

Group H (David Zimmerman, Erika Tang, Zhiyi Tang, Je Woo Sun)  
Junker  
36-303  
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please see the note at the end  
of this pdf.

-BJ

## II.5 Project Proposal

### **Analysis of Carnegie Mellon Undergraduate Prospects After Graduation Statistics (On Campus)**

#### **Project Summary:**

*Given the recent scandal revealing the over optimistic prospects for graduating law school students, the statistics produced by universities and published in the US News and World Report is being brought into question. These misleading statistics encourage hopeful JD seekers to pursue startling loans with the expectation that their debts will be paid off with relative ease upon graduation thanks to the supposed 84% job placement ratings.*

*While the production of undergraduate college rankings has often been criticized for its accuracy of actual quality of education, Carnegie Mellon University has long boasted statistics such as its high job placement following graduation and the percentage of students pursuing graduate degrees. It is easy to imagine that false statistics presented by the Law Schools of the US also riddle the field of undergraduate school rankings.*

*Every year, post-graduation activities of Carnegie Mellon alumni are closely documented by the university's Career Center in order to compile the statistics published around the nation ([http://www.studentaffairs.cmu.edu/career/students\\_alumni/post-grad-survey/index.html](http://www.studentaffairs.cmu.edu/career/students_alumni/post-grad-survey/index.html)). To determine the accuracy of Carnegie Mellon's reported alumni successes, the un-manipulated data collected over several years by the Career Center would be acquired and reassessed. New descriptive statistics would be produced and juxtaposed with previous publications. These new statistics would span each graduating class and the entirety of the sample to account for fluctuations in the job market between graduation years. This examination of Carnegie Mellon produced data detailing the success of Carnegie Mellon alumni will reveal the accuracy with which the university to which we are enrolled enables our dreams.*

*Our findings will primarily serve Carnegie Mellon students by revealing a more descriptive reality of prospects upon graduation. The data may also be used to serve the university in reaffirming positive statistics or giving light to areas of potential improvement for gathering future students.*

#### **A. Sampling Plan/Sampling Scheme**

Data from the Carnegie Mellon Career Center only includes 2001 and the following graduation years to the present. Thus, our sample will only include years after 2001. As stated in section (F- Mode of Data Collection) of the Final Survey Proposal, a stratified random sample of five years will be selected for the survey so that the overall statistics produced will be less vulnerable to job market fluctuations. The variation in salary values will also be accounted for through the adjustment of currency using inflation rates. Units will be selected and documented according to graduation year so that the individual graduation year statistics can be derived as well as overall statistics

I don't see why you would choose random years. I do like that you are looking at multiple years though. If you want to consider just 5 years' of data take the even numbered years (or the odds!). Otherwise just take all of them.

for Carnegie Mellon over the years. We have taken a stratified random sample using a random number generator (<http://www.random.org/>), and will use the years 2001, 2008, 2004, 2007, and 2010 in our sample.

**B. Sampling Frame**

The data from the Career Center ranging from 2001 to 2010 will be the sampling frame for the survey. The data from the Career Center is already organized by graduation year, thus this will be stratified prior to our research.

You have not described the career center data in enough detail for me to be able to tell how you will use it as a sampling frame.

**C. Non-Response**

Because we will not directly deal with the individual units, we will not be susceptible to non-response error due to our own data collection. However, there are non-response units within the Career Center's data. We will take no action to report the units missing from the Career Center data as the information has already been privacy protected against identification by the Career Center. Because the Career Center data includes a minimum of 74% of respondents from each major, we are hopeful that the non-responding units are negligible due to the high response rates.

The 74% response rate was only reported within CFA and this may be a reflection of the small number of students enrolled in CFA majors- typically less than 20 students per major per graduation year.

**D. Questionnaire**

As this survey builds upon the findings of the Career Center and does not deal directly with the units measured, a questionnaire for our target population is not necessary. However, we, the researchers, will conduct a mental questionnaire for ourselves as we organize data so that we efficiently compile the graduation information in favor of the survey. These questions will be descriptions of the statistics we wish to calculate.

1. What percentage of CMU alumni find employment upon graduation (for whole sample and each of five sample years)?
2. What percentage of CMU alumni from each college find employment upon graduation (for whole sample and each of five sample years)?
3. What percentage of CMU alumni from each major find employment upon graduation (for whole sample and each of five sample years)?
4. What percentage of CMU alumni are engaged in employment that relates to their major (for whole sample and each of five sample years)?
5. What are the percentages of the job locations (states) of CMU alumni?
6. What is average number of months of unemployment for a CMU alumni upon graduation?
7. What percentage of CMU alumni enroll in graduate school?
8. What is the average comparative ranking of the graduate school program compared to CMU ranking?
  - a. this variable would be a measurement of the deviation from CMU ranking for each graduate program pursued by CMU alumni

