Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
   Typical Deadlines
   What is valued by reviewers?
   What does a good personal statement look like?

I got in! Now what?
Salaries with Bachelor Degree Alone

**Typical Starting Salaries for Physics Bachelor’s Classes of 2009 & 2010 Combined**

<table>
<thead>
<tr>
<th>Employer</th>
<th>Typical Salaries (in thousands of dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Sector STEM</td>
<td></td>
</tr>
<tr>
<td>Civilian Govt. incl. Natl. Labs</td>
<td></td>
</tr>
<tr>
<td>Private Sector non-STEM</td>
<td></td>
</tr>
<tr>
<td>Active Military</td>
<td></td>
</tr>
<tr>
<td>High School Teachers</td>
<td></td>
</tr>
<tr>
<td>College or University</td>
<td></td>
</tr>
</tbody>
</table>

Figure includes only bachelor’s in full-time, newly accepted positions.

Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles. STEM refers to positions in natural Science, Technology, Engineering, and Math.

[http://www.aip.org/statistics](http://www.aip.org/statistics)
What types of jobs with Bachelor Degree?

http://www.aip.org/statistics/trends/states/state.html#
Starting Salaries with PhD

**Typical Starting Salaries for Physics Bachelor's Classes of 2009 & 2010 Combined**

- Employer
  - Private Sector STEM
  - Civilian Govt. incl. Natl. Labs
  - Private Sector non-STEM
  - Active Military
  - High School Teachers
  - College or University

**Statistics**

- **Private Sector** (N=61)
- **Government Lab** (N=25)
- **University & 4-Year College** (N=38)
- **Postdocs**
- **Government Lab** (N=95)
- **University & UARI** (N=371)

- **Potentially Permanent Positions**
- **Typical Salaries (in thousands of dollars)**

- **Typical Annual Salaries in Thousands of Dollars**

Data only include U.S.-educated PhDs who remained in the U.S. after earning their degrees. Typical salaries are the middle 50%, i.e., between the 25th and 75th percentiles. Government Lab includes Federally Funded Research and Development Centers, e.g., Los Alamos National Laboratory. UARI is University Affiliated Research Institute. The data for PhDs holding potentially permanent positions in academic include salaries based on 9-10 and 11-12 month commitments. “N” represents the number of individuals the salary data is based on.

- [http://www.aip.org/statistics](http://www.aip.org/statistics)
Median Salaries with PhD (excluding postdocs)

All PhDs--$97,700 in 2006, up from $90,000 in 2004.

Highest: hospitals or medical services -- $135,000.

Industry: $110,000 in 2006, up from $104,000 in 2004.

Lowest: 4-year colleges (with 9-10 month contracts) -- $60,000 (~70k for 12 months)

Job security
unemployment at a rate (1.7%) that remained level within the past few years.
Types of Skills Used in PhD Jobs

Scientific and Technical Knowledge Regularly Used by New Physics PhDs, Classes of 2009 & 2010 Combined

<table>
<thead>
<tr>
<th>Types of Skills</th>
<th>Postdocs: All Sectors (N=533)</th>
<th>Potentially Permanent: Private Sector (N=117)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Physics Principles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Physics Principles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Problem Solving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simulation &amp; Modeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialized Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent Who Use Regularly
Initial PhD Employment “Happiness”

<table>
<thead>
<tr>
<th>Percent agreeing with the statement</th>
<th>Potentially Permanent Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Private Sector</td>
</tr>
<tr>
<td>I am satisfied with this position.</td>
<td>%</td>
</tr>
<tr>
<td>This position is professionally challenging.</td>
<td>83</td>
</tr>
<tr>
<td>A physics PhD is an appropriate background for this position.</td>
<td>82</td>
</tr>
<tr>
<td>I consider myself underemployed in this position.</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Number of respondents

118
52
41

The percentages represent the two positive responses on a 4-point scale, i.e., Very appropriate, Appropriate, Not very appropriate and Not at all appropriate. Data only include U.S.-educated physics PhDs who remained in the U.S. after earning their degrees.

