



Women in **SCIENCE AND ENGINEERING** Carleton University

Advice for undergraduate students

Introduction

I wrote this document to give undergraduate students helpful advice about university life. This is the kind of advice I wish I had gotten in my first year because the transition from high school to university can be a challenging experience. Just to give you a bit of a background, I finished my undergrad at Carleton University in engineering physics in 2007 and finished a Master of Engineering Degree in electrical and computer engineering in 2009. I was the CU-WISE external affairs Executive from 2008 to 2009 and am now a mentor for the group. I sincerely hope you find this information helpful and feel free to contact myself or CU-WISE if you have any questions or comments at wise@carleton.ca.

All the best in your studies!

Barbora Dej
CU-WISE Mentor
www.carleton.ca/wise

Procrastination: the number one problem

The Carleton Student Academic Success Center (SASC) stated that the number one academic problem students face is procrastination. I am not surprised at all as I've been there and so has everyone else I studied with. Did you know that for every hour of class 2 hours should be spent on the course outside of class? Luckily I was used to working long hours on homework in high school so I was able to adjust quickly. On the other hand, I have heard that it is a more difficult adjustment for gifted students for example, because they are not used to spending that much time on their work outside of class.

Students procrastinate because they are bored or stressed and so they are distracted by things like online chatting, writing e-mails, watching television, reading magazines, and even cleaning (that's me). And that's where all your time goes. It's important to give your mind a break, but students tend to overdo it.

On the other hand, some students enjoy the adrenalin rush they get from doing things last minute. They end up maximizing their time and producing good results. I know very few people like that. Furthermore, I know a student who spent 2 days before a psychology exam watching all the classes on television for the first time and did very well on the exam. I would have fainted due to sleep deprivation... not to mention I would have stressed over the fact that I was learning everything for the first time 2 days before an exam!

There is a lot to learn in terms of managing your time. I've gone to several time management sessions and always found there to be a huge attendance of students of all ages and academic backgrounds. I hate to break it to you, but time management skills come with experience, but you can always speed up



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the learning process by following other's advice and paying special attention to what works for you. There is lots of help available, so take advantage and get help earlier rather than later.

The following is some common advice I hear all the time, so it must be relevant:

- Keep track of deadlines using a planner, a Google calendar, a wall calendar, or whatever works
- Keep track of your time. You will be glad to know where all your time goes. Try it at least for one day, but a week would be best.
- Set your long term and short term goals no matter how obvious they sound and break them down to make them more manageable
- Reward yourself, you're only human

As I mentioned before, you need to find what works for you. Some students work well in the comfort of their own home, some in the silence of the library, others in busy yet isolated areas like a coffee shop. Some students need to listen to music to keep them from getting distracted. I work best in the comfort of my own home while listening to upbeat music. But I recently discovered the effectiveness of classical music. I think it works wonders and I think it's because it makes me feel very professional and intelligent. I know a lot of students who agree with me, so try it out. You have nothing to lose.

Try having fixed study times. For example, if you have a break between classes every Tuesday, tell yourself that you will study during that time. It will soon become imbedded in your schedule and you will use that time wisely.

One more thing: I know I said that I work best in the comfort of my own home, but that worked for me in my undergrad and not for my master's. I think it's because working on a thesis is much more repetitive than working on 5 different courses at a time. One day I discovered that separating my day into different "atmospheres" helped me get that unvaried work done. What I mean is that I categorized my day into working on different parts of my research at different locations. I read papers at a coffee shop (without giving in to the wireless internet they offered) in the morning. Then I went to a friend's house for lunch. Then I went to Carleton to do some research on the web. Then I went home to have dinner. Then I spent the evening at home putting all my thoughts of the day together. Those changes in environment helped me break down my tasks.

Class attendance: how important is it?

