Get the Facts Out
Secondary Teaching Benefits Compared to Industry and University Teaching

Funding provided in part by:

Kristine Callan
Gay Stewart
Wendy Adams
Workshop Plan

5 min Introduction
20 min Data Mining Part 1
10 min Origin Story
15 min Data Mining Part 2
5 min Get the Facts Out Toolkit
Workshop Goals

Participants will be able to:
• Provide realistic information about STEM industry, college faculty, and secondary faculty salaries;
• Generally explain retirement options for teachers compared to private sector STEM jobs;
• Provide accurate teacher retention data.

Presenters will be able to:
• Translate participants’ perspectives into effective messaging for recruiting math and science teachers.
Teaching Myths & Realities
Data Mining

• Each group (~4 individuals) will receive 4 documents; each person should review 1 document.

- The Wall Street Journal: Salary by Major
- High School and College Teacher Salaries
- Teacher Opportunities and Benefits
- American Institute for Physics - Job Satisfaction Statistics

• After reviewing the documents, share your findings with the rest of the group.
2011/2012 and 2013/2014

Job Satisfaction of Physics Bachelor’s in High School Teaching Positions, Classes of 2011 & 2012 Combined.

- Job Security
- Level of Responsibility
- Opportunity for Advancement
- Salary and Benefits
- Intellectual Challenge
- Overall

Percentages represent the 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

Job Satisfaction of Physics Bachelor’s in Private Sector STEM Positions, Classes of 2011 & 2012 Combined.

- Job Security
- Level of Responsibility
- Opportunity for Advancement
- Salary and Benefits
- Intellectual Challenge
- Overall

Percentages represent the physics bachelor’s who chose “very satisfied” or “somewhat satisfied” on a four-point scale that also included “somewhat dissatisfied” and “very dissatisfied.” STEM refers to natural science, technology, engineering and math.

http://www.aip.org/statistics

Job Satisfaction of Physics Bachelors in High School Teaching Positions, Classes of 2013 & 2014 Combined

- Job Security
- Level of Responsibility
- Opportunity for Advancement
- Salary and Benefits
- Intellectual Challenge
- Overall

Percentages represent the physics bachelors who chose “very satisfied” or “somewhat satisfied” on a four-point scale that also included “somewhat dissatisfied” and “very dissatisfied.”

Figure based on the responses of 123 physics bachelors employed in high school teaching positions.

Job Satisfaction of Physics Bachelors in Private Sector STEM Positions, Classes of 2013 & 2014 Combined

- Job Security
- Level of Responsibility
- Opportunity for Advancement
- Salary and Benefits
- Intellectual Challenge
- Overall

Percentages represent the physics bachelors who chose “very satisfied” or “somewhat satisfied” on a four-point scale that also included “somewhat dissatisfied” and “very dissatisfied.” STEM refers to natural science, technology, engineering and math.

Figure based on the responses of 670 physics bachelors employed in private sector STEM positions.
Teacher Retention

What fraction of grade 7-12 teachers remain in the profession at year 5?

A. 28%
B. 41%
C. 59%
D. 78%
E. 90%
Teacher Retention

What fraction of grade 7-12 teachers remain in the profession at year 5?

A. 28%
B. 41%
C. 59%
D. 78%
E. 90%

†2015 U.S. Dept. of Ed
Public School Teacher Attrition and Mobility in the First Five Years:
Results From the First Through Fifth Waves of the 2007–08 Beginning Teacher Longitudinal Study
Report Out

• What did your group find interesting and/or surprising?
MythBusters: Origin Story


**Table 1**
- Lockheed Martin
- Colorado Department of Education (CDE)
- Four experienced teachers

**Table 2**
- Anadarko Petroleum
- Colorado Department of Higher Education (CDHE)
- Three experienced and two newer teachers
The Mines TAG Discussion

• Conversations started with
  – Teachers in Colorado start at $24,500
  – 186 day contract is a misnomer, teachers work all summer for free.
  – Industry provides a match on 401K contributions and schools do not.