*The academic sector only includes universities, four year colleges, and university affiliated research institutes (UARI’s).

http://www.aip.org/statistics
### Few Regrets

#### Response to the Question “If You Had To Do It Over Again, Would You Still Get a PhD in Physics?”

<table>
<thead>
<tr>
<th>Response</th>
<th>US Citizens</th>
<th>Non-US Citizens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, at the same institution</td>
<td>78%</td>
<td>50%</td>
</tr>
<tr>
<td>Yes, at a different institution</td>
<td>10%</td>
<td>27%</td>
</tr>
<tr>
<td>No, I would get a PhD in another subject</td>
<td>8%</td>
<td>17%</td>
</tr>
<tr>
<td>No, I would not get a PhD</td>
<td>4%</td>
<td>6%</td>
</tr>
</tbody>
</table>

[http://www.aip.org/statistics](http://www.aip.org/statistics)
Pros and Cons

**Pro**
- Doing something you love to do
- Higher Salaries
- More job opportunities and security
- Intellectual growth and freedom
- Projects are often long term
- Travel and interacting with diverse people

**Cons**
- 6 to 8 years delay of earnings
- Poor for 6 more years ($20k/year)
- Earn at Bachelor level for 2 more years during postdoc ($40k/year)
- Hard to leave work behind
- Huge time commitment (~50 to 60 hours a week)
- Projects are often long term
- Outside life is often put on hold
- Can be stressful to explore the unknown
- You can forget you are talented because you are surrounded by other talented people!
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
How Long? Average 6.2 years

Varies by school, but depends even more so on:

1. Specific professor
2. How hard you work
3. Some amount of luck
Typical PhD Timeline

Summer before Year 1: Try to get in a lab if you can!

TA (pay ~$20k/year) (maybe RA, pay ~ $20k/year) 
RA starting in summer—critical to get into a lab by the summer 
possibly a written Comprehensive exam

Year 2: Course work (~2 to 3 courses typical) 
RA –research becomes important 
possibly a written or oral comprehensive exam

Year 3: Course work (0 to 2 courses typical) 
RA
End of year 3 without passing exams then exit with Master degree

Years 4,5,6: Course work (0 to 2 courses at most total)
RA, research, research, research, publish papers
Thesis proposal presentation
Write thesis (2 to 5 months)
Defend thesis

Postdoc (2 to 3 years) or go straight to industry
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

**How does one define success in graduate school?**

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
How does one define success in Graduate School?

• It is critical to:
  pass your course work
  pass your comprehensive exams
  gain deep core theoretical understanding

• But! Unlike undergraduate GPA, graduate GPA doesn’t matter very much at all!
  So long as you meet minimum requirements

• **Success in research is the most important key!**
  --Research advisor’s recommendation letter is critical
  --Number and quality of Journal publications
  --Developing reasoning and technical skills for future problem solving
  --Learning to take initiative and solve problems on your own

*Research, research, research, research, research.....*

• Graduate school is not just an extra 6 years of undergraduate,
  it is a very different beast that your undergraduate degree has laid the foundation for
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

**How do you pick schools for you?**

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
Identify Subfields of Interest

Number of Physics PhDs Granted by Subfield From Physics Departments, Classes of 2007 & 2008 Combined.

- Condensed Matter: 388
- Particles & Fields: 208
- Astrophysics: 136
- Atomic & Molecular: 102
- Biological Physics: 96
- Optics & Photonics: 83
- Nuclear Physics: 81
- Applied Physics: 55
- Materials Science: 35
- Relativity: 32
- Atmospheric & Space: 31
- Plasma Fusion: 30
- Statistical Physics: 26
- Surface Physics: 22
- All Other: 156

Note: These data are based on an average of 1,480 PhDs conferred at US physics departments. Additionally, there was an average of 143 PhD astronomers from departments that offer astronomy degrees.

http://www.aip.org/statistics
20% do not pick a subfield

<table>
<thead>
<tr>
<th>Research Subfields of First-Year Physics Graduate Students Enrolled in PhD-granting Departments in the U.S. by Citizenship, Fall 2007 and Fall 2009 Combined.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U.S.</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Undecided</td>
</tr>
<tr>
<td>Condensed Matter</td>
</tr>
<tr>
<td>Particles &amp; Fields</td>
</tr>
<tr>
<td>Astrophysics</td>
</tr>
<tr>
<td>Biophysics</td>
</tr>
<tr>
<td>Nuclear Physics</td>
</tr>
<tr>
<td>Optics &amp; Photonics</td>
</tr>
<tr>
<td>Atomic &amp; Molecular</td>
</tr>
<tr>
<td>Relativity &amp; Gravitation</td>
</tr>
<tr>
<td>Materials Science</td>
</tr>
<tr>
<td>Plasma &amp; Fusion</td>
</tr>
<tr>
<td>Applied Physics</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>N</td>
</tr>
</tbody>
</table>