Attending class is important (and please remember to put your cell phone on silent and don't answer it in class!). A survey done by engineers concluded that there is a direct correlation between the DFW (Drop Failure Withdrawal) rate and low class attendance. Most students retain information best by experiencing all three forms of learning: listening, writing, and reading. Going to class also allows you to be exposed to the course material several times since you will need to re-read your notes for a test or exam. If you have trouble staying awake, try eating/drinking, or sometimes chewing gum is enough. If you miss a class, make it a priority to catch up. I made sure to do that otherwise I knew that I would probably get to it.



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There is a flip side to this argument. Some students can do very well (if not better) learning the material on their own. They may even be bored in class and thus lose the interest in the material. Their time might be used wiser elsewhere. But this approach is most definitely not for everyone. If you are not getting top grades in the course, don't even consider skipping lectures! It will only end in disaster.

Isolation: don't overdo it, get help!

Always make an honest attempt at your projects/assignments on your own. You will be pleasantly surprised at how much you can actually accomplish and how much more information you are likely to retain by working by yourself. If you are hopelessly stuck, there is no need to torture yourself; get help!

There are plenty of ways to get help in your courses other than using the Internet or relying on your notes and textbooks. Talking to your classmates, your professor, your TA, etc. is very important as well. I don't know how I would have survived university if it wasn't for these resources and, many times, I felt I learned the most by discussing my courses with my classmates. Therefore, I would recommend getting to know your classmates, especially those in your program. If it's difficult to meet people during class, you can find students in lounge areas provided by your student academic society. For example, in engineering, the Carleton Student Engineering Society (CSES) provides McCoy's study lounge (third floor of the Mackenzie building). You can also hang out at Leo's down the hall. Here you can also find upper year students who have the experience to give you very helpful advice. You can also meet lots of people through social clubs/activities, intramurals, at the gym, at the pool, at coffee shops, and so on. Don't be shy and keep in mind that no matter how cool/popular anyone was in high school, that means nothing in university. Once you get some contacts, add them on IM. It's a quick and easy way of getting help if you're at a computer.

Don't be intimidated to talk to your professors. Usually, they get fewer students from large first year courses seeing them than students from small later year courses. This makes sense since the professors may not seem very approachable in the big, impersonal classes. However, you can get a lot out of taking the time to see them and it's definitely worth doing so. Make sure to show up with some questions formulated in advance so you don't waste each other's time. By the way, if you have the option of choosing your professor, I recommend going to ratemyprofessor.com.

Assignments: how important are they?

Many students make the mistake of putting very little effort into their assignments. They copy some, they don't do others, and when they do them and get a poor mark, they never look at them again. This is a big mistake. Someone once told me that by not doing your homework, you effectively lower your GPA by 7. Assignments are important for students to put theory into practice, making the material easier to remember, and allowing you to find out what you don't understand (especially if you thought you did). Many professors say that their assignments are a preparation for the exam and I have seen the truth in that many times. Make sure you correct and understand all your assignments and you will do much better in the end. A little time management advice again: be careful not to waste time on an assignment if you're not getting anywhere. Look at it again the next day, or ask someone about it. Use those IM contacts.



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Aid sheets: top 3 tips

For those of you who will be making an aid sheet (such as a cheat sheet you write yourself and bring to an exam), here are my top 3 tips:

1. Do your aid sheets yourself; they will help you review and remember the material. I can admit that I once used someone else's aid sheet (and yes it was from a top student!). I wanted to see how much better I could do at a test... never again.
2. Understand what you put on your aid sheets. Don't pretend you know what an equation and its variables mean. I would define the variables, write an example of when to use that equation, and include any assumptions that equation makes. There were too many times that I got confused between equations and ended up using the wrong ones on my tests.
3. Include examples from your assignments if there is room, especially the ones you will be less likely to be able to reproduce again. Of course avoid blindly copying them, which goes back to my last point of understanding what you put on your aid sheets.

Get involved and live healthy: it is truly worth it

Getting involved is something I didn't do in my undergrad and I thoroughly regret it. It would have made my university experience fuller and much more rewarding. I know it might seem like between classes and assignments there isn't much time for anything else, but it's worth it to make time for activities outside of classes. Not to mention the energy you get from being involved in extracurricular activities that you love will make you more productive! Take part in extracurricular activities. Go to conferences. Meet new people. There are plenty of student groups at Carleton: CSES (Carleton Student Engineering Society), CU-WISE (Women in Science and Engineering), IEEE, EWB (Engineers Without Borders), etc.

