How to succeed and get a Ph.D.

Want a Ph.D.
Want to finish.
   If you don’t have a target date, you’ll never finish
Find the right advisor.
Organize your time.
Focus.
Write something every day.
Take at least one class a quarter
   Try to take classes in an area you don’t know. You never know what will come in handy.
Emulate successful colleagues.
Publish papers.
Be part of the community

Participatory model of student-faculty interaction

Faculty expect student interaction in lectures
Faculty expect students to initiate interaction on research interests
Most faculty members have an “open door” policy
If you don’t talk on a regular basis with faculty, you won’t succeed.

Student – Student interaction

Participate in student activities
Reading groups, mock-talks
pot-lucks, join the CSGSC
Participation in Research Groups

Reading Groups
Meet weekly
Read and discuss current literature

Attend group meetings

Publish and present papers externally
Plan to submit your masters thesis someplace
Establish yourself before you graduate!

Attend conferences and meetings
If you don’t find a research topic you will never get a Ph.D.
Selecting an Advisor

You must find an advisor. Advisors will not come looking for you.

Advisor
Guides the student
Advocates for student
Assesses progress at evaluation hurdles
Secures resources
Funding and Support

Support
- Stipend
- Tuition
- Equipment
- Travel funds (conferences)

The best source of support is from faculty with grants to support RAs

Other Possibilities
- T.A. for a course
- Programmer for a research center/department
- Industry internship
- Fellowships & Studentships
Stress

Graduate School in general (and the first academic year in particular), is a high stress period.

Contributing factors:
- Forging new relationships
- Living in a new environment
- Academic challenge
- Personal finance issues
Resources:

Employee Assistance Program
At PSU 503-288-5882 or 1-800-927-9432

Talk with faculty
Talk to each other
If you get behind, talk to your lecturers early!
They are on your side!
Advice 1

The only way to find out how to do a PhD is to do one. Therefore all advice is useless.

Richard Butterworth
http://www.cs.mdx.ac.uk/staffpages/richardb/PhDtalk.html
Advice 2

It’s a rocky road.

http://www.cs.manchester.ac.uk/mentors/howto.php

http://www.phdcomics.com/
A thesis begins with a single word: PANIC!.

The Wrong Reasons for Doing a PhD: You’ve got a “first” and it seems a shame to waste it. It will keep you off the dole for another few years.

The Right Reasons for Doing a PhD: Not doing it will hurt even more than doing it. Er, that’s it.
Advice 4

Be aware of the seven ways of not getting a PhD:

1. Not wanting a PhD;
2. Overestimating what is required;
3. Underestimating what is required;
4. Having a supervisor who does not know what is required
5. Losing contact with your supervisor
6. Not having a 'thesis' (i.e., position, argument) to maintain
7. Taking a new job before completing.
Advice 5

Do you have what it takes?

- Intelligence
- Time
- Creativity
- Intense curiosity
- Adaptability
- Self-Motivation
- Competitiveness
- Maturity
Quotes for prospective Ph.D.s

"Don't let school get in the way of your education."
Mark Twain

"The difference between people who exercise initiative and those who don't is literally the difference between night and day. I'm not talking about a 25 to 50 percent difference in effectiveness; I'm talking about a 5000-plus percent difference, particularly if they are smart, aware, and sensitive to others."
Stephen R. Covey, The 7 Habits of Highly Effective People

"Let me tell you the secret that has led me to my goal. My strength lies solely in my tenacity."
Louis Pasteur
On writing

“Failing to plan is planning to fail.”
– Alan Lakein (How to Get Control of Your Time and Your Life)

“What is written without effort is, in general, read without pleasure.”
– Samuel Johnson

“Present to inform, not to impress; if you inform, you will impress.”
– Fred Brooks
Why get a PhD in Computer Science?

Source: CNNMoney.com.
U.S. Bureau of Labour Statistics
Will there really be a job for me?

Contribution to total growth in science and engineering occupations

- Computer specialists, 57.2%
- Engineers, 13.4%
- Architects, surveyors, and cartographers, 3.0%
- Mathematical science, 1.7%
- Drafters, engineering, and mapping technicians, 3.9%
- Life scientists, 5.6%
- Physical scientists, 3.1%
- Social scientists and related, 8.8%
- Life, physical, and social science technicians, 3.3%

What might I get paid?