Not a single person in the room has worked for less than $34k/yr.
The Mines TAG Discussion

• After the presenters encouraged them to use the data at hand, the conversation turned to:
  – Teachers in Colorado typically start at $38,500 - $44,800
  – Steps are very nice and industry folks have to change companies for that type of raise
  – Industry folks floored that Colorado teachers retire in mid to late 50’s with a ~90% pension
Many teachers say the number one benefit to teaching is spending their summer and winter breaks with their kids.

Industry folks were surprised at the AIP survey showing 80% satisfaction for private sector STEM physics grads since they observe lower satisfaction than that.

Often make $4 - $12K during the year coaching, tutoring, in-school subbing, etc.
Typical Starting Salaries for Physics Bachelors, Classes of 2013 & 2014 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)

This figure includes only bachelors 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. Data are based on respondents holding potentially permanent jobs in private sector STEM positions (498), private sector non-STEM positions (114), civilian government positions (52), the active military (44), high school teaching positions (82), and universities or colleges (84).

www.aip.org/statistics
The Mines TAG Discussion

- Lockheed Martin employee said that when advertising salaries, the monetary value of the pension should be included.
- Estimates Yearly Annuity Value at $17.3k/year
- Industry value at $3k/year
- Suggested a recruitment sheet similar to industry job offer.
# Teaching vs. Industry

<table>
<thead>
<tr>
<th>Teaching</th>
<th>Lockheed Martin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary + Retirement Benefits</td>
<td>Salary + Retirement Benefits (4% contribution into 401K)</td>
</tr>
<tr>
<td>Mid-Career Salary + Benefits</td>
<td></td>
</tr>
<tr>
<td>• Early: $43K + $17K = <strong>$60K</strong></td>
<td>• Early: $66K + $3K = <strong>$69K</strong></td>
</tr>
<tr>
<td>• Mid: $75K + $17K = <strong>$92K</strong></td>
<td>• Mid: $95K + $3K = <strong>$98K</strong></td>
</tr>
<tr>
<td>Contract</td>
<td>Contract</td>
</tr>
<tr>
<td>• 9-month contract</td>
<td>• 12-month contract</td>
</tr>
<tr>
<td>• 74 days not on contract</td>
<td>• 10 – 40 days off</td>
</tr>
<tr>
<td>• Retire late 50’s with 87.5% of HEI</td>
<td>• Retire at 65 salary depends on market performance &amp; life expectancy</td>
</tr>
</tbody>
</table>
"We have done this to ourselves [teachers]. It's so important to keep pushing to improve teachers’ salaries and to stop districts from taking away from salaries; but, now look what we've done to the public's view of the profession."

— Barbara Hickman, CDE
Data Mining Part 2

Do a web search to find information relevant to you. Some ideas are:

• Salary schedules for districts near your institution where program graduates are likely to be hired.

• Teaching salaries at your institution for people with comparable levels of education.

• Pension or teacher retirement plan for your state.
Report Out

• What teacher data for your state did you find during your search? Where did you find it?
• How can you share this information with others?
Close of “Faculty MythBusters”

I would feel comfortable with my favorite student becoming a secondary teacher.
A. Strongly agree
B. Agree
C. Neutral
D. Disagree
E. Strongly disagree
Get the Facts Out Toolkit

- Research-based resources for changing the conversation around math and science teaching at your institution
  - Testimonial
  - Poster
  - Brochure
  - Flyer
  - Faculty MythBusters Presentation
  - Student MythBusters Presentation
  - PTaP Survey
Development

• Idea for PTaP at PhysTEC conference
• TAG meetings at Colorado School of Mines
• 100Kin10 Project Team
  – Created complete drafts resources and corresponding booklet
• NSF IUSE Grant
  – Will study how best to “get the facts out”
  – Working with 7 other institutions
Coming Soon!

- The Get the Facts Out Booklet will be available online on September 11th
- URL: GetTheFactsOut.org (not active yet!)
- Want access to the resources sooner? Give us your name/contact info and we will email them to you.
Questions?

• Kristine Callan: kcallan@mines.edu
• Gay Stewart: gbstewart@mail.wvu.edu
• Wendy Adams: wkadams@mines.edu