Data are limited to doctoral seeking students at PhD-granting departments.
Uncertain? Larger+Broader Departments May be a Good Choice

<table>
<thead>
<tr>
<th>Departments Averaging 15 or More Physics PhDs per Year, Classes of 2006, 2007 &amp; 2008 Combined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Average</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>MIT (MA) 37</td>
</tr>
<tr>
<td>U of Illinois, Urbana-Champaign 36</td>
</tr>
<tr>
<td>U of Texas, Austin 33</td>
</tr>
<tr>
<td>U of Maryland, College Park 32</td>
</tr>
<tr>
<td>U of California, Berkeley 28</td>
</tr>
<tr>
<td>Cornell U (NY) 27</td>
</tr>
<tr>
<td>Stanford U (CA) 25</td>
</tr>
<tr>
<td>SUNY Stony Brook U (NY) 24</td>
</tr>
<tr>
<td>U of Colorado, Boulder 23</td>
</tr>
<tr>
<td>Caltech (CA) 22</td>
</tr>
<tr>
<td>U of Chicago (IL) 22</td>
</tr>
<tr>
<td>U of Wisconsin, Madison 21</td>
</tr>
<tr>
<td>U of California, Santa Barbara 20</td>
</tr>
<tr>
<td>U of Michigan, Ann Arbor 20</td>
</tr>
<tr>
<td>Stanford U – Applied (CA) 19</td>
</tr>
<tr>
<td>U of Florida 19</td>
</tr>
</tbody>
</table>

Note: List includes only those departments who contributed degree data for all three years.

http://www.aip.org/statistics
Finding Grad Schools

University of Colorado, Boulder

Department of Physics

2013-2014 graduate programs in physics, astronomy, and other physical sciences

Tuition, Financial Aid, Housing
University of Colorado, Boulder

TUITION

Tuition year 2013-14:
Full-time students: in-state residents: $9,918 annual; out-of-state residents: $26,712 annual
Part-time students:
Credit hours per semester needed for full-time: 9
Deferred health plan: yes
Health insurance: yes, $3,030.00
Other academic fees: $908.84 Grad student fees for AY 2013-14
Academic term: semester
Number of first-year students who receive full tuition waivers: 92
Teaching Assistants, Research Assistants, and Fellowships
Number of first-year:
The Very Best Way: Ask!

Who to ask
• Ask professors in subfield of interest.
• Ask postdocs.
• Ask senior graduate students.

What to ask
• Ask if they know of specific people who are doing real neat things
• Ask about people that might not be at name-brand schools, but whose work is really great.
General Rankings

#1 California Institute of Technology
#1 Harvard University
#1 Massachusetts Institute of Technology
#1 Stanford University
#5 Princeton University
#5 University of California– Berkeley
#7 Cornell University
#7 University of Chicago
#9 University of Illinois– Urbana- Champaign
#10 University of California– Santa Barbara
#11 Columbia University
#11 University of Michigan– Ann Arbor
#11 Yale University
#14 University of California– San Diego
#14 University of Maryland– College Park
#14 University of Texas– Austin
#17 University of Pennsylvania
#17 University of Wisconsin– Madison
#19 Johns Hopkins University (Rowland)
#19 University of California– Los Angeles
#19 University of Colorado– Boulder
#19 University of Washington
#23 Ohio State University
#23 Pennsylvania State University– University Park
#23 Stony Brook University– SUNY

These rankings should not be taken too seriously, but they do reflect something....
# Subfield Rankings: Finding Diamonds

