The Top 10 Lessons I Learned as a Grad Student

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11. Sow Some Wild Oats

Don’t have to jump into thesis; take a few years to explore other areas (even completely unrelated ones)

Provides good background & perspective

You might find something interesting

You might find related problems to solve

You might have fun

You will not get bored of your PhD topic quite as quickly as otherwise
10. Extracurriculars: Do Them

Learn to play an instrument;
Play sports (contact & non-contact);
Learn a foreign language

Being busy forces prioritization & focus

Non-research activities are therapeutic
(especially contact sports)

HOWEVER: When you’re old & complaining about joints, you won’t play much football

Become an interesting person

9. Collaborate with Others

Most people see advisor once/week, but need feedback => COLLABORATION
(it also gets the work done faster)

Bounce ideas off people

Finish research papers 2-3 times faster

Have someone to go to lunch with ... :)

Not easy to start late in the PhD process
8. Old vs. Young Advisor

OLDER ADVISOR:
Typically has more money, more students, more contacts, less time. Perhaps better job opportunities after graduation? Perhaps less direction?

YOUNGER ADVISOR:
Typically has less money, more energy, more time, fewer job contacts, less perspective. Perhaps more direction and personal interaction?

7. Job Market: PhD vs. MS

In Computer Engineering:
- Ph.D. — Design
- M.S. — Implementation
- B.S. — Coffee-fetching

PhD’s are payed to think;
MS’s are payed to do

PhD’s do not make MUCH more than MS’s
MS’s start making the money 3-5 years early
6. Read a Paper a Day*

Your job as a grad student is to ABSORB KNOWLEDGE like a SPONGE

Borrow & read textbooks

Read conference proceedings (good ones)

Read journals (good ones)

(For Architecture:)
- Join ACM SIGARCH, SIGMICRO, SIGOPS
- Good research delivered to your door

* Thanks to Don Yeung

5. Do Excellent Research

Point of Research: ask & answer questions, not build & evaluate implementations

Asking & answering questions is SCIENCE

Building & evaluating implementations is ENGINEERING

You will be remembered mainly for your contributions to SCIENCE
(there are many counterexamples, however)

Look for & follow well-established assessment methodologies
3. Write Excellent Papers

Your presentation of ideas is how many will judge you, so do it well.
Remember: your papers will last forever.

*What papers do you cite frequently?*
*What papers do you re-read?*
*EMULATE THESE PAPERS*

_Aim high, but have fun (Banff, Ireland, etc.)_

- Chance to travel on advisor’s tab
- Don’t do too many workshops (or if you do, don’t list them all)

4. Give Excellent Talks

Your presentation of ideas is how many will judge you, so do it well.

_Begin AT LEAST one month before date_

_Give a practice talk_
  - Take suggestions
  - Rewrite the talk
  - Repeat

_Big fonts, diagrams wherever possible, color seems to work well_
2. The Point of the PhD

To push the boundaries of what we know, which requires looking at a topic in excruciating detail

RESULT: you can distinguish between what is known and what is not known—you are able to ask questions that are not answered


Your thesis will not save/conquer the world; you will be lucky if 10 people read it.

DO THE MINIMUM NECESSARY.

Your research is disseminated through your papers, not your dissertation

Treat your dissertation like a BIG paper

That’s it.

If you try to conquer/save the world, you will graduate in roughly 15 years, or drop out in frustration
In Review:

11. Sow Some Wild Oats
10. Extracurriculars: Do Them
9. Collaborate with Others
8. Old vs. Young Advisor
7. Job Market: PhD v. MS
6. Read a Paper a Day
5. Do Excellent Research
4. Give Excellent Talks
3. Write Excellent Papers
2. The Point of the PhD

Miscellaneous

Work WITH advisor, not FOR advisor

Research Model (hard part is THINK):

THINK -> EXPERIMENT -> THINK -> ...
(at some point: PRESENT)
REPEAT

Questions not answered

Industry or Academia?
How can I get a job?
How to give a good talk/write a good paper