland), London and Cambridge. Travel within the Schengen area is unbelievably stress-free and I've found one of my favorite things about the European Union: my French phone plan will work when I'm travelling to any European Union country - without any additional fees. Aside from the benefits of the policies, it's been very liberating to be able to travel around to so many countries.

Along with my newfound appreciation for the European Union, I've also been able to learn much more about the individual countries in Europe directly from the residents of those countries. This year, all the exchange students were placed in one dorm together - consisting mostly of Erasmus (the exchange program of the European Union) students and a few other students from around the rest of the world.

Because we speak English with each other, it's true that my French skills haven't been improving as quickly as I expected. However, I wouldn't switch my dorm out for any other dorm. Instead of just learning about France and French culture, I've been able to learn more about Portugal, Italy, Germany, Spain, Switzerland and so many other countries. Every so often, we gather together for culture nights where we cook the cuisine of a specific country and it's always exciting to see the differences between the countries. The knowledge I've gained from talking with so many students from different countries more than makes up for my slower pace of French improvement. In any case, there's plenty of opportunities to converse with other students in French during classes and sports.

Coming to Ecole Polytechnique, I was quite apprehensive as I'm an inherently shy and withdrawn person. Caltech tends to allow students the liberty of interacting almost solely with their house and major over the span of the four years and I'll be the first to admit that I've taken advantage of the Caltech system these past two years. To study abroad though meant that I would be thrown once again into an

environment that was completely unfamiliar, especially since there is the aspect of full French immersion. There was the worry that my French had deteriorated after two years of not taking class. I can't say that it has been easy sailing these past few months, but it's important to understand that part of self-development is stepping out of comfort zones. I've had to remind myself that it's fine that I needed someone to repeat what they said, or that the French students are more than likely completely willing to help, or that it's okay that there are times when I'd rather stay in my room and play music, but there are also times that I want to join the crowd to go partying. Studying abroad isn't just about the travelling and the studying, but it's also about building self-confidence and self-reliance. Of course, this journey can be taken at any study abroad program, but why not do so at one of the greatest schools and within reach of one of the brightest cities in the world?

### **Drew Schaffer '18 - Physics Caltech & Physique Ecole Polytechnique FALL 2017**

Ecole Polytechnique is, like Caltech, a small, intense tech school located in the suburbs of a massive city. Both have tight-knight communities and an emphasis on academics. But only at one of them will you be able to explore the City of Lights and eat fresh-baked pastries in the heart of France.

As a Techer coming to Ecole Polytechnique to study physics — in French! — I was at first quite anxious about the course-load over here: after junior year of Caltech physics I wasn't sure that I wanted to have the difficulty of doing that again in a foreign language. But it turns out that learning science in another language is pretty manageable. For example, in my particle physics class, almost all the technical vocabulary is the same as in English but with perhaps some tiny modifications: *électron, méson, atome*. This has meant that, along with the equations to help me along, I haven't felt lost or confused by this stream of French physics talk. Also, the class system is more hands on here, with two hours of lectures supplemented by a two-hour recitation where you work through problems with the professor, which helps you get an idea for the application of class material as opposed to Tech, where you're responsible for figuring it all out on your own. The entire grade is determined by the final exam, so while there are no take-home assignments during term you have to be a lot more careful and self-driven.

The social life here is pretty active, and you quickly make friends in your dorm: the kitchen is the big assembly place, as everyone cooks dinner here. Interacting with French students is really how you improve your French, though there is also a big international student community which mostly speaks English if you're feeling timid. I definitely feel that, thanks to my dorm, I very quickly had a crew of friends to hang out with here.

And then of course there's French food. I remember the first day I walked into the cafeteria and saw the rows of *éclairs* and cakes for the grabbing. And that's just the school cafeteria: in Paris, itself, every few minutes you cross an idyllic bakery with

millefeuilles and pains au chocolat coquettishly arrayed in glass display cases. As a man of little self-control when it comes to food, I find that it's taking all my willpower here not to eat every pastry in sight. You really have to be careful: if the *Freshman fifteen* didn't get you as a frosh, the *Frenchman fifteen* may sneak up on you here. I've been diligently jogging so that I can maintain as high an input of croissants as possible while I'm here. Besides the bakeries, of course, you have little specialty cheese shops: there are currently six different types of *fromage* in my fridge. One of the funnest nights I've had here was when a friend from Tech who's studying abroad at Copenhagen came, and we bought a baguette along with a sampler of five different cheeses, and chowed down on the banks of the Seine.

In addition to its gastronomy, Paris is known for being a city of art as well: even after my time here I'm sure there'll still be museums I didn't get to see. As all public museums are free for students at French universities, I've been devoting my time in Paris to gaining an artistic education at the expense of the French taxpayer. My favorite is the Musée d'Orsay, with the world's largest collection of impressionist art: it took me five visits to feel like I got to know the collection. I haven't even started on the Louvre yet. In addition, there are lots of smaller galleries around the city, and the Latin Quarter is full of tiny movie theaters screening the classics of world cinema.

As for the downsides, it is true that Ecole Polytechnique, being located in Palaiseau rather than Paris proper, can feel a bit far from the action at times, but to be honest this isn't even that much of a problem: the campus is located around a 35 minute train ride away from the center of Paris, and from there everything is at your fingertips. Plus, there's a decent amount of campus life, so it's not like you'll be trapped in a ghost town if you choose to stay in Palaiseau. There are apparently hundreds of student clubs: I'm part of one that screens and debates artsy films.

Ecole Polytechnique is definitely a good place for those looking for a taste of French culture as well as rigorous academics and a smaller, more personal community. If you're looking for a chance to study in Europe as well as eat copious amounts of good food, Ecole Polytechnique may be the place for you