

## Introduction

CPS 300: Introduction to Graduate Study  
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August 26, 2009

## Course format

- See website (<http://www.cs.duke.edu/courses/fallog/cps300/>) for details
  - Class meetings: Wednesdays 4:25-5:40 pm
    - We might not meet *every* Wednesday—check schedule on website for details
  - Talks in the department: check dept. event calendar (<http://www.cs.duke.edu/events/>)
    - Local TCSDLS: “must” attend
    - Telecast TCSDLS and dept. colloquia: “should” attend
  - C/NC grading: class participation + satisfactory completion of assignments
    - No exams
- ☞ Watch for email announcements!

## Goal & content

- To help you get started in Duke CS, and most importantly, on research
  - Faculty are here to inform and advice
  - But nobody can really “teach” you how to do research
- Essential tools for scholarly work
  - E.g., LaTeX, BibTeX, Xfig, Matlab, ...
- Advice on graduate life and research
  - E.g., find/keep advisors, read/review/write papers, give talks, find internships, attend conferences, weathering highs and lows of research, ...
- I am open to your suggestions on what to cover

## PhD program requirements

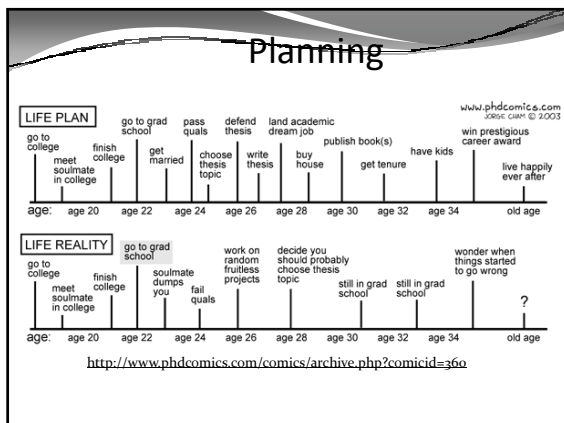
- Read the Requirement and Addendum docs
  - [http://www.cs.duke.edu/education/assets\\_documents/grad-req.pdf](http://www.cs.duke.edu/education/assets_documents/grad-req.pdf)
  - [http://www.cs.duke.edu/education/assets\\_documents/grad-add.pdf](http://www.cs.duke.edu/education/assets_documents/grad-add.pdf)
- BTW, grad curriculum may undergo some changes soon
  - You have “grandfather clause” protection

## Important points

- Rules are rules
- Deadline ≠ suggested completion time
  - Beware of lead times
- Keep the DGS office informed
- Research pretty much trumps everything else
- Take responsibility for yourself
- Advice from senior grad students are valuable, but always consult with the DGS for the authoritative interpretation of requirements

## Must vs. should

- For a general discussion, see IETF RFC 2119
- Must (not)/required/shall (not)
  - If you break these rules, I cannot help you
- Should (not)
  - There may exist valid reason in particular circumstances when particular behavior is acceptable
  - The DGS office will seek a detailed, official explanation from you and approve (or disapprove) the request
    - Don't wait until last minute to request
  - Requests, explanations, and decisions will be documented



### Fictional PhD student X

Year 1

- Take lots of courses and got A's, like I always did!
- Courses and TA take loads of time
  - But no time is wasted—I am taking care of requirements!
- Met with a couple of faculty members, got some papers to read, but didn't really have the time...
  - I *think* I am going to work with Prof. A... In the worst case I *guess* I could still work with Prof. B...

Summer 1

- Why won't these stingy profs fund my summer?
- So what, I got a well-paid internship in a big city!
  - Phew... Too much coding and bar hopping left me tired
  - Well... Prof. A is traveling and I have nobody to report to anyway

### Fictional PhD student X (cont'd)

Year 2

- I still haven't named an advisor yet—Prof. A's hands are full
  - Threatening email from the DGS; panic...
  - Curse the other student whom Prof. A did take...
- Thank God Prof. B took me! But proposal in a month? Panic...
- Proposal half-baked; committee wants extra progress review!
- Scramble to pass progress view, but Prof. B didn't think I'd be ready for the final review by the end of spring
  - Beg the DGS to extend deadline to summer
  - Prof. B tells me to "prove myself" in the summer or else I won't get funding in the fall—help!!!

