

CS/EECS Transfers Advice and Tips

Hey, I'm Khoa, a CS Senior at Cal. I transferred from Monterey Peninsula College to Cal in Fall 2012. I prepare this document with the intention of answering only the questions you guys have put in the Google form, so it's by no means complete. Please excuse me for any typos - and let me know if you spot one so I can fix it.

Disclaimer: These tips and advice are based on my personal experience. This document does not receive any endorsement from UC Berkeley, and hence is NOT official in any way. If some of the points I present contradict with what your counselors and/or Cal admission specialists say, please go with them instead.

I hope you will find this helpful, and good luck with the transferring process!

Tips for those who already applied

Well, to be honest, there's not much tips I can give in this case :p. You have already applied - and in about three weeks, you will hear back from Cal. I do want to stress that:

- If you get in, congratulations in advance!
- If you don't, please understand that it's not the end of the world. Cal is amazing, but so is every other school you have applied to. :)

Should you wait another year and reapply? It really depends. I don't think I'm the best person to answer this question - you are! Is Cal your dream school? Can you still take other classes at CC while waiting for another year?

Tips for those who plan to apply

I will begin by saying that it's a tough competition getting into Cal. If you plan to transfer to Cal one day, I believe the following tips (in no particular order) will help you:

- **Know your requirements.** Always check assist.org and confirm with your counselors. If you miss a single requirement for transferring, you are 99% out regardless of your other stats.
- **Try to keep your CC grades as high as possible.** The average GPA of the CS/EECS transfers is around 3.9, with many getting a full 4.0. This is not to say that if you don't have that GPA, you should not apply. NO! There are many ways to make up for a weaker GPA (see below), but you should aim to get your grade as high as possible.
At the same time, getting a 3.9 or above does NOT guarantee your admission to Cal. There are many factors that the admission committee look at, and GPA is just one of them.
- **Don't write a good personal statement. Write a GREAT one!.** In particular, can you convince the admission committee that you are a valuable addition to Cal? Are your interests in your major genuine? Why should they pick you for the 3000 spots available from 15000 applications? (based

on [Fall 2012 stats](#))

- **Speaking of interests, take as many classes related to your major as possible**, whether they are Cal-transferable or not. For example, taking CC classes in Unix, Web Design, etc. can only help you in your application and in your future career - they cannot hurt you in any way.
- **If you have volunteer/internship/job experience, include them in your application.** Cal wants a well-rounded student, I can assure you that.
- **Keep the high school achievements out of your application, if possible.** Unless they are very significant (e.g. you win a big competition in high school), putting them in your app won't help. What you did during your years in CC matter much more.

For logistics (when and where to apply, etc.), please check with your counselor and/or Cal's website.

What's the difference between CS and EECS?

There are two ways to study Computer Science at Cal. You can earn a Bachelor of Arts in Computer Science from the College of Letters and Science, or you can earn a Bachelor of Science in Electrical Engineering and Computer Science from the College of Engineering. What's the difference?

- In terms of employability, there's essentially no difference. Both degrees are equally prestigious.
- The same goes for applying to graduate school, I don't believe there's any significant difference.

Then which one should I apply to?

- If you are interested in Physics and Electrical Engineering, you should apply to EECS.
- If you are interested in Humanities/Social Science/Math, for example: Economics, Statistics, Math, you should apply to Computer Science.

For EECS, you are required to take two extra Physics classes before you transfer: Mechanics and Electronics/Magnetism. You also have to take EE20, which is a class in Signal and Systems, and EE40 - Circuits. The upside is that you only have to take two upper-division humanity/social science courses.

For CS, you only have to take one EE class (you can choose between EE20 or 40), but you will have to take four or more breadth classes. If you are a transfer, don't worry - the IGETC automatically takes care of this requirement.

The class differences work out to be the same number of classes, so it's up to you and your interest to determine which degree you should pursue.

Can I switch between CS and EECS after I get in?

The short answer is "no", you are not encouraged to do so. The truth is, it's possible under very special circumstance, but changing between colleges in Berkeley (CoE to L&S or vice-versa) is a big hassle. There's no good reason to do it at all.

Even as a CS major, you have access to every upper division EE courses if you have taken the appropriate prerequisites, so if you apply as CS and still want to do more EE, you can totally do so.

Is there a Computer Engineering major at Cal?

