

# Career Issues

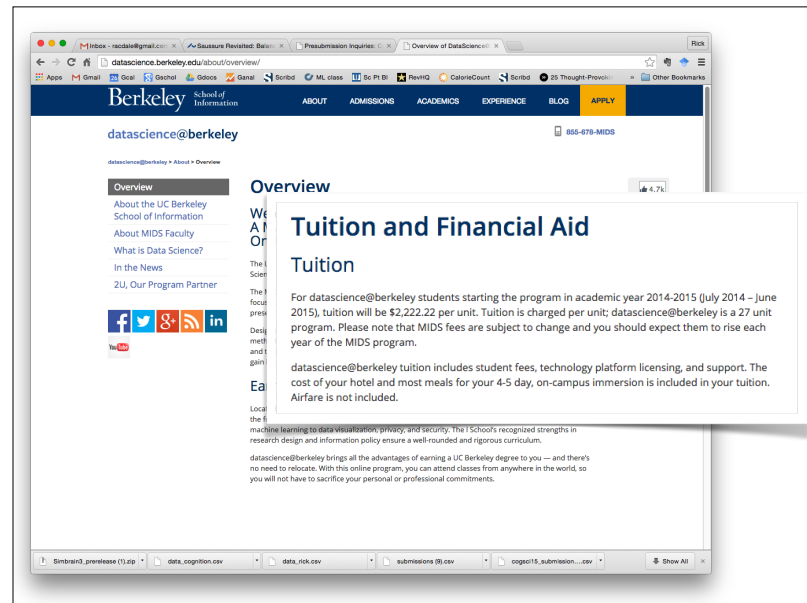
COGS 105, Week 12 Part 2: Industry

## Exam 2

- Average: 77%
- Please see your TA's to see the exam and compare your answers for any details.
- **Don't forget:** You can come to office hours before exam to discuss all materials.
- Also: **Extra credit, exam 3, and final paper + labs.**

## The Ph.D. vs. M.S.

- Going from your bachelors to a Ph.D., then to something related to science and academic work (**researcher, lecturer, professor**).
  - Most research Ph.D.'s involve a **tuition waiver** and a yearly **stipend** to support you.
- Master's programs are quite different. They are often a kind of "extension" of your undergrad years, with a specialization focus: **more courses**, with **(often) a project thesis**.
  - Most standalone master's programs involve further tuition.
  - **Professional** master's programs can be quite expensive.



# “Industry”

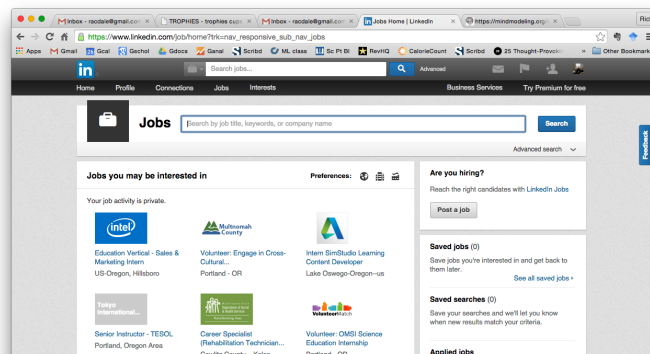
- Often used as a short-form for “anything outside academia and research.”
- Most commonly: Working for a **business** in some fashion.
- Sometimes “**government**” or “**non-profits**” are treated as separate categories.
- All 3 of these categories may involve a research component (often they do not), so you can still get your “research kick” from heading out into the “**real world.**”

# COGS?

- Examples:
  - **LIWC** and **LSA**: analysis of text
  - **Neurosynth**: meta-analysis of brain function
  - **RT tasks**: design of experiments and research
- All these topics are relevant to real-world applications, from both a skill and content levels.

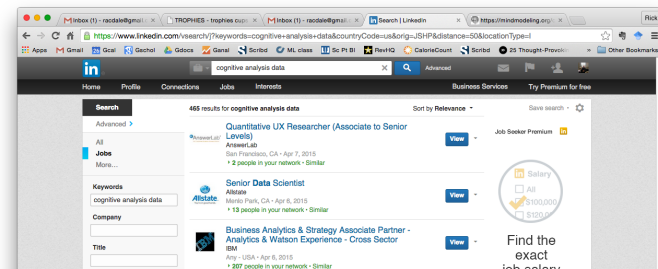
# Example...