<table>
<thead>
<tr>
<th>AMO</th>
<th>Quantum</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Massachusetts Institute of Technology</td>
<td>#1 Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>#1 University of Colorado– Boulder</td>
<td>#2 Harvard University</td>
</tr>
<tr>
<td>#3 Harvard University</td>
<td>#3 California Institute of Technology</td>
</tr>
<tr>
<td>#4 Stanford University</td>
<td>#4 Stanford University</td>
</tr>
<tr>
<td>#5 California Institute of Technology</td>
<td>#5 University of California– Santa Barbara</td>
</tr>
<tr>
<td>#6 University of Rochester</td>
<td>#5 University of Colorado– Boulder</td>
</tr>
<tr>
<td>#7 University of Arizona</td>
<td>#7 Princeton University</td>
</tr>
<tr>
<td>#7 University of Maryland– College Park</td>
<td>#8 University of Illinois– Urbana- Champaign</td>
</tr>
<tr>
<td>#9 Rice University</td>
<td>#9 University of Maryland– College Park</td>
</tr>
<tr>
<td>#9 University of California– Berkeley</td>
<td>#10 University of California– Berkeley</td>
</tr>
<tr>
<td>#11 University of Michigan– Ann Arbor</td>
<td></td>
</tr>
<tr>
<td>#12 Princeton University</td>
<td></td>
</tr>
<tr>
<td>#13 Kansas State University</td>
<td></td>
</tr>
<tr>
<td>#13 University of Central Florida</td>
<td></td>
</tr>
</tbody>
</table>
# Subfield Rankings: Finding Diamonds

## Condensed Matter

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>#2</td>
<td>University of Illinois– Urbana-Champaign</td>
</tr>
<tr>
<td>#3</td>
<td>University of California– Santa Barbara</td>
</tr>
<tr>
<td>#4</td>
<td>Stanford University</td>
</tr>
<tr>
<td>#5</td>
<td>Harvard University</td>
</tr>
<tr>
<td>#6</td>
<td>University of California– Berkeley</td>
</tr>
<tr>
<td>#7</td>
<td>Cornell University</td>
</tr>
<tr>
<td>#8</td>
<td>Princeton University</td>
</tr>
<tr>
<td>#9</td>
<td>University of Chicago</td>
</tr>
<tr>
<td>#10</td>
<td>California Institute of Technology</td>
</tr>
<tr>
<td>#10</td>
<td>University of Maryland– College Park</td>
</tr>
<tr>
<td>#12</td>
<td>University of California– San Diego</td>
</tr>
<tr>
<td>#13</td>
<td>Columbia University</td>
</tr>
<tr>
<td>#14</td>
<td>Pennsylvania State University</td>
</tr>
<tr>
<td>#15</td>
<td>Yale University</td>
</tr>
<tr>
<td>#16</td>
<td>University of Michigan– Ann Arbor</td>
</tr>
<tr>
<td>#17</td>
<td>Ohio State University</td>
</tr>
<tr>
<td>#17</td>
<td>University of Pennsylvania</td>
</tr>
<tr>
<td>#19</td>
<td>Rutgers, the State University of New Jersey</td>
</tr>
</tbody>
</table>

## Plasma

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Princeton University</td>
</tr>
<tr>
<td>#2</td>
<td>Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>#2</td>
<td>University of Wisconsin– Madison</td>
</tr>
<tr>
<td>#4</td>
<td>University of California– Los Angeles</td>
</tr>
<tr>
<td>#5</td>
<td>University of California– San Diego</td>
</tr>
<tr>
<td>#5</td>
<td>University of Texas– Austin</td>
</tr>
</tbody>
</table>
Subfield Rankings: Finding Diamonds

**Nuclear**
#1 Michigan State University  
#2 Massachusetts Institute of Technology  
#3 University of Washington  
#4 Stony Brook University– SUNY  
#5 Indiana University– Bloomington  
#5 Yale University  
#7 California Institute of Technology  
#8 Duke University  
#8 University of California– Berkeley  
#10 Columbia University  
#10 University of Illinois– Urbana- Champaign  
#12 Texas A&M University– College Station

**Elementary Particles/Fields**
#1 Stanford University  
#2 University of California– Berkeley  
#3 Harvard University  
#3 Princeton University  
#5 California Institute of Technology  
#6 Massachusetts Institute of Technology  
#7 University of Chicago  
#8 University of California– Santa Barbara  
#9 Cornell University  
#10 Columbia University  
#11 University of Michigan– Ann Arbor  
#12 University of Wisconsin– Madison  
#13 University of Texas– Austin
Subfield Rankings: Finding Diamonds

