

Carleton Computer Science Society



Survival Guide
2008-2009

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Tip

Sorting out the abbreviations

Ever find yourself confused by the many abbreviations thrown at you? Here's a guide to the basics.

CCSS Carleton Computer Science Society

CUUC Carleton University Undergraduate Calendar

SCS School of Computer Science

BCS Bachelor of Computer Science

TA Teaching Assistant

Raven Carleton's mascot, but more often SCS's online assignment submission system

WebCT An online, Carleton-wide course management system; find it at <http://webct.carleton.ca>

Here are some codes for buildings where most computer science students have class sooner or later.

HP Herzberg Physics building, home of SCS, CCSS, and student computer labs

ME Mackenzie Building, engineering building

TB Tory Building, home of the Egg

SA Southam Hall
home of the Alumni Theatre

AT Azrieli Theatre, home of several large teaching theatres

Top Five

The tools you'll need

5 English writing skills

Having good skills in both spoken and written English is essential, even in the world of computer science. You need to be able to communicate with your teaching assistants, professors, and group members. Using formal English when emailing professors often gets you more respect and, ultimately, help with your problems. You will also be writing large reports, such as for your honours project. To up your writing skills, take some first year English classes. Look into [CCDP 2000 \(Communication Skills for Computer Science Students\)](#), an excellent course for all computer science students to take.

4 A good backpack

Don't underestimate how much you'll end up carrying around campus. After you fill a bag with a laptop, lunch, notebooks, and text books, your back will probably start to protest. Renting a locker is a good way to lighten the load for at least part of the day, but a good backpack can help you survive the rest. Choose something a bit on the smaller side to help force yourself to carry less, and go for a model with chest and waist straps if you want to save yourself from back pain even more.

3 CCSS Web Site

The CCSS is always adding more valuable resources to their site (found at <http://ccss.carleton.ca/>), so be sure to check it for

updates regularly. This guide includes a detailed description of [what the CCSS site will offer](#).

2 Raven

This assignment submission system is still used for most computer science classes. While it can be a bit tricky to use, it sure beats submitting printed source code and floppy disks. Be sure you know how to use Raven early in your career at Carleton, and any time you are using it from a particular computer for the first time, be ready to submit a day early to leave time for resolving any issues. Look for tutorials on the web page after you sign in (the main page is at <http://www.scs.carleton.ca/raven/>).

1 Popular Integrated Development Environments (IDEs)

Even if you already have a favourite IDE, you should learn more than one of the most popular choices, such as Microsoft Visual Studio and Eclipse. In particular, you should be sure you can debug your programs quickly and easily. This will not only help make courses with strict OS and language requirements easier, but it will make you that much more employable. You can still use your favourite when the choice is yours. Look on the MSDNAA web site to find out how to download free student copies of Microsoft products (login with your Connect account, <http://msdnna.carleton.ca>). Then check out Eclipse, the popular Java IDE, available free (<http://www.eclipse.org/downloads/>).

Tips

Surviving the HP labs

While some of us may try to work on our own computers at home as much as possible, there is often no way around working in the school's labs during group projects. Spending hours on end working on assignments or studying for exams definitely takes its toll. Here are some tips for making the experience a bit more enjoyable.

- **Listen to music.** If you don't have an MP3 player, just buy some cheap headphones and plug them into the lab computers. There are countless online radio stations you can tune into (including The Bear from Ottawa, as just one example). You can also try personal services that learn what you like (check out somafm.com for one).

- **Don't go hungry.** Don't let fears of the dreaded Frosh Fifteen stop you from snacking (you can always munch on healthy food if you are worried). Keeping your brain fed is sure to maintain both the quality of your work and your mood. It is probably better to bring your own snacks to save money and avoid eating chocolate bars every day, but for those times you don't have anything, visit Carleton's many vending machines and cafeterias for meals and snacks, healthy and otherwise.

- **Take stretch breaks.** It's very easy to become so involved with what you're doing that time slips away. But you need to make sure you get up and move around at least twice every hour. Your muscles will thank you for the chance to change position. Your

eyes also need the rest. Drink lots of water to force yourself to go to the bathroom frequently if you tend to forget to take breaks.

- **Take longer exercise breaks.** If you're in for a long study session, plan to take an hour or two to hit the gym, go for a long walk, or otherwise exercise. This will give your mind a chance to think about something else, making the time you spend in the lab upon return much more effective. As an added bonus, you don't have to feel so guilty about snacking!

- **Work when others are already in the lab.** CCSS will have volunteers in their office during peak hours. When there are enough students around, the society may organize ordering pizza.