[linkedin.com](https://www.linkedin.com)



# LIWC / LSA

- Forensic analysis of text or meaning in order to explore patterns of language use in various contexts.



The Marketing Data Analyst is primarily responsible for producing analytic insights that inform and influence sales/marketing strategies across the business. The Marketing Data Analyst is responsible for evaluating the ongoing performance of our web properties with a focus towards increased lead acquisition, open rates, audience engagement, and revenue optimization. The Marketing Data Analyst will define, track, measure, and analyze performance of both internal and external campaigns. The position is data driven and requires the analyst to formulate actionable insights. This role will report to the **Corporate Manager** and will be based out of our office in **Chandler, Arizona**.

**Other details:**

- 15 Applicants**
- See how you compare to the competition**  
Get more insights on who's applied with a Premium account.
- Upgrade free**

**Aloud this job**

**Job description**

**Position Summary**  
For over 25 years, the National Academy of Sports Medicine (NASM), a division of Ascend Learning, has been the industry leader in fitness education, certifying thousands of Personal Trainers each year and providing science-based continuing education options for fitness professionals. NASM offers a wide range of educational programs designed to meet the unique learning styles of our students to make them

**People also viewed**

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- Marketing Assistant/Coordinator**  
Phoenix, Arizona Area  
Posted 25 days ago

**Aloud**

## Minimum Basic Qualifications

- Ability to review complex data sets, validate findings, and communicate findings in a clear, concise, and easy-to-understand method.
- BS/BA or equivalent experience in Revenue Optimization, Marketing, Analytics, Computational/Cognitive Science or related field.

- Ability to review complex data sets, validate findings, and communicate results in a clear, concise, and easy-to-understand method.
- BS/BA or equivalent experience in Revenue Optimization, Analytics, Data Science, Computational/Cognitive Science or related field.

The screenshot shows a web browser window with multiple tabs. The active tab is titled "Academic Calendar 2014-2015". The address bar shows the URL: [www.iresearch.com/job/555585457rkvw\\_jobs\\_res\\_name/4rkfouVSP/SEARCH/545514501428080846195/UCVSP/Paraglet/63...](http://www.iresearch.com/job/555585457rkvw_jobs_res_name/4rkfouVSP/SEARCH/545514501428080846195/UCVSP/Paraglet/63...)

The main content area displays the job title "Assistant Research Scientist II, Grade 15, Job #670649". Below the title is a "Job description" section. The text describes the role as working closely with the Principal Investigator, involving various research studies, protocol management, data collection, data processing, and management. It specifies a Bachelor Degree in psychology, neuroscience, public health, or related field as a minimum, with a Master's Degree in clinical psychology or neuropsychology preferred. The description also mentions family with and academic interest in Clinical Neuropsychology, neuropsychological assessment/cognitive testing, HIV, HIV associated neurocognitive disorders, and technological approaches to cognitive assessment. Experience with quantitative data management and analysis is also noted.

Below the job description, there is a section titled "University of New York: Employees of the Research Foundation are not state employees. Do not participate in any state retirement systems, and do not receive state fringe benefits." This section lists "Excellent Benefits Package, Affirmative Action/Equal Opportunity" and "Anti-Harassment/Non-Discrimination Employer: EEO/AA/11 CFR 60-305.3(a) compliant." It also states that jobs will only be accepted through the website <http://www.corporate.uncf.org> and that applications will be accepted only during the posting dates listed in the job announcement. Contact information is provided as [hr@uncf.org](mailto:hr@uncf.org).

At the bottom of the page, there is a "Mentions" section with a table listing mentions of the job. The table has columns for "Mentions", "Date", and "Source". The table lists two mentions: "Greater New York City Area" and "Greater New York City Area".