No, there are only CS and EECS. But you can always take classes in hardware design (CS 150, CS 152). There's no need to worry about the major's name, because Cal has all the classes you want.

Is there a pure Electrical Engineering major at Cal?

Unfortunately, no. You will have to take at least three Computer Science classes even if you only want to do pure EE. After these three classes, you can take as many EE classes as you want.

What EE/CS classes do I have to take?

You are required to take most of the following classes. Depend on your major, there might be one or two differences - check the section "What's the difference between CS and EECS?" for the differences.

- **CS 61A: Structures and Interpretations of Computer Programs.** This class is an introduction to the big ideas in Computer Science, and it is taught in Python. Regardless of your experience, you should really take it, and it's one of my favorite classes at Cal.
- **CS 61B: Data Structures.** Most transfer students have already satisfied this requirement. If you have not, or if assist.org says you need to take CS 47B, my advice is to take CS 61B in its entirety. 61B is a fundamental course in Computer Science, and you need to be very comfortable in this material to move on to upper division classes and ace job interviews. It is taught in Java. CS 47B is a self-paced class (as in, no lecture, and you do all the work online). I do not believe it's a suitable substitute for the experience in CS 61B. In fact, even if you have taken Data Structures at your CC, I still highly recommend auditing the class and attending the lecture. The difference in difficulty and workload will be very apparent, I assure you.
- **CS 61C: Computer Architecture.** This class teaches you the great ideas in computer architecture to enable high performance programming via parallelism. It is taught in C, MIPS(assembly language), and Java.
- **CS 70: Discrete Mathematics and Probability Theory.** As the name implies, this is a math class designed for Computer Science students. It has weekly problem sets and occasional labs that you can solve in any language you are comfortable with.
- **EE 20: Signals and Systems.** To my knowledge (I haven't taken this class), this is also a math class that is much like CS 70 for EE students. It uses a lot of material from Math 53 (Multivariable Calculus) and Math 54 (Linear Algebra & Differential Equations), so be sure to be very solid in these material. The lab portion requires you to program in Matlab.

- **EE 40: Circuits.** This class combines and extends the material from Physics 7B (E&M) and CS 61C, and there's a significant lab portion when you design and build a circuit.

After most of these classes, you are done with the lower division requirements! You need to take at least six upper division classes to graduate, and there are a lot of interesting classes to choose from.

What is it like to study CS/EECS at Cal?

- Despite the hype, **CS is not competitive.** We are fun bunch of people who are generally very helpful and friendly. Yes, there are some odd people here and there, but those people are in every school.
- **But it is very hard.** The material is tough, and the assignments can take people anywhere from 5 to 50 hours to solve. I'm not trying to scare anyone, but there's a reason CS at Cal is well-respected and tie at No. 1 in the nation.
- Given the above fact, I have to warn transfer students that you should expect a drop in GPA here. Keeping your 3.8+ from CC is generally very hard, though doable. A lot of students are caught off guard because of the difficulty and the workload of courses here, so be aware. You can take 5 technicals in CC, but doing that at Cal would guarantee failure unless you plan your schedule really, really well (or have superb time management skill)
- Most classes at Berkeley are curved to a bell-shape distribution (**typically**, there's around 25% A's, 35% B's, 35% C's, and 5% failing). The typical average GPA for lower division EECS classes is 2.7 (B-), and the average GPA for upper division classes is 2.9 (low B)
- **It is going to be stressful, but is also very fun and rewarding.** Personally, I would not trade anything in the world for my experience during the last two years.
- Every Professor here is very famous in his or her field. If you like a particular professor, please visit him/her in Office Hour and express your interest in the class/material. Most professors do recruit undergraduates for research, and considering the fact that Cal is one of the best research institutions, you should definitely ask and/or apply!
- EECS classes' sizes are somewhat big, so **sometimes the class does feel impersonal.** In that case, sit at the front to increase the chance of getting your questions answered in lecture, go to Office Hour (surprisingly, very few students take advantage of OH), and attend section! Sections tend to have around 30 people, and are lead by a grad student, or an advanced undergrad who has taken the class in the past and earned at least an A-, so they know the material very well. Go to section and ask all of your questions.
- Almost every CS class at Cal uses an online discussion forum called Piazza. Take advantage of this resource, and ask your questions early! Instructors usually monitor Piazza and respond to posts really well, but during the midterm/project season, the forum is swamped with a ton of questions, so you are much better off if you start working on the project or studying for midterms early on.