- **If you happen to be working late,** keep in mind that stores are not open, bus schedules are reduced, and the doors will lock behind you! Use Foot Patrol if you are worried about safety.



Top Five

Things to do before you graduate

5 Attend a Discovery Lecture

Each year, a guest speaker is invited to do a free public lecture sponsored by the College of Natural Sciences and the School of Journalism and Communication. The subjects of these lectures are scientific in nature, in the past covering topics from the weather to living in space and on Mars. Learn something new and discover just how relevant science is to our everyday lives! Keep your eye on the Faculty of Science's web site event listing for this year's exciting lecture (news can be found online here <http://www.carleton.ca/science/>).

4 Learn a new tool or programming language

Enhance your abilities with any programming language other than the mainstream choices. For instance, you could learn Smalltalk, Python or Ruby. Or, pick a development tool you've never used before (a profiler, for instance) and become an expert.

3 Obtain your lab access card

Not all labs in HP are designated to only computer science students, and not all labs require access cards. However, the labs that do need cards tend to be less busy and therefore may have equipment that is in better condition. Be sure to visit University Safety in 203 Robertson Hall (close to the Coke machine)

to obtain your card. Find out more about the various labs, including their hours, online (<http://www.scs.carleton.ca/nethelp/labs.php>).

2 Get to know your profs

Not only will this make going to class that much easier, but you'll probably find out very quickly that you are interested in the research of at least a few of them. It will also make finding an honours project supervisor trivial and give you a great contact if you are eventually interested in grad school. The CCSS holds several events each year where you can chat with professors in a casual setting.

1 Attend a geeky conference

Not only are these conferences fun to attend with fellow CS students, but they can show involvement with the technology community on your resume, which many employers look for. Check out the Canadian Undergraduate Technology Conference in Toronto every January (www.cutc.ca), events held by the Ottawa Canada Linux User's Group (<http://www.oclug.on.ca>), CS Games held in Montreal (<http://www.csgames.org>), the Government Technology Exhibition and Conference held in Ottawa in October (<http://www.gtec.ca>), or the Ottawa Venture and Technology Summit in Gatineau in October (<http://www.ottawavts.com>). The school often sponsors students to attend events like these.

Your Society

What's online at CCSS

You can come visit the CCSS lounge anytime in 4135 HP. In the meantime, check out the web site (<http://ccss.carleton.ca>) for many useful services. Remember that the site's usefulness is increased with the number of students that use and contribute to it.

CCSS news and events. Any time the CCSS puts on, participates in, or promotes an event, you'll find out about it here. There are also many photos from all CCSS and related events.

Lounge information. Learn about the services offered in the lounge, including what course notes for sale and the times that volunteers do office hours to provide information and sell notes and other useful items.

Executive information. Find out how to contact the current CCSS executive and how to volunteer to help with events or do office hours in the lounge.

Anonymous feedback. You'll have a chance to give compliments or suggestions for improvement for any professor without having your identity revealed. The CCSS will pass this information on to the SCS in order to help offer a better education experience to students.

Course wiki. When students leave an exam, they can jot down whatever questions they can remember and add them to the wiki. That way, students in the future will be able to have a few questions to practice while studying.

Course discussion forums. There is a forum for each course offered in the School of Computer Science. Here you can ask questions about course content, tests, or assignments for all students to answer. Also, professors and teaching assistants will be encouraged to frequent these forums and answer your questions.

General discussion forums. Anything goes in these forums. They are a good place to talk about anything from current events to obscure programming languages to why cheddar is the best cheese. There are also buy/sell forums, and forums to discuss co-op and high tech jobs.

The Nexus Project. A student run initiative to provide students and other student groups with access to Linux machines along with a variety of services. Services include: web hosting, DNS hosting, and SVN repositories. Check out the Nexus Wiki on the CCSS website for more details.

Tips

How to spend less money

- **Don't buy books you don't need.** Computer science and math books are very expensive. It's a good idea to wait until the first day of class before purchasing your text books. This way, you can see whether the books are mandatory, or whether the material is available online. You may also be able to determine whether the professor's notes will be sufficient for you to learn the course content, but generally you should not rely on this.



- **Buy the books you do need used.** Carleton's book store often has used copies of the books you need, and you can also look for students trying to sell their books on the CCSS web site. Be sure to check student-run Haven Books, which may have some of the books you need at a lower price. It can be a bit more difficult to find computer science books there, though.