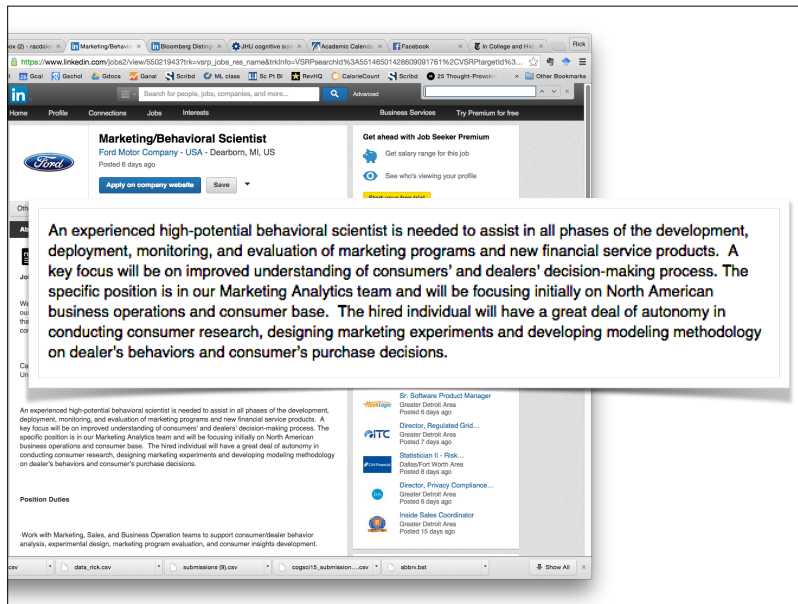
Working closely with the Principal Investigator, the Assistant Research Scientists will be involved with various research studies to assist in protocol management, data collection, data processing and management. Bachelor Degree in psychology, neuroscience, public health, or related field at a minimum. Master's Degree in clinical psychology or neuropsychology preferred.

# Neurosynth

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- The screenshot shows a web browser window with multiple tabs open. The active tab is the LinkedIn search results page for the term 'neurocognitive'. The page displays 201 results, sorted by relevance. The top three results are for 'Licensed Clinical Social Worker', 'Nurse Practitioner', and 'Psychiatrist'. Each result includes a profile picture, the job title, the company name, and the location. A 'View' button is next to each result. On the right side of the page, there is a 'Job Seeker Premium' badge and a circular icon with a salary range of '\$100,000 - \$130,000'. The bottom of the page shows the text 'Find the'.

# RT and Research Design

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- The screenshot shows a LinkedIn search results page for the query "psychological experiments". The page is displayed in a web browser with multiple tabs open at the top, including "LinkedIn", "Bloomberg Beta", "JHU together", "Academic Calendar", "Facebook", "U of T College and H...", and "Risk". The address bar shows the URL: "https://www.linkedin.com/search/results/psychological-experiments?sortBy=relevance&page=1&locationType=all". The search bar contains the text "psychological experiments". Below the search bar, the page is divided into sections for "All", "Jobs", and "Keywords". The "Jobs" section is active, showing 8 results for "psychological experiments". The results are sorted by "Relevance". The first result is for "Teacher, HCZ Promise Academy" in Harlem Children's Zone, dated April 4, 2019, with 3 people in the network. The second result is for "Senior Audio Human Factors Engineer - Devices Design" at Microsoft, dated May 18, 2019, with 427 people in the network. The third result is for "Pastor/Doctoral Scholar" at Laureate Institute for Brain Research, dated April 8, 2019, with 1 person in the network. The fourth result is for "Marketing/Behavioral Scientist" at Ford Motor Company, USA. On the right side of the page, there is a "Job Seeker Premium" button and a "Put LinkedIn to work for" logo.



# data

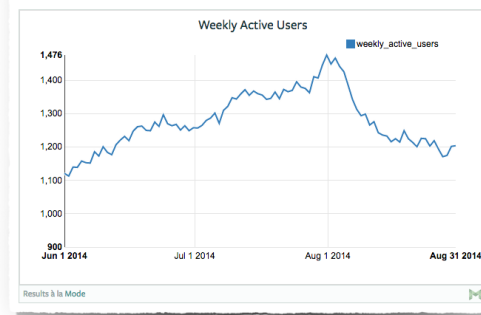
## An Example: Data Science

- An example analytics problem at Yammer (Microsoft-owned social network system for companies).



