

## FORBOS/ASBMB Hack Day 2015

**Big Question:** What are the career outcomes for Ph.D. graduates in the US?

**Proximal question 1:** What are the job outcomes for the 'average' Ph.D. graduate?

**Proximal question 2:** What are the job outcomes for Ph.D. graduates from Washington University in St. Louis?

As a group of current graduate students, we were most interested in presenting career-path data for current Ph.D. holders in the US to help understand future trends and inform our (and our peers) career choices. To address this outlook, we looked for information from the NSF Scientists and Engineers Statistical Data System [SESTAT] as well as our university's alumni page to look at more individualized outcomes. Our goal is to create snap-shots of career options over time that can help inform decision making for current or prospective graduate students. These data are critical at the time of entry into graduate school, as well as over the course of training, to clearly illustrate the options available for trainees and enable them to make informed choices.

Our application of these data sources are two-fold: make current nationwide survey data easily accessible and simple to query, and allow comparison to any available institutional specific data, such as what we have access to at [University]. Together, these approaches give a better outlook of possible career paths while connecting with alumni that may have useful experience to share.

We developed a simple script to 'scrape' the [University] alumni search website, which is an approach that can be applied to any institution with those data available. We did a preliminary analysis of these data, which can be found **here**: <https://jsfiddle.net/6ayxnayj/embedded/result/> and have also been attached as a static .pdf

For the SESTAT data, we wanted to use [shiny](#), an app in R to make interactive plots, like the one displayed on the website. The interactive abilities of this plot will allow the user to select what parameters form the data they want to compare and generate a complimentary plot. We think this will be helpful since it will enable users to search through the available data, particularly if these plots are made available in conjunction with something more light hearted and user friendly (see below). Unfortunately, our team did not complete prototypes for these figures by the end of the day.

To present the complexities of navigating a career path in a fun way to individuals and groups, we have begun developing a 'choose your own adventure' game, called *Where a Biology PhD will take you*. We have built [this prototype](#) on [Twine](#) based on data from the beautiful ASCB and COMPASS career [infographic](#), that could be extended in a number of ways or turned into a physical board game. Additionally, this wacky web of choices could be a great starting point for incorporating demographic information to show the added difficulties or complexity that come with race, gender, etc. by weighing choices according to known outcomes. The intended audience include, but are limited to, undergraduates considering applying to graduate school,

graduate students who need a pick me up, and policymakers who may not understand the current challenges for defining suitable career paths.

Our ultimate goal is to incorporate interactive figures representing available national and institutional career options into a game that also reflects the inherent randomness and uncertainty of navigating life as a biology PhD student. Together this approach helps address and humanize **Proximal questions 1 & 2** and falls into the ***Tracking Postdocs category***.