Summer 2

- How come other 2<sup>nd</sup>-years get cool internships at research labs, while I get to stay and finish my RIP!?

### What went wrong?

- After all, didn't student X (sort of) meet most deadlines?
- Know your priority in the beginning years
  - Research ≫ (courses, TA, internship in summer 1)
- Don't count on good results to come up in just 2 semesters
  - Spreading effort over a longer period of time is less risky ≈ dollar-cost averaging
- Communicate clearly with your (potential) advisor and the DGS office
  - Get him or her to commit; don't assume anything
- Plan ahead, and assume responsibility for yourself

### A more reasonable schedule

Year 1

- Pass 3 (or least 2) out of 4 quals
- Concentrate on courses in your area (or related areas)
  - Do projects that will impress your potential advisors
- TA in spring
- Talk to faculty in fall; attend seminars, group meetings
- Dive into RIP; best if you can decide the topic and do proposal before summer (required for early RIP initiative)

Summer 1

- Whatever you do, stay in touch with your RIP advisor
- If you have started working closely with your advisor, you may be offered an RA in the summer
  - Early RIP initiative makes it easier for advisors to fund you
  - Take it—at this stage it's often better than a higher-paid coding job

### Reasonable schedule cont'd

Year 2

- Pass the remaining quals
- Concentrate on courses useful to your research
  - Follow your advisor's advice
  - No need to meet all course requirements yet
- TA in fall or spring; may even be deferred or waived
- Full speed ahead with your RIP
  - Goal: a publishable piece of work
  - With early RIP initiative, you are expected to wrap up in fall
  - Otherwise, proposal in early fall and wrap up in spring
- Confirm future advising/funding arrangement with your advisor

Summer 2

- Continue working with your advisor, to get a head start on prelim
- Or, find an internship relevant to your research
  - Use your advisor's connection

## Reasonable schedule cont'd

### Year 3

- In fall, decide on your dissertation direction
  - Wrap up your course requirements
    - Again, consult with your advisor for classes to take
- Obtain initial results, and publish more papers on the way
- In spring, get your committee together, and write/defend your prelim
  - Dissertation proposal is part of in your prelim
  - Can defer up to a year, but need to make formal request and get approval by the Dean of Graduate School
    - Extensions beyond Year 3,5 are rarely granted

## Reasonable schedule cont'd

### Years 4 to $n - 1$

- Research, research, research...
- No need to shun courses; take/audit them to expand your horizon and stay up-to-date

### Year $n$

- Your last spring will be packed by interviews, writing, and defense
  - Job hunting starts earlier and takes more time than you think
    - For academic jobs, applications start in late fall
- Get bulk of your work done before last fall!

## MS requirements

- 30 units, including 24 graded coursework
  - RCR and CTN don't count; GS300/301/302/320/321 count towards credits but not graded coursework
  - Must include 24 (= 8 courses) in CS or related fields
  - Up to 6 units can be transferred after completing 12 units, but they don't reduce the 30-unit requirement
- Find an advisor and declare an area of concentration
  - You need to name your advisor by the end of Year 1
- Allocate enough time for your MS project/thesis
  - Don't expect to finish a good project in a semester
  - Start early—preferably in your second semester
  - Although the Department does not fund MS students, you might find RA work on the projects you work on

## Some reminders

- Department annual meeting & picnic this Friday at 4:30pm
  - Be sure to attend!
- Drop/add runs through 5pm next Friday, September 4
  - Again, remember that courses are a means to an end
  - Taking fewer courses and impress the professors  $\gg$  taking lots of courses and do okay in them
  - 3 CS courses + 300 is perfectly good load which leaves you more time to begin research

## Some announcements

- Homework assignment (due next Wednesday by email)
  - Which schools were you admitted to?
    - Optional, in case you don't want us to know
  - Why did you choose Duke?
  - What would you like to hear/learn more about in CPS 300?
- Next week
  - On working with your advisor
  - On finding/reading/evaluating papers