Make sure to take the time to keep active to get that oxygen flowing to your brain. Eat healthy and drink plenty of water. Go outside for some fresh air every now and then. Don't forget to use the recreational facilities at Carleton; after all, you are paying for them in your tuition. There's also the Liverush program, where you can buy student priced tickets to shows at the NAC (the National Arts Centre).

Notetaking and Studying: are you doing it right?

A common occurrence (to which I am not immune) is staring at your textbook for hours thinking you're absorbing information when in fact you are not. Before you start reading, take a step back and take note of the chapters and their subsections. Quickly scan the summaries to prepare you for what you are about to study. A global perspective helps you focus on remembering and understanding what you are reading. Take notes while you read, ask yourself questions, and think about why you are learning this in the first place. Find what works for you.

It is critical to take good notes. Most engineering students prefer point-form and well-structured notes, placing equations in boxes and organizing the information into subsections. There are students who also use colour. However, everyone has his or her own preference, so try to figure out what style is best for



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you. Don't forget to reference everything you write (ex. textbook or website). It's annoying when you want to know more about something you wrote, but you don't know where you got it from. Don't forget to keep your course notes and textbooks, they will become quick references in your later courses and beyond. I've used my old notes plenty of times.

Exams: where do I start?

There is no way around it, to study for an exam you must go over all the course material. Re-read your notes, section by section, and consider writing summaries so everything sinks in. The review process will be much more efficient if you put consistent effort into the course throughout the term. Therefore, it is a huge benefit to put a lot of effort into your courses from the beginning of the term and not depend on the exams to raise your grades. And remember that multiple choice doesn't mean easy.

Re-do all your assignments from scratch. Similar questions may show up on the exam. Don't just look over the solutions because chances are that you won't be able to reproduce them on a blank piece of paper. By the way, old exams can be found through CSES at exams.engsoc.org.

Textbooks: tips and resources

You will find everything you need at the Carleton bookstore. The textbooks are easy to find, easy to return within the return dates, the staff are very helpful, the textbooks include extra packaging as necessary (such as study guides or CDs), and you can always find the newest editions. The Carleton bookstore is your best option if you do not want to add textbook hunting to your already stressful schedule. But if you don't mind shopping around for different options (as was the case for me), below is a list of resources you can look into. Again do what works for you. But please pay close attention to the edition you are buying as there have been students running to the Carleton bookstore all upset because they got ripped off or bought the wrong edition. Depending on the course, the textbook can be useless if you can't follow it with the lecture notes, the homework questions, and so on. Here's the list of resources:

- your friends and upper year students
- there are flyers for used textbooks for sale throughout the school, especially the first floor of the Minto building. Some students even place them at the location of the class for which they want to sell their books
- the CSES office (2090 Minto) has a used book sale at the beginning of each term
- Haven bookstore on 43 Seneca Street
- Facebook marketplace, textforsale.com, ottawa.kijiji.ca, usedottawa.ca
- Chapters, Amazon, AbeBooks, eBay (keep in mind the delivery times)

In addition, there is one textbook I would recommend for every engineering student. It basically has all the mathematical relations you will need in undergrad in one book. It's called "Schaum's Outlines: Mathematical Handbook of Formulas and Tables". Mine is a second edition by Murray Spiegel and John Liu, and I still use it to this day.



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Academic events: what they can do for you

This section was written by Gail Carmichael, CU-WISE Internal Affairs Executive since 2008.

I wanted to share with you a few ways you can get more involved academically. First up: conferences. While academic conferences where research is presented might sound a bit scary, there are also many gatherings that are geared toward a more general audience. For example, the Canadian Undergraduate Technology Conference, held in Toronto each year, is a great way to hear from some of the most influential technology giants and learn about the latest gadgets. Better yet, there are conferences designed specifically for women in science and engineering! Be sure to check out the Grace Hopper Celebration of Women in Computing Conference (<http://gracehopper.org>) and the National Conference on Women in Engineering (NCWIE). Attending events like these is also a great opportunity to meet and strengthen friendships with your classmates.