- **Follow student recommendations for books if you still aren't sure.** While every student learns differently, many suggest that these books are among to most worthwhile to purchase: Introduction to Algorithms (COMP 3804/4804), Theory of Computation (COMP 2805), C Programming Language, C++ Programming Language, and any book from the "In a Nutshell" series.

- **When buying a computer, consider carefully what you really need.** If you are really tight on cash, use the computers at school, which are guaranteed to have what

you need to finish your homework. Otherwise, buy the most powerful computer you can afford, and make sure you can upgrade it later on. Avoid computers with preloaded bloat and avoid laptops when the budget is limited because they are much more expensive when they are small enough to be conveniently carried around school all day. Check out OEM Express for good deals on new hardware, and Computer Recyclers for decent used hardware. Finally, keep in mind that extra memory is useful for compiling but you don't really need fancy video cards and such for schoolwork.

- **Choose the right operating system or systems.** Consider choosing Linux so you will have access to multitudes of useful free software. If you prefer Windows, be sure to download your free student version from MSDNAA (login here with your Connect ID: <http://msdnaa.carleton.ca>). Note that for most courses, you have a choice in what operating system you use, although you must speak with your TA to be sure. Windows is more easily accessible at school from the labs than Linux, but both are available.

- **Make use of the athletics facilities.** When you pay tuition, you pay for use of Athletics. Your membership includes use of the pool and weight room, for example. Working out right on campus saves time and money compared to going to another gym.

Top Five

Succeeding academically

5 Choose your electives carefully.

In most streams, you have a good number of electives available to you. Make good use of these, possibly pursuing a minor! If you don't play on your strengths, you may find your elective grades bringing down your overall CGPA. For example, if your experimental science skills are weak, you may want to look at PHYS 1901 (Planetary Astronomy) or BIOL 1902 (Natural History) instead of traditional physics or chemistry. If you have a knack for languages, try taking French classes like FREN 1100 (First Year University French) or learn a whole new language like Japanese in classes like JAPA 1201 (Intensive Introductory Japanese). If logic is like second nature to you, try PHIL 2001 (Introduction to Symbolic Logic).

4 Communicate with professors and TA's promptly.

If you are unhappy with any grades you have received, you must speak with the professor (or teaching assistant if they did the grading) immediately. There is a good chance your mark can be changed, but only if you act quickly. Remember to present your case politely and provide solid reasoning on why there was a mistake or you deserve better. Don't become bitter or continue arguing if the professor disagrees with you.

3 Bring course notes to class.

Some professors make their course notes available online before class. This will NOT help you skip classes. Professors almost always give more information in class than can be found in the notes. Furthermore, reading through the material once will not help you remember it. Instead, read the notes before or after class, and use a printed copy to help you pay attention to the professor's explanations during class. You will often want to add your own notes and examples as well. If you don't want to use up your ink on printing the notes, bring a laptop to class or buy a set of printed notes from the CCSS.

(continued...)



Top Five

Succeeding academically

2 Tackle assignments logically.

It is generally a bad idea to start on the first question of an assignment, and move on to the next only when the current one is finished. Questions are not always ordered from easiest to hardest, and each question may only be worth a few marks, so spending a lot of time on any one could put your grade for the entire assignment in jeopardy. Instead, spend a bit of time looking at each question, jotting down a few ideas for each, and tackle them in order of how well you know the answer so far and how much each is worth. For programming assignments, learn early how to test effectively, and how to show that you have done so. Always remember to include a readme file to help the TA understand your work.

1 Understand that your hand will not be held!

It's your responsibility to attend class, read your text books, and finish your assignments. It only matters to you whether you do well or not. So take an interest in what you are doing, even if you are finding yourself bored in, say, a first year Java class when you've already been programming Java for years. If the immediate course material doesn't interest you, visit your professor and find out more about it. Or, take the opportunity to ace the class and take assignments to the next level. There's always something new to learn if you look for it, and taking an interest beyond the classroom is a key aspect to succeeding in the classroom. If, on the other hand, you find the

material of a class too hard, be sure to ask lots of questions, and use the resources available to you. Visit teaching assistants and professors during their office hours, and they will be pleased to work through the tough material. Go to the Math Tutorial Center for problems with mathematics courses. Find a tutor on the CCSS web page for some extra one-on-one instruction. Do whatever it takes, but don't be lazy and let it go because you'll regret it later when the going gets even tougher.

What do my grade points mean?

