

Some Notes for New Graduate Students

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Each year, when we give the new student orientation, I feel as if I'm bombarding the new students with massive amounts of detail they cannot possibly remember. So, I figured I'd write it down!

E-Mail Dartmouth does much of its business by email.

- You will have both a Dartmouth account (e.g., Sean.W.Smith@dartmouth.edu) and a Computer Science account (e.g., sws@cs.dartmouth.edu). *People may send mail to either account, and assume you will read it.* So, you should pick one as your main account, and set up the other one to forward to it.
- Check your email regularly. (Many times daily.) Be sure you can handle things such as attachments. Figure out how to organize your mail so that important things don't get lost.
- The Dartmouth-wide email system has its roots in then then-pioneering *Blitzmail* system built here back in the 1980s. Because of that origin, you will hear people use the term "blitz" for e-mail (both as a noun and a verb).

The Dartmouth Term Dartmouth's "term" system often comes as a surprise to new students (and new faculty). We do in 10 weeks what other universities do in a full semester. On your end, you only take three courses at a time (instead of four or five)—but *things move quickly*. If you get behind, it can be very hard to get caught up again. Time management is very important.

(Note that, although you are only required to earn a "P" in courses, many professors take grades into account when deciding to take new students into their research programs.)

Plagiarism Dartmouth takes academic integrity very seriously. In your written work, it is important that you:

1. cite all sources
2. if you've borrowed text from a source, make sure you typeset it as a quote (and then cite it)

We occasionally encounter new students who believed that as long as you list the paper in your bibliography, you are free to cut and paste from it. *Don't do this—you can get into serious trouble.*

REREAD THE PREVIOUS PARAGRAPH AND ASK ME IF YOU HAVE ANY QUESTIONS. THIS IS A SERIOUS MATTER.

The only exception to the "no borrowing text" rule is if you are borrowing from your *own* prior publication—and even then, you need to make it very clear that's what you are doing, and get approval from the professor/editor/whomever you are writing for (since different venues have different standards about this).

Computer Systems Wayne and Tim take care of the computer systems in our department. You can reach them collectively at `sysadmin@cs`. It would be good to get to know them. If you have problems (“the printer in 007 doesn’t work”) or requirements (“I need libelf for my project”), talk to them!

Students and staff find the CS FAQ very useful:

- <https://wiki.cs.dartmouth.edu/faq/>

Also note that Wayne has much useful information about our department’s systems linked off his Web page

- <http://www.cs.dartmouth.edu/~wbc/>

but some of this is accessible from Dartmouth IP space only.

(“Kiewit” is the name of Dartmouth’s college-wide computer services group. They also have various information resources available.)

Connecting to Machines In ancient times (when you could still trust everyone on the net), `telnet` was the standard tool for connecting to a remote machine, and `ftp` was the standard tool for moving files. However, these tools have significant security flaws:

- they send userid and password information in plaintext
- the rest of the data is also sent in plaintext

As a consequence, “best practice” has now shifted to `ssh` for connecting, and `sftp` or `scp` for transferring files.

It would be good to learn to use these tools (particularly since, due to the security concerns, many machines at Dartmouth no longer support `telnet/ftp`).

(Within the COSC Linux filesystem, you can find the current list of COSC machines and public key fingerprints at `/etc/ssh/ssh_known_hosts`.)

Authentication You will likely end up with at least three forms of authentication in our systems:

- A Dartmouth-wide “DND” password
- A Dartmouth-wide PKI certificate (and matching private key)
- A CS password

Using passwords for remote machines is generally not a good idea, because it requires giving away your secret. Consequently, I recommend you take the time to figure out PKI.

- With your Dartmouth-wide cert, you can access the Dartmouth Secure WLAN and transparently access restricted Web sites (such as Banner) without ever typing your password. Talk to Scott Rea or Max Pala for help here.
- Inside CS, you can set yourself up with SSH keys and “SSH Agent,” to seldom need a password internally. Talk to our sysadmins for help here.

Electronic Culture People in the department use a mix of Linux, Mac, and Windows systems (as well as few specialty ones, such as Solaris and SELinux). As a computer scientist, you should be comfortable using all three main operating systems, no matter what your “home” machine is. The teaching labs (001, 003, 005) have a mix of machines that you can use when the rooms are not in use by classes.

Once you have a Linux account, you also have (for free) two personal Web sites:

- The directory `public.html` within your home directory will be visible outside as
 - <http://www.cs.dartmouth.edu/~USERID/>
 (where you replace “USERID” with your userid)
- The directory `private.html` will be visible outside as the SSL-protected site
 - <https://ssl.cs.dartmouth.edu/~USERID/>

If you don’t know it already, it would be good to learn how to produce documents with LaTeX, which is the standard (in CS and math) for professional typesetting. (I’ve been on program committees where reviewers laugh at papers submitted in Word.)

