Class of 2011

About 50 grads, where did they go?

- 50% grad school in physics
  - Fields: Atomic and molecular optics, biophysics, high energy physics, astrophysics, condensed matter physics, quantum computing, nuclear physics, nanotechnology.

- 20% grad school in other field (CS, EE, NuclE, MatSE, Math)

- 20% industry
  - Software engineer (CISCO Systems), manufacturing systems (Intel), information technology (Simplex Investments, Accenture Consulting), finance (Belvedere Trading Company), public policy.

- 5% teaching

- 5% military (service or teaching)
About 60 grads, where did they go?

- 50% grad school in physics
  - Schools: Stanford, Princeton, Ohio State, Virginia, Notre Dame, MIT, Cornell, Michigan, Michigan State, Indiana
  - Fields: Atomic and molecular optics, biophysics, high energy physics, astrophysics, condensed matter physics, quantum computing, nuclear physics, nanotechnology.

- 25% grad school in other field
  - economics, applied physics, architectural acoustics, biomedical engineering, secondary education, law school, neuroscience, astronomy and materials science

- 20% industry
  - software firms, the Department of Defense, IBM, Google, and HRL Labs

- 5% teaching
- 5% military
Total number of graduates: 60

Physics grad school: Minnesota, Maryland, Michigan, MIT, Princeton, Case-Western, Ohio University, UIUC, U Chicago, Virginia, Johns Hopkins

Other grad school: MatSE, Finance, Applied Stats, Law, Geophysics, ECE, Journalism, CS, Math, Nucl Eng

Jobs: Viasat, Studio 222, IMC Finance, EPIC (2), Inservice Engineering, Creat-a-Soft, U-Line distributor, Qualcomm, Google, Twitch LLC, HS teaching (3), software startup, Jump Trading, Green Line, Olenick & Associates

Several people “looking” taking a “gap year” or staying here for a year of research.
What can you do???

- **ANYTHING YOU WANT!**

- 45-50% of UIUC Physics graduates go to graduate school in Physics

- 20-30% go to graduate school in another field
  - Computer science, Economics, Engineering, Law school, Medical school, Materials Science, Astronomy

- 25-35% go directly into the job market and find employment in a variety of fields.
Graduate School: Who/What/How?

- Grad school may be for you if you want to...
  - do research and development
  - work at a national laboratory
  - teach/research at the college/university level.

- Duration
  - 1-2 year Master’s, 5-6 year Ph.D.

- Grad school
  - Typically get remitted tuition + $23k per year
  - Two years of course work (+ teach + research)
  - Three-four years of research + dissertation
Post Graduate (Ph.D.) Employment

- 60% get postdocs
- 30% get permanent jobs
- 10% other

Overall employment rate for Ph.D.’s is *very* high.
Illinois Employers of Physics Majors

- Accenture
- Advanced Diamond Technologies, Inc.
- Aerotek Scientific
- All About Eyes
- Analysts, Inc.
- Argonne National Lab
- Army Corps of Engineers
- Case-New Holland
- Chimp Studios
- CSG Systems
- Exelon
- Fermi National Lab
- Hewlett-Packard
- Highland Engineering, PC
- IBA Particle Therapy
- Illinois Tool Works, Inc.
- Ion Beam Applications
- Leo Burnett
- LG Electronics
- Magnetar Capital
- Navistar
- Nexus Engineering
- NorthShore University Health
- Orchid Tree Web Solutions
- RealTick
- Sargent & Lundy
- Sogeti USA
- Swedish Covenant Hospital
- Terracon
- Univ. of Chicago Schuster Lab
- Val-Matic Valve & Manufacturing Corporation
- VivaKi

Incomplete list from 2009-2011
Comment on career paths

- **Bad news:**
  - Physics does not provide a single, clear-cut career path.