## The Problem

You show up to work Tuesday morning, September 2, 2014. The head of the Product team walks over to your desk and asks you what you think about the latest activity on the user engagement dashboards. You fire them up, and something immediately jumps out:



# The Data

Table 1: Users  
Table 2: Events  
Table 3: Email Events  
Table 4: Rollup Periods

Table 1: Users

This table includes one row per user, with descriptive information about that user's account.

This table name in Mode is tutorial.yammer\_users

**user\_id:** A unique ID per user. Can be joined to user\_id in either of the other tables.

**created\_at:** The time the user was created (first signed up)

**state:** The state of the user (active or pending)

**activated\_at:** The time the user was activated, if they are active

**company\_id:** The ID of the user's company

**language:** The chosen language of the user

# Hypotheses

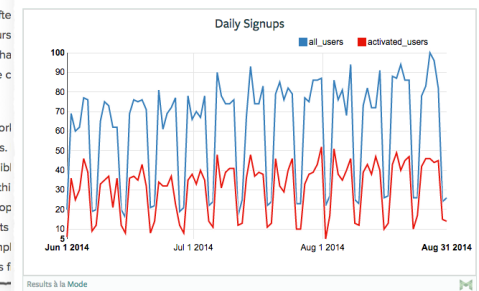
## A Drop In Engagement:

### Preparation and Prioritizing

Making hypotheses and evaluating them is often a problem. If you do this well, you can save yourself a lot of time through data. It's impossible to provide an exhaustive list of problems, but here are some things we can consider:

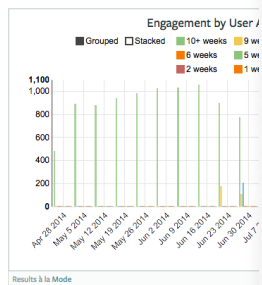
- Holiday:** It's likely that people using a word might engage at a lower rate on holidays. Lower engagement than others, it's possible.
- Broken feature:** It is possible that something is broken, and therefore impossible for people to pinpoint because different parts of the product show differently in the metrics. For example, if the sign-up flow broke, preventing new users from signing up.

1. One of the easiest things to check is growth, both because it's easy to measure and because most companies (Yammer included) track this closely already. In this case, you have to make it yourself, though. You'll notice that nothing has really changed about the growth rate — it continues to be high during the week, low on weekends:

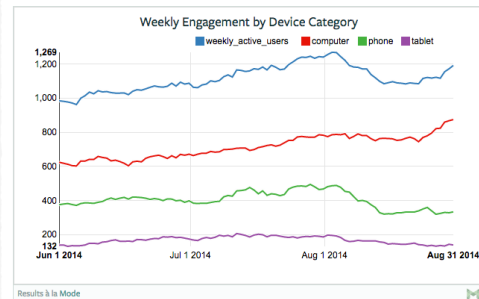


# Hypotheses

2. Since growth is normal, it's possible that the problem is localized to older users as opposed to new ones. This chart shows a decrease in engagement over time for users who signed up more than 10 weeks prior:

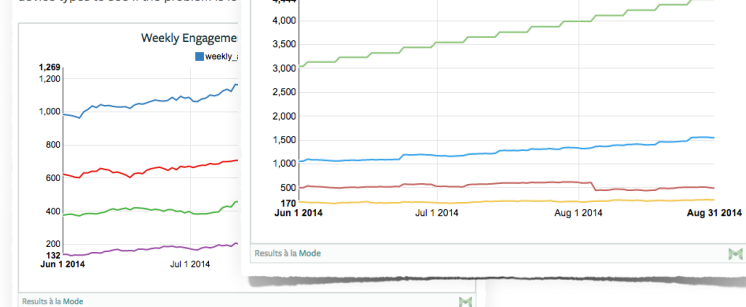


3. The understanding that the problem is localized to older users leads us to believe that the problem probably isn't related to a one-time spike from marketing traffic or something that is affecting new traffic to the site like being blocked or changing rank on search engines. Now let's take a look at various device types to see if the problem is localized to any particular product:



