What can I do with my physics degree?

Prof. Marjorie Olmstead
olmstd@uw.edu

Battery-powered Car

MRI of Brain Cancer

Solar Power

SPS Career seminar 23 Feb 2016
Have you ever wondered ... ?

- Do STEM majors persist in STEM?
- What is the Major/ Career correlation?
- What do people do with a Physics B.S.?
- Can I go to Law or Medical School?
- What sort of job do Physics bachelors get?
- What do new graduates get paid?
- Should I have majored in something else?
- Where are the STEM jobs? Physics jobs?
- What job skills are used by Physics bachelors?
- Who hires physics bachelors in Washington state?
- What resources are available for my job search?
Do STEM majors persist in STEM?

STEM Degree

- STEM job
- STEM-related
- Non-STEM

Non-STEM Degree

- STEM workers
- Non-STEM workers

Job

- STEM employees
- Non-STEM employees

• http://www.census.gov/dataviz/visualizations/stem/stem-html/
What’s the Major / Career correlation?

https://www.census.gov/dataviz/visualizations/stem/stem-html/
What do people do with a Physics BS?

Trends in initial outcomes of physics bachelor’s Classes of 1995 to 2012 (1 year post degree)

National 2012
- Work 38%
- Other Grad 22%
- Phys Grad 35%

UW 2015
- Work or Grad 19%
- Other Grad 10%
- Physics Grad 13%

http://www.aip.org/statistics
### Average LSAT Scores* by Selected Majors, 2012

<table>
<thead>
<tr>
<th>Major</th>
<th>Average Score*</th>
<th>Number of Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>162.2</td>
<td>254</td>
</tr>
<tr>
<td>Economics</td>
<td>159.1</td>
<td>2,468</td>
</tr>
<tr>
<td>Engineering</td>
<td>157.3</td>
<td>1,127</td>
</tr>
<tr>
<td>Chemistry</td>
<td>156.7</td>
<td>267</td>
</tr>
<tr>
<td>History</td>
<td>156.7</td>
<td>3,323</td>
</tr>
<tr>
<td>English</td>
<td>155.8</td>
<td>3,728</td>
</tr>
<tr>
<td>Biology</td>
<td>155.2</td>
<td>1,095</td>
</tr>
<tr>
<td>Political Science</td>
<td>154.3</td>
<td>12,215</td>
</tr>
<tr>
<td>Psychology</td>
<td>153.3</td>
<td>3,335</td>
</tr>
<tr>
<td>Computer Science</td>
<td>152.3</td>
<td>327</td>
</tr>
<tr>
<td>Pre-Law</td>
<td>149.0</td>
<td>994</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>145.3</td>
<td>2,878</td>
</tr>
<tr>
<td><strong>All Majors</strong></td>
<td><strong>153.6</strong></td>
<td><strong>66,197</strong></td>
</tr>
</tbody>
</table>

* Based on test takers who applied to Law School. Applicants are allowed to take the LSAT exam more than once; these averages are computed using each applicant’s highest score on the LSAT exam.

### Average MCAT Scores* by Selected Majors, 2012

<table>
<thead>
<tr>
<th>Major</th>
<th>Physical Science</th>
<th>Biological Science</th>
<th>Verbal Reasoning</th>
<th>Number of Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>10.8</td>
<td>10.8</td>
<td>9.9</td>
<td>633</td>
</tr>
<tr>
<td>Physics</td>
<td>11.1</td>
<td>10.4</td>
<td>9.8</td>
<td>228</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>11.1</td>
<td>10.6</td>
<td>9.6</td>
<td>1,147</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10.6</td>
<td>10.4</td>
<td>9.3</td>
<td>340</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>10.9</td>
<td>10.1</td>
<td>9.4</td>
<td>135</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>10.1</td>
<td>10.6</td>
<td>9.5</td>
<td>1,615</td>
</tr>
<tr>
<td>English</td>
<td>9.6</td>
<td>10.1</td>
<td>10.2</td>
<td>380</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>10.1</td>
<td>10.4</td>
<td>9.0</td>
<td>2,864</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9.5</td>
<td>10.0</td>
<td>9.0</td>
<td>2,113</td>
</tr>
<tr>
<td>Microbiology</td>
<td>9.2</td>
<td>10.1</td>
<td>8.8</td>
<td>759</td>
</tr>
<tr>
<td>Psychology</td>
<td>9.1</td>
<td>9.6</td>
<td>9.1</td>
<td>2,327</td>
</tr>
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<td>9.7</td>
<td>8.7</td>
<td>13,605</td>
</tr>
<tr>
<td>Premedical</td>
<td>8.3</td>
<td>8.9</td>
<td>8.1</td>
<td>587</td>
</tr>
<tr>
<td><strong>All Majors</strong></td>
<td><strong>9.5</strong></td>
<td><strong>9.9</strong></td>
<td><strong>9.0</strong></td>
<td><strong>44,464</strong></td>
</tr>
</tbody>
</table>

* Sorted by total score. Based on test takers who applied to Medical School. Applicants are allowed to take the MCAT exam more than once; these averages are computed using each applicant’s most recent MCAT exam scores.

Source: Compiled by the Statistical Research Center based on data collected by the Law School Admission Council

What sort of job do Physics Bachelors get?