It would also be good to get comfortable producing technical drawings in a vector-graphics (as opposed to bitmapped) format.

Buying Computers Dartmouth subsidizes a computer store, located in the library.

- <http://www.dartmouth.edu/comp/store/>

Finding things out at Dartmouth Throughout your time at Dartmouth, you will have many questions. Often, the answers can be found online. Developing good search skills is important (particularly in our line of work).

Library The Dartmouth library has many useful CS resources and journals available online—but, due to authentication magic, you usually have to come in through the library site, rather than directly. For more information, contact our friendly library liaison, Ann Perbohner (Ann.Perbohner@Dartmouth.edu).

Courses Students take 3 credits a term, along with the no-credit colloquium course. Typically, one course is one credit (although advanced students may end up taking multiple research credits in a term).

Old and New? In Fall 2011, the department established a new numbering scheme for its courses. As a consequence, you will probably encounter *both* numbering systems being used for a while. Sorry about that!

Grad Courses Grad courses are numbered COSC100 and higher.

Courses number 295 and higher are special “placeholders” for TAing, research credits, etc; you should only sign up for them if you are actually doing that sort of thing (talk to the chair of your respective programs). Also, these *don’t* count for your general course requirements.

The “second-level” graduate courses 231, 239, and 258 (the former 105, 109, and 108, respectively) require that students either have strong performances in the corresponding undergrad course at Dartmouth, or explicitly demonstrate their preparedness (e.g., via an entrance exam). Check with the professor teaching the course; for example, for COSC258 (operating systems), we will offer an entrance exam sometime in the next few weeks (to give you a chance to take 58 this fall, if necessary, in order to prepare for 258 in the winter). If you do not pass the exam, you will have to take the appropriate undergrad course. (Re-taking the exam next year is not permitted.)

COSC149, 169, 189, and 219 are “special topics” seminars. They usually are different each time they’re offered; you get credit for each different instance you take.

COSC294 is a “reading course.” If you want to study a special topic for which no formal course is offered, you can sign up for this—but only if you can convince a professor to supervise you.

“Undergraduate Course for Graduate Credit” MS students in CS are allowed to take certain undergrad courses for graduate credit, within the framework of required courses for their degrees. According to my notes, this list is: 39, 55, 57, 58, 59, 60, 61, 76, 77, and 81 (in the old numbering: 38, 39, 44, 46, 48, 52, 54, 56, 58, 68, 78).

- Our general rule-of-thumb: an undergrad course should count only if there is no equivalent grad-level course.
- However, M.S. students aren't here as long, so we allow additional courses that have grad-level equivalents, but are sufficiently advanced that getting through the pre-req chain for the grad version may not be feasible within the M.S. timeframe.

Note that students taking undergraduate courses for graduate credit will need to complete additional work beyond that required for the undergrads. (So it's important to tell the professor that you're taking the course “for graduate credit.”)

Undergraduate courses no longer count for PhD credit.

If you want to take an undergrad course not on the list for your degree program and it makes sense for your education, you can still take it. It will count as one of the three courses necessary for a “full-time load” (which may be important for visa reasons). However, it will not count toward your degree.

Courses in other Departments You may also take courses in other departments (Math and Engineering are common choices). However, to count such a course against the requirements for your degree, you must petition our dept *first*. (Typically, at most one such course can count for credit, MS or PhD.)

As with “unapproved” undergraduate courses, you may still take additional courses outside the department; they can count toward your “3 credits per term” load, but just not toward your degree.

The Departmental Colloquium As of Fall 2009, our weekly colloquium is now a zero-credit (and no-grade) course, COSC210. All grad students are required to register for it (since that will ensure that we have a lecture room large enough).

Registering for Courses Paraphrasing from Ph.D. student Scout:

Log in to Banner:

- <http://www.dartmouth.edu/bannerstudent/>

Click on the “Add / Drop Course Selection- Fall Term 2011.” Your banner password is your blitz password; if you have your web browser configured with a Dartmouth cert, Banner will use it instead of looking for a password.

A few other notes: I think that we grad students need to be registered for a “full” course load in order to be considered full-time (and thus eligible for our health insurance). Shopping for classes is a good idea; you can add or drop them without trouble until the deadline (but DON'T forget to do it before the deadline). Grad students should contact Gary Hutchins if they have a hard time registering for undergrad classes, or other issues with Banner.

In particular, to register for an undergrad class, you will need a paper form from the Graduate Office.

The Two MS Tracks As of fall 2009, we restructured the MS program. All students start out in the coursework track, and may petition to transfer over to the thesis track. If you're interested in the thesis track, I recommend taking the following steps:

- Find a professor whose research interests you.
- Arrange to do a research credit with them.
- During the credit, figure out if research is something you really want to do, and...
- ...work really hard and impress the professor so that she/he will enthusiastically support your move into the thesis track.