# Hypotheses

3. The understanding that the problem is localized to older users leads us to believe that the problem probably isn't related to a one-time spike from marketing traffic or something that is affecting new traffic to the site like being blocked or changing rank on search engines. Now let's take a look at various device types to see if the problem is localized to any particular product:



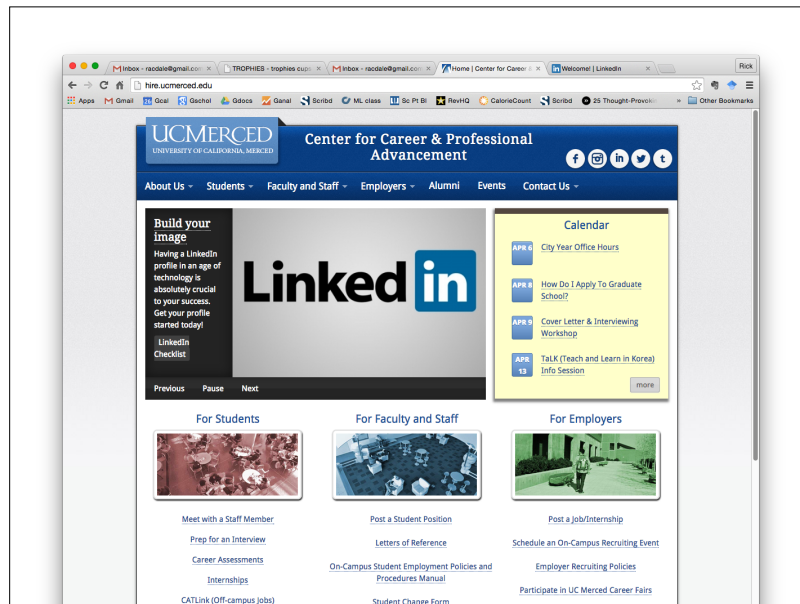
# Result

## Follow Through

After investigation, it appears that the problem has to do with mobile use and digest emails. The intended action here should be clear: notify the head of product (who approached you in the first place) that the problem is localized in these areas and that it's worth checking to make sure something isn't broken or poorly implemented. It's not clear from the data exactly what the problem is or how it should be solved, but the above work can save other teams a lot of time in figuring out where to look.

# CogSci All the Way

- These questions often orbited issues of human cognition:
  - Usability of an interface
  - Interest in the product
  - User access and product behavior
  - ...



# Final Paper

## COGS 105: Final Paper Grading Rubric and Guideline

Due Date: May 8th by 11:59pm.

**Summary:** For the final paper, summarize a simple research project using the tools you learned about in class and lab. Using one of these methods, you should design, run, and write about a study of your choosing. I am flexible about the topic of your study, but make sure to connect it to the methods we learned about in class and lab. If you are going to pursue a philosophical paper, you must include a robust background review that includes at least 4 citations to papers in cognitive science that are relevant to your paper.

### Basic Expectations:

- 4 (or more) pages of double-spaced text
- The format for this final paper is open. It may be a research paper based on your additional readings, or a small study you conduct using some of the class ideas/materials.
- Note: I am flexible, and will consider a variety of topics.
- Note: If you are going to pursue a philosophical paper, you must include a robust background review that includes at least 4 citations to papers in cognitive science that are relevant to your paper.

### Ideas:

- Build your own RT experiment
- Develop a thought experiment
- Conduct a linguistic analysis with LIWC
- Compare words in some interesting way with LSA
- Explore the brain with Neurosynth
- Use Google Ngram to explore cultural change or other historical patterns

### Grade Breakdown:

- Thesis (out of 5). Some questions I'll ask to evaluate this:
  - What is the point of your paper? Does it have a point? Is your thesis clearly expressed? What are you arguing? Does your thesis demonstrate some basic understanding of your topic? How relevant is the thesis to the course?
- Structure (out of 5). Some questions I'll ask to evaluate this:

## Next Time

- **Class canceled Tuesday!** I'll be at Stanford for a presentation with a Ph.D. student.
- **Lab next week:** You will work on something to help final paper plans.
- Another extra-credit posted (1-page preliminary final project idea).
- Thursday next week: **Shreya Gupta, UCM COGS B.S.** will discuss User Experience Design research!