Of those who got a job right after graduation:

- **Private Sector**: 61%
- **College & University**: 13%
- **High School**: 8%
- **Active Military**: 6%
- **Civilian Govt., National Lab**: 5%
- **Other**: 7%

**Field of Employment for Physics Bachelor’s in the Private Sector, Classes of 2011 & 2012 Combined.**

- **Engineering**: 30%
- **Computer or Information Systems**: 24%
- **Non-STEM**: 30%
- **Other STEM**: 13%
- **Physics or Astronomy**: 3%

http://www.aip.org/statistics
What do new graduates get paid?

Starting Salaries in the Private Sector

Physics Degree Recipients, Classes of 2013 & 2014

Physics PhDs

Physics Masters

Physics Bachelors in STEM Jobs

Physics Bachelors in non-STEM Jobs

Typical Salaries in Thousands of Dollars

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

Typical Starting Salaries for Physics Bachelor’s Classes of 2011 & 2012 Combined.

Employer

Private Sector STEM

Private Sector non-STEM

Civilian Govt. incl. Natl. Labs

Active Military

High School Teachers

College or University

Typical Salaries (in thousands of dollars)

http://www.aip.org/statistics
Should I have majored in something else?

Bachelors Degree Salary 2014 Grads

Starting Salary in $k

0 10 20 30 40 50 60 70 80 90

PHYSICAL SCIENCES

COMPUTER and INFORMATION SCIENCES
ENGINEERING
MATHEMATICS and STATISTICS
ENGINEERING TECHNOLOGIES
HEALTH PROFESSIONS etc
BUSINESS, MANAGEMENT, MARKETING, etc
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THEOLOGY and RELIGIOUS VOCATIONS

Career Salaries

Petroleum Engr
Architect/Engr Managers
Natural Science Managers
Computer and IT Managers
Physicists

Worldwide Assoc. of Colleges and Employers
www.naceweb.org

Bureau of Labor Statistics
www.bls.gov

25% -- 75%
Dot = median

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www.naceweb.org

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Where are the STEM jobs? Physics jobs?

STEM occupations as percent of total employment

>13 % STEM Workforce:
Silicon Valley  Boulder
Huntsville  Research Triangle
Greater DC  Greater Boston
Seattle (though mostly CS, not physics)

Average = 6%

“Physicists”
May 2014
What job skills are used by physics bachelors?

Knowledge and Skills Regularly Used by Physics Bachelor’s Employed in the Private Sector, Classes of 2011 & 2012 Combined.

- Solve Technical Problems
- Work on a Team
- Technical Writing
- Design & Development
- Use Specialized Equip.
- Perform Quality Control
- Manage Projects
- Knowledge of Phys. or Ast.
- Programming
- Work with Customers
- Advanced Math
- Simulation or Modeling
- Manage People
- Manage Budgets

Employment in Engineering

Employment in Computer Science or Information Technology

Percent Regularly Using Knowledge or Skill

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

RESEARCH EXPERIENCE GETS YOU ALL OF THESE SKILLS!!

www.aip.org/statistics
### Who hires physics bachelors in Washington?

Some employers in Washington that recently hired new physics bachelor recipients include:

- Amazon
- Astronics AES
- Bainbridge Parks & Recreation
- Battelle
- Best in Class Education Center
- Blue Box Group
- Boeing
- Bombsheller
- Bruker Elemental
- Cascade Gasket, Inc.
- Corvus and Columba LLC
- David Evans and Associates, Inc.
- Det Norske Veritas
- Device Inside, Inc.
- Eagle Harbor Technologies, Inc.
- Exotic Metals Forming Company
- ExtraHop Networks
- Financial Partners, Inc.
- Flexasoft
- Google
- Gravity Jack, Inc.
- Intentional Software
- L&S Engineering
- Lockheed Martin
- Logos Bible Software
- Marchex, Inc.
- Micro Encoder, Inc.
- Microsoft
- NAVSEA
- NW Medical Physics Ctr
- Octapharma Plasma, Inc.
- PNNL
- Procure Treatment Centers
- PSC Biotech
- Puget Sound Naval Shipyard
- Radiant Zemax, LLC
- RAFI USA
- Randstad
- Red Head Steering Gears
- Schneider Electric
- Schweitzer Engineering Labs.
- Seattle Children's Research Inst.
- Stardust Materials
- Tableau Software
- TecAce Software Limited
- Telect, Inc.
- University of Washington
- Washington State University
- Woodruff Scientific Computing
- X2 Biosystems
- Zulily

What resources are available for my job search?

• American Physical Society Careers Page

• Society of Physics Students Careers Page
  – [https://www.spsnational.org/career-resources](https://www.spsnational.org/career-resources)

• AAAS (Science Magazine) Career Resources
  – [http://www.sciencemag.org/careers/career-resources](http://www.sciencemag.org/careers/career-resources)

• UW Career Center
  – Drop in at Mary Gates Hall

• Faculty, Alumni, others in area: see PANEL
Career Panel

- Elana Voigt: UW Physics 12x Laboratory Staff
- Travis Yeiran: Amazon
- Alex Stevens: Teacher at Issaquah High School.
- Shannon Merchant: UW Career Center Counselor
Any more questions ... ?

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