- **Good news:**
  - A degree in physics offers great flexibility
  - Lots of opportunities for interdisciplinary work

- **We want to help you succeed!**
Skills

Recruiters in all fields (computing, R&D, engineering, finance, consulting, ...) all report the same job skills as most desirable:

Top candidates:
1. Are good at problem solving
2. learn new things quickly
3. work well in teams
4. Have good communication ability

This is a day in the life of a physicist!
Knowledge and Skills Regularly Used by Physics Bachelor’s Employed in the Private Sector, Classes of 2009 & 2010 Combined

<table>
<thead>
<tr>
<th>Solve Technical Problems</th>
<th>Employment in Engineering</th>
<th>Employment in Computer Science or Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work on a Team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Writing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Phys. or Ast.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform Quality Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Specialized Equip.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with Customers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simulation or Modeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Admin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage Budgets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentages represent the physics bachelor's who chose "daily", "weekly", or "monthly" on a four-point scale that also included "never or rarely".

http://www.aip.org/statistics
Field of Employment for Physics Bachelor’s in the Private Sector, Classes of 2009 & 2010 Combined

- Engineering: 32%
- Non-STEM: 26%
- Computer or Information Systems: 21%
- Other STEM: 8%
- Other Natural Sciences: 8%
- Physics or Astronomy: 5%

STEM refers to natural Science, Technology, Engineering, and Mathematics.

http://www.aip.org/statistics
What’s a Bachelor’s Degree Worth?
Typical Salary Offers by Campus Recruiters, AY 2008-09

Bachelor’s Field
Chemical Engineering
Computer Science
Electrical Engineering
Physics
Mechanical Engineering
Mathematics
Civil Engineering
Finance
Nursing
Accounting
Marketing
Chemistry
Secondary Education
Psychology
Biology / Lifescience

Starting Salary in Thousands

Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles.

Reprinted from the Fall 2009 Salary Survey, with permission of the National Association of Colleges and Employers, copyright holder.
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
Physics bachelor’s “overall satisfaction” in their position, classes of 2006 and 2007.

<table>
<thead>
<tr>
<th>Position</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Teaching</td>
<td>80</td>
</tr>
<tr>
<td>Active Military</td>
<td>80</td>
</tr>
<tr>
<td>Private Sector STEM</td>
<td>80</td>
</tr>
<tr>
<td>Civilian Government</td>
<td>70</td>
</tr>
<tr>
<td>Private Sector Non-STEM</td>
<td>60</td>
</tr>
</tbody>
</table>

Note: Percentages represent the proportion of physics bachelor’s who chose “very satisfied” or “somewhat satisfied” on a four-point scale that also included “somewhat dissatisfied” and “very dissatisfied”.

http://www.aip.org/statistics
## Average MCAT Scores by Selected Majors, 2009.

<table>
<thead>
<tr>
<th>Major</th>
<th>Physical Sciences</th>
<th>Biological Sciences</th>
<th>Verbal reasoning</th>
<th>Number of applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering</td>
<td>10.9</td>
<td>10.7</td>
<td>9.6</td>
<td>1,005</td>
</tr>
<tr>
<td>Physics</td>
<td>11.1</td>
<td>10.3</td>
<td>9.6</td>
<td>207</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>10.9</td>
<td>10.5</td>
<td>9.4</td>
<td>195</td>
</tr>
<tr>
<td>Economics</td>
<td>10.4</td>
<td>10.5</td>
<td>9.7</td>
<td>566</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>9.9</td>
<td>10.6</td>
<td>9.5</td>
<td>1,066</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10.3</td>
<td>10.1</td>
<td>9.6</td>
<td>374</td>
</tr>
<tr>
<td>English</td>
<td>9.4</td>
<td>9.9</td>
<td>10.3</td>
<td>434</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>9.9</td>
<td>10.3</td>
<td>9.1</td>
<td>2,594</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9.8</td>
<td>9.9</td>
<td>9.0</td>
<td>2,091</td>
</tr>
<tr>
<td>Microbiology (or Bacteriology)</td>
<td>9.0</td>
<td>9.9</td>
<td>8.7</td>
<td>775</td>
</tr>
<tr>
<td>Psychology</td>
<td>8.8</td>
<td>9.4</td>
<td>9.1</td>
<td>2,421</td>
</tr>
<tr>
<td>Biology</td>
<td>8.7</td>
<td>9.5</td>
<td>8.7</td>
<td>12,705</td>
</tr>
<tr>
<td>Premedical</td>
<td>8.3</td>
<td>9.0</td>
<td>8.4</td>
<td>663</td>
</tr>
<tr>
<td>All Majors</td>
<td>9.2</td>
<td>9.8</td>
<td>9.0</td>
<td>41,487</td>
</tr>
</tbody>
</table>

The Medical College Admissions Test (MCAT) has three sections of standardized multiple choice questions (total of 219 items) with an additional writing sample comprised of two essays. Scores of 9.5 to 11 in each section are considered competitive by most medical schools.