Table 27. Nine-month Salaries, 150 Responses of 184 US CS Computer Science Departments

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th># of Faculty</th>
<th>Reported Salary Minimum</th>
<th>Average of Dept Mean Salaries</th>
<th>Average of Dept Median Salaries</th>
<th>Reported Salary Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured &amp; Tenure-Track</td>
<td></td>
<td>Minimum</td>
<td>Mean</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td>Full, in rank 16 years +</td>
<td>527</td>
<td>$84,681</td>
<td>$120,059</td>
<td>$186,200</td>
<td>$143,533</td>
</tr>
<tr>
<td>Full, in rank 8-15 years</td>
<td>535</td>
<td>$86,279</td>
<td>$123,121</td>
<td>$215,079</td>
<td>$140,267</td>
</tr>
<tr>
<td>Full, in rank 0-7 years</td>
<td>556</td>
<td>$83,376</td>
<td>$115,317</td>
<td>$219,734</td>
<td>$129,198</td>
</tr>
<tr>
<td>Full, yrs in rank not given</td>
<td>90</td>
<td>$92,716</td>
<td>$117,594</td>
<td>$147,993</td>
<td>$142,606</td>
</tr>
<tr>
<td>Full Professor: total</td>
<td>1,708</td>
<td>$83,376</td>
<td>$137,795</td>
<td>$327,043</td>
<td>$327,043</td>
</tr>
<tr>
<td>Assoc, in rank 8 years +</td>
<td>314</td>
<td>$51,150</td>
<td>$92,419</td>
<td>$126,600</td>
<td>$99,816</td>
</tr>
<tr>
<td>Assoc, in rank 0-7 years</td>
<td>834</td>
<td>$72,079</td>
<td>$97,011</td>
<td>$145,135</td>
<td>$104,128</td>
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<tr>
<td>Assoc, yrs in rank not given</td>
<td>86</td>
<td>$74,387</td>
<td>$93,334</td>
<td>$110,840</td>
<td>$100,600</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>704</td>
<td>$61,538</td>
<td>$86,079</td>
<td>$105,700</td>
<td>$89,754</td>
</tr>
<tr>
<td>Non-Tenure-Track</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Faculty</td>
<td>483</td>
<td>$26,000</td>
<td>$61,507</td>
<td>$120,451</td>
<td>$69,540</td>
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<tr>
<td>Research Faculty</td>
<td>388</td>
<td>$24,115</td>
<td>$68,360</td>
<td>$114,444</td>
<td>$81,308</td>
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<tr>
<td>Postdoctorates</td>
<td>474</td>
<td>$20,000</td>
<td>$41,174</td>
<td>$75,000</td>
<td>$49,846</td>
</tr>
</tbody>
</table>

source.: 2011 Taulbee survey
What are the hot areas to study?

### Table 4. Employment of New PhD Recipients By Specialty

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial Intelligence</td>
<td>15</td>
<td>1</td>
<td>76</td>
<td>124</td>
</tr>
<tr>
<td>Computer-Supported Cooperative Work</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Database/Information Retrieval</td>
<td>7</td>
<td>3</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>Graphics/Visualization</td>
<td>5</td>
<td>1</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Hardware/Architecture</td>
<td>7</td>
<td>2</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Human-Computer Interaction</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>High-Performance Computing</td>
<td>3</td>
<td>6</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Information Assurance/Security</td>
<td>6</td>
<td>5</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>Information Systems</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Operating Systems</td>
<td>9</td>
<td>4</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Programming Languages/Compilers</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Robotics/Vision</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Scientific/Numerical Computing</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Social Computing/Social Informatics</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Theory and Algorithms</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>36</td>
<td>76</td>
<td>1,326</td>
</tr>
</tbody>
</table>

*source: 2011 Taulbee survey*
Will the competition be tough?

Figure 2a. PhD Production

source: 2011 Taulbee survey
Taulbee Survey — cra.org

Figure 4. Employment of New Ph.D.s in U.S. and Canada
THIS IS YOUR EDUCATION, THIS IS YOUR SALARY

$50K!

$40K!

$30K!

$20K!

$10K!

0+--------+----------+-----------+------------+---------+--*--------->

no       high       some       Bachelor's    Master's    Doctor
high     school     college    Degree       Degree       of
school   diploma    college    Degree       Degree       Philosophy
diploma  diploma
How to Succeed — by Dave Maier

Make yourself incomparable

Very little is irrelevant

Humor and creativity are epsilon apart
they are both based on incongruity

Be nimble — don’t feel obligated to
“the way things are done”

Say when you are guessing
Success 2

Having one example during system design is better than zero examples; at least you get a consistent set of design decisions.

Time spent writing proposals is seldom wasted.

People feel good if you can make them understand something they didn’t before.

Learn how to deal with secretaries and other support people.
Success 3

You can negotiate based on your own happiness
Do one thing at a time
Plan as you go
Stress is okay
Ask yourself “Will it matter in 50 years?”
Learn to do preprocessing
  pre-thinking questions you might be asked
  mentally walking through a meeting
Success 4

Pick what you do carefully

Learn to say no

Have a list of criteria to say yes

Just because you’d be the best person isn’t a reason to say yes

Just because it won’t happen if you don’t do it isn’t a reason to say yes

You get a better reputation doing 100% of a moderate task than a moderate amount of a difficult task.

Make time for your family

If you agree to do something, do it gladly, not grumpily