Transferring from PhD to MS It is possible for PhD students to apply to transfer to the MS program, but there are no guarantees. We will consider each application on a case-by-case basis. To help illustrate the situation, here are two hypothetical scenarios:

- 4th-year PhD student Alice has worked very hard, excelled at all her courses, passed her RPE and done excellent research. However, due to some sudden changes in her personal life, she is not able to stay to finish her PhD. Alice is likely to be granted admission to the MS program, with a tuition waiver.
- 1st-year PhD student Bob has poor grades and has not done well at research. Bob is not likely to be granted admission to the MS program. Even if he were granted admission (say, because his grades were better), he still would likely be charged full tuition.

Transferring from MS to PhD It is also possible for students in our MS program to transfer to the PhD program. (If you want to do this, excel in your courses and impress faculty! If you're in the coursework track, consider ways to demonstrate your research potential.)

In order to transfer, you have to apply to the PhD program the same as anyone else. If admitted, you may draw upon the non-research courses taken for your Dartmouth CS MS degree to fulfill PhD requirements.

Transferring Courses from Elsewhere If a particular course is required for your degree but you believe you have taken the equivalent already somewhere else, talk to the professor involved—the department may approve your taking a substitute course instead. The official policy:

- <http://www.cs.dartmouth.edu/content/courseTransferPolicy.pdf>

Transferring Courses from Dartmouth Students who have taken suitable courses at Dartmouth as undergraduates may count some of them toward their graduate degrees, provided the courses were not counted for an undergraduate degree and some additional requirements are met. (Again, see the policy cited above.) If this option may apply to you, discuss it with your program advisor.

Employment Occasionally, grad students ask about working during the term.

- TA positions are almost always reserved for PhD students (although MS students may sometimes obtain grader/tutor jobs).
- RA positions can be available both to PhD and MS students. If you're interested, I would advise accumulating many "high passes," then going and talking to a professor you're interested in working with.
- If you're receiving a TA or RA stipend, you cannot take additional employment.

If you're not receiving a TA or RA stipend, you may take additional employment (*although we would caution you strongly against overcommitting yourself—particularly given the workload and fast pace of the Dartmouth academic term*). The International Office informs us of some limits: "F-1 student visa regulations permit part-time (20 hours/week) of on-campus employment during the academic term and full-time (40 hours/week) employment during vacation periods."

Summer Internships Graduate students who wish to do an external CS-relevant internship as “practical training” can do so by registering for COSC295. You will need to consult with your program advisor (e.g., me, for MS students) for approval, beforehand, and file a short report at the end of the internship.

If an MS student does a summer internship via COSC295, he or she will not be charged tuition for that term; nor will that term count against the number of “tuition-waived” terms the student has.

Being a Computer Science Graduate Student Prof. Lisa Fleischer offers these three pointers:

The first is someone’s view of what is important for a PhD in computer science. The second is what is important for a programming job in computer science. It is probably worthwhile to read them both. One thing I find interesting is that they both stress the importance of communication skills.

The third has a whole lot more links in this vein to be read at your convenience and interest.

I suggest you start with the third one to see the links here to all sorts of relevant topics.

- <http://www.cs.unc.edu/~azuma/hitch4.html>
- <http://www.joelonsoftware.com/articles/CollegeAdvice.html>
- <http://www.cs.cmu.edu/~jasonh/advice.html>

Winter Clothes Occasionally, new students from warmer climates ask where to buy winter clothes! Besides the few places in Hanover itself, you might try:

- Hubert’s, in Lebanon
 - <http://www.hubertstores.com/maps/lebanon.htm>
- Farm-Way, in Bradford VT (gives a discount for Dartmouth ID—but is a bit far, and also, being in Vermont, sometimes charges sales tax)
 - <http://www.vermontgear.com/vtstore.html>.
- Eastern Mountain Sports, at the Powerhouse Mall in Lebanon, occasionally has items on sale at a good price. LL Bean (also at Powerhouse) can also have good deals.
- For used clothes, the “Listen Center” in Lebanon and White River has good deals.
 - <http://www.listencs.org/content/view/20/36/>

Vegetarians One former CS denizen from India advises me to warn vegetarian Indians: soups in the US are commonly made from broth based on chicken or beef.

Coffee Shops One of our grad alumni observed that graduate school is not necessarily possible without coffee shops. Here in Hanover, we have four:

- The Dirt Cowboy, opposite the southwest corner of the Green.
- Rosey Jekes, in the old Grange building at 15 Lebanon Street (next to C&A’s pizza). The entrance is around the back.
- The Dartmouth Bookstore has a branch of Starbucks embedded inside it.
- Umpleby’s, between Main Street and the hardware store.

Dartmouth has also opened a King Arthur franchise in the lobby of Baker.