**Cosmology/Relativity/Gravity**

#1 Princeton University  
#2 California Institute of Technology  
#3 Harvard University  
#4 Stanford University  
#5 University of California– Berkeley  
#5 University of Chicago  
#7 Massachusetts Institute of Technology  
#8 University of Texas– Austin  
#9 University of California– Santa Barbara  
#10 Pennsylvania State University  
#11 University of Maryland– College Park  
#11 University of Pennsylvania
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
Graduate School Deadlines

Varies widely but usually Dec. ~15 to Feb. ~1
Check websites immediately.
Examples:

MIT Dec 15 / Nov 1 if for Spring
Caltech Dec 15
Harvard Dec 14
CU Dec 15
U. Washington Jan 5
Georgia Tech Jan 31

Advanced planning on Rec letters (typically 3, several weeks notice), GRE, GRE Subject, transcripts, TOEFL if not native speaker.
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
    What does a good personal statement look like?

I got in! Now what?
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
Personal Statement

Length ~ 1.5 to 2 pages
Also provides a writing sample to help understand how clearly you think and reason.

Rough Outline
Why do you want to do a PhD?

Brief summary/overview of range of research experiences

1 to 2 paragraphs succinctly and clearly describing each research project: who, what, where, when, how, why, general field and in whose lab, specific problem and why it was hard, how you overcame the challenge, any skills you acquired, any personal initiative taken, any results or conclusions, how did this research impact your desire to do future research?

Brief paragraph describing any awards, teaching experience, presentations, hobbies or extracurricular activities at which you excelled. Do not go overboard about hobbies, tutoring, etc.

Briefly address an special circumstances (illnesses, injuries, poor GRE, etc.)

What do you want to do your research in? Why is XX a good university for you to attend to meet your goals? Are there specific persons whose groups you might want to join and why?
Personal Statement:
Special Circumstances

Briefly deal with any special circumstances in the latter part of the statement (don’t emphasize it by putting it first.

**GRE**
It is ok to briefly state that you are a poor standardized test taker, and that you believe that your GPA is a better indicator (if it is!) of your preparation for graduate level course work.

**Poor GPA**
It is ok to briefly mention any special circumstances that led to a bad semester or year. For instance, you had to care for a sick family member or came down with a severe condition. There is no need to go into lots of detail, just enough to make it creditable. Also, committees are more likely to overlook poor freshman grades than junior or senior year grades.
Personal Statement A: Example of an extremely well written personal statement

• Good "inspiration" paragraph that also gives concrete details.
• Avoid lengthy inspiration paragraphs that do not provide any relevant details. Reviewers most often skip them.
• Research experience: What, where, when. Type of project and enough details to see that she understood the context for the project. The paragraph avoids too many acronyms and uses broad physics language.
• Very briefly explains what she actually did on the project
• Conclusion/result of work.
• Reinforces the idea that she sees Physics as her field. This is a good sign of taking ownership in the future--signals a sense of initiative taking.
• Good transition paragraph to say that now I am going to tell you about research that I did during my college years.
• Personal initiative language.
• How did this work help form you interests?
• This is a more beefy research project and gets two paragraphs to describe it.
• Personal ownership language again.
• Explains again how this project helped her to grow and learn. The skills she describes learning are those of an independent researcher, which is the goal of graduate school.
• She builds a link between previous research project and the next research project.
• What, where, when.
• Describes the project.
• Describes the challenge of the project in very broad terms.
• How did she help meet this challenge?
• Again, explains how her research interests where shaped by this experience.
• She describes here why she wants to go to this particular graduate school. She explains why it is a good fit.
Personal Statement: Review Examples