(Letter grade, percentage, grade points)

A+	90-100%	12.0
A	85-89%	11.0
A-	80-84%	10.0
B+	77-79%	9.0
B	73-76%	8.0
B-	70-72%	7.0
C+	67-69%	6.0
C	63-66%	5.0
C-	60-62%	4.0
D+	57-59%	3.0
D	53-56%	2.0
D-	50-52%	1.0
F	0-49%	0.0

Find out more at

<http://www.carleton.ca/cu0809uc/regulations/acadregsuniv2.html>

Tips

Increase your employability

When looking for high tech jobs both during school and after graduation, there are certain things that you can do to make yourself stand out to employers. These are just but a few tips; check out the CCSS web site's discussion forum for articles and advice on finding work in this industry.

- **Take relevant classes early.** If you know what kind of work you may want to do during the summer or for co-op, take classes with related content as early as you can. This way employers can easily see that you have learned the skills needed for the job, which helps when you don't have relevant past experience.
- **Always have a resume ready.** You never know when you might talk to a job contact. Always have an up to date resume on your computer and keep a printed copy in your book bag. A portfolio website doesn't hurt either.
- **Have your resume edited by several people.** Nothing scares away employers like a typo or bad grammar.
- **Practice your interview skills.** Succeeding in an interview is not as easy as it sounds. There is a lot to know about how to present yourself and what to say, not to mention how to prepare for technical questions. Look for help at the Co-op Office (<http://www.carleton.ca/co-op/>) or Career Services (<http://www.carleton.ca/career/>).
- **Get involved.** Employers want to see that you participate in the high tech community and have other interests in life. There are many opportunities to get involved right here on campus. Check out the article in this guide about getting involved.
- **Enroll in co-op.** It is well worth participating in the co-op program, so make sure your grades are always high enough to have the choice. This means you need an overall CGPA of 8.0. Even though you pay extra to enroll in co-op terms, co-op jobs usually pay more than regular summer jobs. Furthermore, doing co-op is the best way to get your foot in the door at many of the big tech companies. Some employers use co-op exclusively to recruit, and others regard co-op experience more highly than other experience.
- **Attend workshops.** Each spring, CCSS holds a high-tech job workshop. Not only will you learn job-hunting and job-getting skills at events like these, but you will usually also have the chance to meet important people from the industry. Networking with others is always an opportunity not to be missed.

Top Five

Traditionally difficult courses

5 COMP 3007 - Programming Paradigms

Not everyone will tell you that this class was a challenge. This is because you either "get it" or you just don't. If you don't, you'll realize this early on, probably during the first assignment at the latest. Do not let it slide. Because the material in this class forces students to think in a whole new way, you must get into the new kind of thinking early. See the teaching assistants and professors for help as soon as you can.

4 COMP 3804/4804 - Design and Analysis of Algorithms I/II

Though the questions given for these classes aren't ridiculously long and hard to solve, finding the method can be killer. Be prepared to spend a lot of time thinking about how to approach the problem, and when you get frustrated, take a break, and move on to the next one for a while.

3 MATH 2007 - Elementary Calculus II

While not all streams require this course, those students that do have to take it should be forewarned. Because there are often no assignments, and sometimes no tests or quizzes except the midterm and final exams, motivation to complete the practice exercises can be

lacking. But for the same reasons, doing as many practice problems as possible is crucial to succeeding. Calculus isn't the easiest of the maths, and requires a lot of repetition to commit things to memory.

2 COMP 1805 - Discrete Structures

This class is the most difficult first year course because it covers such a wide variety topics that will show up in later years over and over again. To avoid having to take it again to improve your grade, be vigilant about reading the textbook, understanding the examples, and starting assignments on time. Take advantage of the tutorials that come with this class - they are offered for a reason.

1 COMP 3004 - Object-Oriented Software Engineering

This is the number one course every upper year student will warn you about. Although not easy, it's not the material's difficulty level that makes this class such a challenge. It is the fact that you must work with a group many long hours to complete a semester long project. Make sure you choose reliable, hardworking group members, set up a versioning system for documentation and source files, and start working on your project early and steadily.

Tips

Successful Research

Conducting good research isn't easy, especially as an undergrad. Learning how to do it well will help you succeed on your honours project, and may help you decide whether or not grad school is for you.

- **Make reading the first step.** It can be really tempting to dive into writing code or developing proofs if you already know what you want to work on for a research project. However, unless you search for papers (i.e. articles published in peer-reviewed journals or presented at academic conferences) first, you won't know who's tried what you are doing before, and which methods ended up being successful (or not). It's entirely possible that "what you want to do" could change completely after you finish reading related papers.

- **Look to papers for ideas on what to work on.** Not only can reading help you refine what you want to work on, but it can also give you an idea in the first place. First look through titles of papers in a journal that covers an area you are interested in (say, computer graphics, compilers). If something catches your eye, skim the introduction and conclusion to see what they did and what they were not yet able to do. You can try to provide a more efficient implementation or see if you can add the functionality that's missing, for example.