Next, I'd like to talk about something I wish I had done more of during my undergraduate years. I ended up in graduate school, where research is the primary focus, but I hadn't planned on it though, so I didn't pay much attention to the idea of research while finishing my Bachelor degree. But whether I had headed to industry or continued with grad school, learning how to do research early on would have given me invaluable skills! There are many ways to give it a try before you're done. For example, you can apply for an Undergraduate Student Research Award from NSERC (<http://www.nserc.ca/>), which pays you to work with a professor during the summer. There are also several internship opportunities in industry that will give you a taste of research.

Finally, be sure to apply to all the scholarships you can. There are often scholarships designed to encourage women to continue pursuing science or engineering. Check out the list of scholarships available on the CU-WISE website. For example, for all levels of study, undergraduate and graduate, there is the Canadian Engineering Memorial Foundation (<http://www.cemf.ca/>). Some awards come with perks, like the Google Anita Borg Memorial Scholarship (<http://www.google.ca/anitaborg/>) – winners get an all-expenses-paid trip to a Google office for a retreat! Good luck with your studies!

Take advantage of the services at Carleton University

Honestly, I wish I had taken even more advantage of these services. They are all extremely helpful.

The Peer Helper Program

The Faculty of Engineering and Design has 3 peer helper programs that focus on student success. See the Carleton academic engineering support website for more information or contact the academic advisor listed under your program of study. There are also programs available through SASC (see below).

The Student Experience Office (SEO)

The SEO helps new students make a successful transition to university life. It's located at 430 Tory. <http://www.carleton.ca/seo>



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The Student Academic Success Center (SASC)

The SASC offers services to meet student's learning needs: one-on-one academic advising, study skills appointments, study spaces, peer helpers, and a Writing Tutorial Service (WTS).

<http://www.carleton.ca/sasc>

The Paul Menton Center (PMC) for Students with Disabilities

As of 2009, there were about 1500 students registered with the PMC. The most common disability is a learning or attention disability. Their services are excellent and well known. I encourage you to take advantage of them if you have a disability, or contact them if you think you may have one.

<http://www.carleton.ca/pmc>

Department of University Safety

They provide safety tips, access to foot patrol services (a safe-walk/escort service), and more. Make sure to contact them if you are planning on working late on campus.

<http://www.carleton.ca/safety>

The drug, accident, and dental insurance plan

Every student automatically pays for the CUSA/GSA Drug, Accident, and Dental Insurance Plan in their tuition. If you already have insurance let's say through your parents then you probably don't need it. If you want to opt-out, you need to fill out a form by the beginning of the year, usually October or November. The form can be found online at <http://www.studentplans.ca>.

Math

The Math Tutorial Centre at 1160 Herzberg Laboratories

www.math.carleton.ca/grad/tutorial_center.html

Physics

For help with PHYS 1004, there are drop-in tutorial sessions offered in addition to the usual lab and tutorial sessions. For those who are more involved in physics courses, such as engineering physics students, the Physics Society offers help to first year students.

Co-op

Co-op is a great opportunity to apply your knowledge, to pay for school, to make connections with employers, to get a feel for the types of jobs you like/dislike, and of course, to travel. The IAESTE can help you find a job abroad and offer a source of cultural enrichment. It stands for the International Association for the Exchange of Students for Technical Experience. Queen's University is the IAESTE link in Canada: <http://www.iaeste.org/network/canada.html>

Career Development and Co-operative Education (CDCE) Office

CDCE is continually offering workshops, panel series, recruiting events, etc... throughout the school year on topics like resume/thesis writing, mock interviews, leadership, and much more. To check out the events they offer you must go through Carleton Central. Click on "Student Services", then "Other Services", then "myCareer" where you will see a list of events offered and you can register for them.

www.carleton.ca/cdce