There are probably a few other things I forgot, but feel free to send me an email if there's something about studying CS/EECS at Cal that you would like to know.

Should I stay close to campus?

Personally, I would say yes. You will need all the time you can possibly get in a day to get your work done and digest the material, especially if you are majoring in CS/EECS. If you have to commute, I must warn you that finding parking Berkeley is really hard, and driving around campus when hundreds of students cross the street every minute is not fun either...

If you choose to live in the residence hall, I recommend either Foothill or Wada. Foothill is a block away from Soda and Cory Halls, the CS and EE buildings respectively. It's somewhat far away from every other things, including food, shopping, parties, etc., however. Wada is mostly for transfer and upper-level students, so if you would like to be around people of the same age and/or class level, Wada is the way to go.

Personally, I lived in Foothill my first year and had a blast. Most of my suitemates were sophomores and were only one year younger than me, so I fit in pretty well. I now live off campus in an apartment but is still very close to Soda Hall.

Should I enroll in the summer session before my first semester?

If you can, YES! By "can", I mean double-check with the Berkeley admission specialists first. In some cases, they don't allow transfer students to take summer classes prior to their first semesters, so be aware.

Like I said, if you can, do it! Summer classes are generally very relaxing. The difficulty is still there, but you are in a much smaller class (usually 200 people for lower division CS classes, compared to 700-1000 in the normal semester). You also tend to form a much stronger bond with fellow students and professors. You also become familiar with the Berkeley campus and know what to expect before your first official semester at Cal.

Beside the reasons above, the most important reason why I encourage you to take summer classes is because you can easily knock one or two requirements out of the way early on. Say you have to complete four prerequisites before you can declare the major (for CS) or satisfy the EECS transfer requirements. If you don't do summer classes, chances are it will take you two semesters to finish the prereqs (I hope you don't plan on taking all four in one semester because I think you will regret that decision). But if you take one or two prereqs in the summer, you will have two or three left, and it's much more doable in one semester. You can declare/finish the prereqs a semester early, and it opens the door to many interesting upper division classes.

Other random tips for a successful transition

from community colleges

If you have time during the summer, try to do one or many of the following. It will help you a lot during your time at Cal, I guarantee.

- **Learn *nix.** If you haven't used Unix/Linux command line before, I would highly recommend getting familiar with it. If you have a Mac, you're all set - command line tools are built in. If you own a Windows machine, you can dual boot another OS - I would recommend Ubuntu for first time users. You can also install Virtual Box and run an OS on your native machine, but I'd not recommend doing it since it can be slow and frustrating.
- **Learn Git.** Git is a source control software that allows you to collaborate with project partners and is very useful for a big project. During your time at Cal, you will find that many projects here require working in team, and knowing how to work in team will be a life-saver.
- **Learn the languages used in the classes you want to take.** With the exception of CS 61A and B, most classes here don't teach you a new language. They expect you to pick it up on your own. If you have some free time, learning the syntax and pros/cons of a language you will be using will make your life much easier, since you don't have to worry about them once you start tackling the class projects.
- **Take advantage of the available resources,** including but not limited to Office Hours, Discussion Section, Library, Counselor, etc. One thing about Cal that I think is different than other schools is that the resources are always there, but not a lot of people know and/or take advantage of it. Here's a fact: I'm one of your available resources. Ask me questions! Ask anyone you might know who goes to Cal.
- **Don't fall behind or skip lectures.** Classes here move very fast, and one week behind could be completely disastrous and will destroy you in your next project/midterm if you don't know the material well enough. If you have to miss class, make an effort to borrow lecture notes from a friend or read the relevant chapters in the textbook within a couple of days since the lecture. You don't want to fall too far behind and never be able to recover.
- And finally, **always ask questions.** If you are not sure of something, ask. Don't assume things or accept ambiguity. There are always a lot of people who are willing to help - you just need to ask.

This document has been pretty long, and I have yet to cover everything I want to say about my experience at Cal. I've really enjoyed my short two years at Cal, and I hope you will be enjoying yours as well. It will be a tough journey, but is also very rewarding.

I hope these tips and advice have been pretty helpful to some of you. If you have any questions or things you would like to me add to this document, please feel free to email me. I can be reached at [khoatran \(at\) berkeley \(dot\) edu](mailto:khoatran@berkeley.edu).

Good luck, and go bears!