**Personal Statement B: Example of a reasonably well written personal statement**

- Explains why she wants to go to graduate school, and why she thinks this school is a good fit.
- She jumps right into research, rather than teaching or extracurricular. Great! This is why you should want to go to graduate school.
- What, where, when.
- Active language showing initiative.
- Holds out the idea that her results will be published in the future—not as good as a real publication, but still is a statement that her results may be of broad interest. Perhaps the recommendation letters will support this claim.
- How did this experience impact you?
- Two paragraphs to describe what she views as the most relevant experience for forming her interests.
- personal, active language.
- Tabletop scale experiments like hearing the words "I constructed", "I built", etc. These are better than "I assembled".
- initiative!
- results of research.
- Link to broad area of interest.
- This is good. She mentions several specific professors and gives a reasonable statement of why their research areas match her interests. This makes it clear that she has actually thought about why she is applying to this school.
- Emphasizing the degree of specific overlap with previous REU work is not necessary.
- Again, emphasizing a somewhat narrow pursuit. Don't give the impression that you want to do exactly what you did in your REU or undergraduate work.
- This is a fine summary paragraph, but is a bit of filler that readers tend to not actually read.
Personal Statement:
Review Examples

• **Personal Statement C: Example of a poorly written personal statement**
  • Uggh! Do not emphasize course work in your first sentences as why you want to get a PhD. The language is extremely passive as though he expects to sit and have more information dumped into him.
  • Uggh! Teaching is mentioned before research.
  • Gosh, it is not clear that this student realizes what a PhD program is. They may end up being very unhappy and quitting.
  • Uggh! More about tutoring? It is fine to include this after discussing research.
  • Fine, but how does this relate to research?
  • Uggh! It sounds like research is an afterthought to the teaching.
  • It would have been better if for each of these, he had stated where and when.
  • He should have discussed each project in turn, rather than just focusing on a single project.
  • This is too high-level. He needs to describe what this research included.
  • This is fine, but again, he does not explain in simple physics language what this research project was about. Maybe he doesn't really know?
  • He does not give the arXiv reference so I can't check to see if he is making it up or not. I am not sure I believe him, and I do not care to check at this point. Maybe his recommendation letters will confirm it.
  • Somewhat generic stuff that you can get from reading popular science articles.
  • This is really, really bad-- Dana Anderson is a quantum experimentalist, Murray Holland is a quantum optics theorist, and Andreas Becker is a theorist who studies ultrafast laser physics in molecules and atoms. It appears that this student just picked three researchers who had the word quantum associated with them.
  • As a side note, it is OK to say that you are not decided on whether to do theory or experiment. However, it is not a good idea to have 100% experimental background and then claim you will do theory, or the reverse.
Personal Statement D: Example of a poorly written personal statement

- So....are you going to be working late in the lab or driving to go skiing? This is a terrible introduction. Most physics research is done indoors.

- Why do I care? I have 500 applicants. Why should you be one of the admitted students? Why is this relevant for my decision making process?

- So, maybe that means that your department does not know how to prepare students for graduate school? This is not good.

- He focuses on negatives right away! Warning flags are going off all over the place for the reader. It would be better to put this explanation of why his GPA is low later. Also, his explanation does not seem very reasonable to me.

- Teaching before research! Not good!

- This paragraph is nice. It would have been much better to provide more of this. However, it also fails to provide basic "who" and "where" information.

- OK, but why at this particular school? Why have you chosen to apply to this school?

- This whole personal statement only had one paragraph that helped his cause.
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?
I got in! Now what?

• Schools will typically pay all expenses for you to visit in March to early April.
• Contact several of the most interesting groups in advance to see if you can meet personally with the professor—**this is no time to be shy!**
• Knock the socks off of the professors during these meetings! This is a two-sided dance: they are trying to get you to attend, but you are also trying to get a leg up getting into their specific lab if you decide to attend.
• Ask professors during your visit and afterward about possible first year RA positions, or if they will have positions open during the first summer after you arrive.
• Talk to graduate students to see if they are happy
• Wow the graduate students and be nice to them—the professors absolutely, positively will not hire you if their graduate students are left with a negative impression.
• Visit as many labs as possible if you are an experimentalist
• Are there lots of opportunities or will you only attend if you get to work with Professor X?
  
  Communicate your feelings during or after your visit.
• Can you imagine living and working for 6 years in this place?
• Do not attend a place that you did not visit!
Graduate School

What do you gain by earning a PhD? Pros and Cons

What is a typical PhD timeline?

How does one define success in graduate school?

How do you pick schools for you?

Application Process
  Typical Deadlines
  What is valued by reviewers?
  What does a good personal statement look like?

I got in! Now what?

Good Luck!