- **Access journal articles online for free.** As a Carleton student, you have access to many journals online by using the bar code on your

library card and your Carleton Central PIN. Start your search at the Library website <http://www.library.carleton.ca/eresources/databases.html> and pick a topic to get started (computer science is listed there). ACM and IEEE are two of the more popular sources.

- **Justify your research.** You will need to show both how good your results are and why your research should matter to anyone else. One way to do this is to compare your implementation with others that already exists. If you have coded something new, then you must demonstrate that what you did works with both controlled and everyday data. Ask yourself whether your work is faster, more accurate, easier to code, or particularly useful for a certain industry.

- **Typeset your report properly.** You have a few options when it comes to typing up your research report. If you use a word processor, be sure to use the software's styles feature for your headings and its cross referencing system to ensure you cite everything properly. Another excellent tool to learn is LaTeX, which works more like a compiler rather than a WYSIWYG. Check out LyX (<http://www.lyx.org/>), which is a more user friendly way to get started.

Top Five

Ways to get involved

5 Women in Science and Engineering

Also known as CU-WISE, this group addresses the needs of female scientists and engineers, both students and professionals. Whether you are a woman in computer science, or a man who wants to help get a few more girls interested in the field, you should check out the CU-WISE initiatives and events. Find them online at <http://www.carleton.ca/wise>.

4 Student Government

There are two ways to get involved with student government. The first is via CUSA (Carleton University Student Association). By sitting on the CUSA Council, you can represent computer science for important issues brought up. CUSA generally deals with matters that supplement the academic experience. Learn more online (<http://www.cusaonline.com/council.html>). The second option is to check out the Carleton Academic Student Government if you want to deal with academic issues instead. They can be found at <http://www.carleton.ca/csg/>.

3 Foot Patrol

This is just one example of many volunteer opportunities you have on campus. As explained on their website

(http://www.cusaonline.com/footpatrol/footpatrol_site.html), "Foot Patrol is a student-run, volunteer based campus walk-home and patrol service...Foot Patrol strives to improve safety on Carleton's campus as well as in the surrounding community to enhance everyone's university experience. Foot Patrol works hard to increase safety awareness, educate persons on personal safety issues and prevent violence and crime through patrols on and off of campus. Foot Patrol is also available to give workshops on personal safety."

2 Orientation Volunteers

Enjoy Frosh Week activities? Are you really outgoing and enthusiastic? Why not volunteer to help out with next year's orientation activities? There are several options when it comes to orientation, so keep your eyes open near the end of the year to see how to apply to help out.

1 Clubs and Activities

Last but not least, have a look through CUSA's list of clubs and activities for one you might be interested in (http://www.cusaonline.com/club_list.html). You can even start your own club! And don't forget to keep tabs on your computer science society to see what cool events and initiatives you might participate in or help out with.

Top Five

Things to do after you graduate

5 Travel

Many students say that the best time to take off and see the world is right after you graduate. If you delay starting your next adventure a couple of months, be it a new full-time job or post-graduate studies, you will have the freedom to do a substantial trip. This sort of opportunity probably won't arise again, especially in the work force. Many students like to visit Europe for an entire month or two, making use of cheaper hostels and student deals.

4 Go to Algonquin College

Naturally, any similar college will do. But if you would like to stick around town for a while, Algonquin offers many certificate programs that are intended for university graduates who want to add some specific skills to their arsenal, making them more employable. Check out their website at <http://www.algonquincollege.com/> for more.

3 Consider Graduate School

This option is definitely not for everyone, but can be very rewarding for those that like research. While you may not make as much money as you would in the industry, there are many scholarships available for grad school, including the \$17000+ NSERC award. What's more, scholarships are no longer taxable, so you keep

every penny. A Master's degree consists of a couple of semesters of courses related to your area of interest, followed by 4 to 16 months of research. The research portion ends with writing a thesis and defending it in front of other professors.

2 Work

This is naturally the most popular option. After all, most students get a degree to help them get a job afterwards. Getting a job when you are fresh out of school can be difficult, though. This is especially true if you don't have a lot of related experience, so be sure to follow the job tips included in this guide to prepare yourself.

1 Celebrate!!

Most importantly, sit back and reflect on the awesome journey you just made! Getting a degree isn't easy, so making it through is something to be very proud of.



Credits

© 2008 Carleton Computer Science Society

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written by [Gail Carmichael](#)
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