Source: Association of American Medical Colleges, Data Warehouse

http://www.aip.org/statistics
## Average LSAT Scores* by Selected Majors, 2009.

<table>
<thead>
<tr>
<th>Major</th>
<th>Mean score</th>
<th>Number of applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>161.5</td>
<td>180</td>
</tr>
<tr>
<td>Mathematics</td>
<td>159.7</td>
<td>336</td>
</tr>
<tr>
<td>Economics</td>
<td>157.4</td>
<td>3,047</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>156.3</td>
<td>546</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>156.0</td>
<td>427</td>
</tr>
<tr>
<td>Chemistry</td>
<td>155.7</td>
<td>355</td>
</tr>
<tr>
<td>English</td>
<td>154.7</td>
<td>5,120</td>
</tr>
<tr>
<td>Biology</td>
<td>154.5</td>
<td>1,055</td>
</tr>
<tr>
<td>Computer Science</td>
<td>154.0</td>
<td>682</td>
</tr>
<tr>
<td>Political Science</td>
<td>153.0</td>
<td>14,964</td>
</tr>
<tr>
<td>Psychology</td>
<td>152.5</td>
<td>4,355</td>
</tr>
<tr>
<td>Pre Law</td>
<td>148.3</td>
<td>1,078</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>145.5</td>
<td>3,306</td>
</tr>
<tr>
<td><strong>All Majors</strong></td>
<td><strong>152.6</strong></td>
<td><strong>81,530</strong></td>
</tr>
</tbody>
</table>

*The scores in the table are for individuals who applied to Law school for the 2007-08 academic year. All test takers are not represented. Individuals may have taken the LSAT months or possibly years earlier.

Source: AIP Statistical Research Center compiled data from the Law School Admission Council, Newton PA.

http://www.aip.org/statistics
Read the blog

CAREERS IN PHYSICS, PARTS 1-10

By Kevin Pitts
August 31, 2012

Over the past year, I've posted many times about potential career paths. It might be hard for new readers to follow the older threads, so this post is an "index" of career posts. Several of these posts came from guest bloggers. Here is one example of the need for people trained in science.

Careers in Physics

Part I Job skills What skills do employers want that physics majors have?
Part II Elective options What are my curriculum choices for different career paths?
Part III Law Ever consider a career as an attorney? Physics is a good path to the law.
Part IV Salaries How much can you expect to make with a physics degree?
Part V Public service Many scientists work for the government.
Part VI The mysterious missing blog post
Part VII Atmospheric science Weather and climate are all physics.
Part VIII Medical imaging CT scans, MRI, PET scans, radiation therapy, all physics.
Part IX Teaching physics We need more high school teachers! More on this here.
Part X Music Acoustical engineering, architectural acoustics.

Other posts of interest:

Internships A great way to get experience.
Career fairs Learn about what's available and market yourself.
Are there really jobs in physics? Answer is yes.
Summer research here and here. A different kind of internship.

I have many more to come, so this is by no means the end of the list. We may never know what happened to the mysterious 6th post, but I will keep trying to update this post when I add more parts to this series.

If you have questions about the Physics Illinois Undergraduate Program, contact the Undergraduate Office, 217.333.4361.
If you have any feedback or suggestions for this blog, please contact Kevin Pitts.

http://physics.illinois.edu/undergrad/posts.asp
More Career Data

- Illinois companies that hire physics bachelors:
  http://www.aip.org/statistics/trends/states/state.html

- Education and Employment Trends:
  http://www.aip.org/statistics/

- American Institute of Physics collects the most data on Physics Trends

- You can find the pot of gold with a physics degree!
What we are doing

1. Working with industry to market our majors and explain the value of physicists!
   - Watch for job shadow programs.

2. Working with our majors (and Engineering Career Services) to make sure they market themselves and seek out opportunity.

3. Seek out internship opportunities for our students. (separate from research opportunities discussed soon)

4. Surveying our alumni to find out what careers they are in and create ties for future graduates.

5. Getting input from you...
Final Comments

- **Bad news:**
  - Physics does not provide a single, clear-cut career path.

- **Good news:**
  - A degree in physics offers great flexibility
  - Lots of opportunities for interdisciplinary work

- **We want to help you succeed!**