WHO EARNS WHAT? A LOOK AT PHD STIPENDS ACROSS TOP DEPARTMENTS

PREPROCESSING:

- Data source: https://www.kaggle.com/paultimothymooney/phd-stipends/data#
- Initial sample size
  - observations: 8625 - lots of missing data
  - after removing outliers: 8297
  - after removing NA from department and overall pay: 2477
- Dropped rows with NAs in Department (can't impute) and Overall Pay (did not impute)
- There were some extreme outliers (I would've loved to make a six-figure stipend!), but of course, this is highly unlikely. Outliers were removed.
- Filter out rows where Department was a non-word string, cleaned up text (using *tm*, *qdapRegex* packages)
- Obtained list of most frequently represented departments (using *wordcloud*)
- Grouped sample by these top departments (using *stringr*)
- Explored Overall Pay x Department, investigated relationship between LW-Ratio and Overall Pay
- Additional focus on first 4 years of study (under assumption that at minimum, people are at least in a PhD program for 4 years) (n=1830)
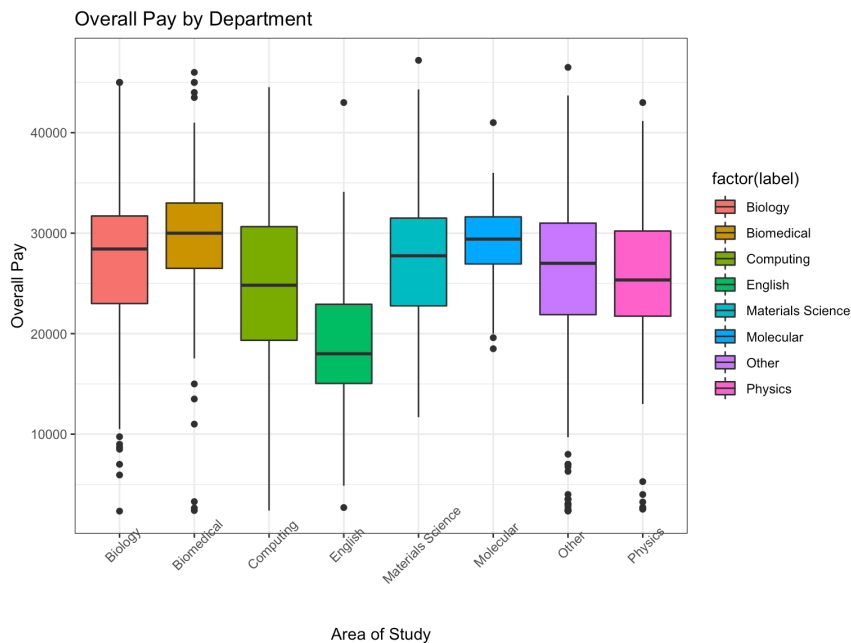
What are the reporting departments?

The majority of represented departments included the following: general sciences, engineering, chemistry, psychology, biomedical sciences, computer sciences, English, political studies, chemistry, and materials science. Wage is inspected across the first four years of the PhD program (N=1830)

How much are PhD students earning?

Stipends range by department, on average, ranging from $19,436 (English) to $29,911.55 (Biomedical Sciences).

label	count	mean	sd
Biology	367	27037.69	7395.45
Biomedical	225	29911.55	5830.78
Computing	268	24964.99	7883.41
English	193	19436.11	6349.50
Materials Science	95	27767.79	6411.83
Molecular	68	29158.69	3677.38
Other	450	25961.86	7878.51
Physics	164	26242.87	7202.51

Overall Pay by Department

How do PhD stipends vary by department?

A look at overall pay by department reveals within- and between-department variability, but generally, those in English PhD programs earn significantly less than those in other departments.

Left: Overall PhD student stipends across top academic departments.

Is pay explained by the living wage ratio?

The living wage ratio is a good predictor of overall pay, accounting for almost 80% of the variance in earnings. Additional factors, such as university type (public v. private), geographical region, and Carnegie classification may additionally explain overall pay, and should be explored.

Right: PhD student stipends in top departments by living-wage (LW) ratio.

Relationship Between Overall Pay and LW Ratio by Department