- b. CMU ranking would be the reference point equal to zero
  - c. graduate program ranking would be measured as a negative or positive number in comparison with CMU ranking
    - i. graduate program ranking would be collected from US News and World Report
    - ii. negative graduate program rankings would represent programs of lesser prestige than CMU
    - iii. positive graduate program rankings would represent programs of greater prestige than CMU
9. From what majors (top 5) do graduates have the highest starting salaries?
  10. What is the mean real (without inflation) starting salary of graduates from CMU?
  11. What is the mean real (without inflation) starting salary of graduates from each college?
  12. What is the mean real (without inflation) starting salary of graduates from each major?
  13. Is the mean real (without inflation) starting salary of graduates from CMU decreasing/increasing with time?
  14. From what majors (top 5) do graduates matriculate in the most prestigious graduate schools?
  15. What percentage of graduates pursuing graduate degrees choose Carnegie Mellon as their graduate school?
    - a. What are the most common graduate degrees (top 5) that these students are pursuing?
  16. How many graduates elect to remain in Pittsburgh for employment or educational purposes?
  17. How many graduates elect to remain in Pittsburgh for employment or educational purposes who are not being employed or educated at/by CMU?
  18. What is the average stipend awarded to graduates seeking graduate degrees?
  19. What graduate degree pursued by CMU undergraduate alumni offers, on average, the highest stipend?
  20. What is the distance deviation that graduates travel from CMU upon graduation?
    - a. measured by city distance from CMU of location

**E. Sample Size**

As mentioned in sections (K and F) of the Survey Proposals, We have selected a stratified random sample of five years ranging from 2001 to 2010 from the Career Center's data. We have chosen 2001, 2004, 2007, and 2010 thanks to a random number generator (<http://www.random.org/>). We hope that the stratified selection of five random years will help to eliminate market fluctuations due to varying degrees of health of the economy.

**It's not clear to me how you are thinking of carrying out sampling within each year.**

**You have not produced a sample size calculation for me, nor any indication of how you will sample from the records provided by the career center.**

Dear Team H:

Up to now you have generally done an excellent job of describing your intentions for the "undergrad prospects" survey. However, several issues need to be cleared up \*quickly\*, or you will not have a project, or not a project that can receive a very good final grade.

Here are some items from the original survey project schedule that I need more information on:

**D & E: sampling frame and target population**

The target population seems to be all alumni graduating in particular years at Carnegie Mellon. The sampling frame seems to be records from the Career Center's annual alumni survey. These are not the same: the survey does not cover the entire population. What parts of the population are not likely to be covered by this frame? How is this likely to affect inferences (both the career center's and your own!).

**F. mode of data collection.**

I am assuming that the mode of data collection is that you are inspecting individual records in the career center's survey. That is, you will sample a subset of alumni records and look at them individually to get raw data for your survey. If this, or something very much like it, is not the case, then you do not have a survey project for 303.

Note that this also requires that you have access to individual alumni records from the career center survey. If you do not or cannot have those records, you do not have a survey project.

**G. What variables do you propose to measure?**

Generally you are suggesting sensible things to measure. However, since you have not described the questions or variables collected by the career center, I cannot tell whether you are going beyond or adding to in any way what the career center is doing. If not, you are basically making a report on the career center work, and that is not by itself an acceptable project for 303.

So, I need from you a careful detailed description of the Career Center survey and the questions/variables they collect, side-by-side with the variables you will collect by inspecting individual alumni records in their survey. There can be some overlap in the list of variables, but I want to see something new (and useful) from you as well.

I, J: I have made comments on your draft IRB application in previous feedback.

**K & M. sampling scheme and sample size**

I have not seen a description from you of how you plan to sample a subset of individual alumni records from the career center data. Random selection of years does not constitute a sampling plan and, as I mentioned in previous feedback, is not necessary or useful. I want to see a plan for sampling that looks like something we have talked about in class (SRS w/o replacement, stratified sample, etc.) along with a sample size calculation like those we have discussed in class or in handouts.

**L. questionnaire**

Since you are not asking questions of respondents directly you should treat this more like an "observational" survey in which case you should list the things that you will look at in each individual alumni record, to obtain data on the variables in G above.

That means, e.g., "we will look at the city of employment for each record and calculate its distance to Pittsburgh using Google Maps", or "we will get the gender of the alum by looking at field 13", and similarly for all of your other questions or variables.

I need a detailed recipe for how you are going to get your variables from each record in your sample.

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Finally, I have indicated on several previous occasions that you must have individual alumni records in hand from the career center, to proceed with this project. If not, no project. If you do not have

- (a) individual alumni records in hand from the career center, and
- (b) adequate answers to the questions above

by the end of this week (Fri Mar 4), then you do not have a project for 303.