

STA 130 Tutorial 4

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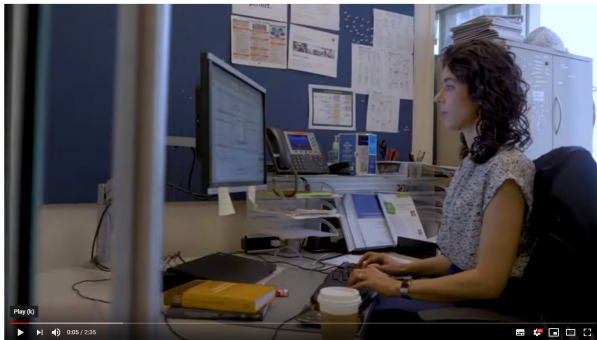
daveveitch.github.io

Feb 1, 2019

Agenda

- 1 Career Video
- 2 Tutorial Feedback Debrief
- 3 Example Abstracts
- 4 Vocabulary
- 5 Written Assignment

Day in the life of a data scientist at Chevron



Day in the Life: Data Scientist

52,455 views

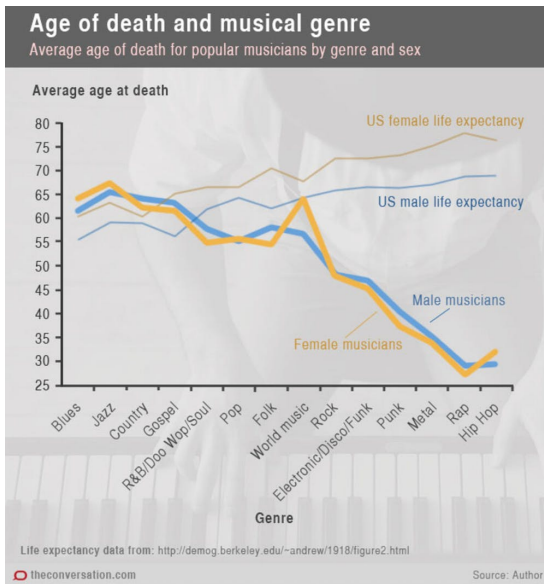
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https://www.youtube.com/watch?v=_Wk9T_G-u4o

What's Wrong With This Chart?



Tutorial Feedback Debrief

- Positives: atmosphere, Kahoot, socially interactive
- Negatives: writing assignment time limit, problem set work
- Other: so much R and writing

Five Critical Items for Communicating Your Work

- **Most importantly, your story should be clear, concise, cohesive, and complete! Like a real story, it should have a clear beginning, middle and end.**
- The purpose. What is it that you're studying? Why should we care about the analytical work you've done?
- A summary of the methods you used. What did you do? Why did you do it this way?
- A summary of the results. We don't need to know everything you found only the most critical things relating to your purpose! Remember, sometimes less is more!
- A conclusion. What is your take away message? Remember, a conclusion is not the place to present new findings.

Example Article Abstract 1

Based on a sample of 292 adults and children, screening personnel counted the number of decayed teeth, total teeth, and dental cavities (both filled and unfilled). On average, each individual had 4 decayed teeth. Half of adults had 27 or fewer teeth and 26% had an unfilled cavity. Participants had higher numbers of decayed teeth ($p < 0.0001$) and lower numbers of filled teeth ($p < 0.0001$) than expected. Amongst the people of Pine Ridge, our study documented a high prevalence of cavities, numerous people with missing teeth, and many unmet dental needs. Future studies of oral health related behaviors, and access to oral health care are needed to explain the dental, periodontal, and soft tissue problems that adversely affect the people of the Pine Ridge Indian Reservation.

Example Article Abstract 2

Study skills and students satisfaction with their performance positively affect their academic achievement. The current research was carried out to investigate the correlation of study skills with academic achievement among the medical and pharmacy students in 2013. This descriptive-analytical study was conducted on 148 students of basic medical sciences and pharmacy through convenience sampling. Data were collected by a valid and reliable questionnaire, consisting of two sections: Demographic information and questions about daily study hours, study skills in six domains, and students satisfaction with study skills. Collected data sets were analyzed by SPSS-16 software. In total, 10.9% of students were reported to have favorable study skills. The minimum score was found for preparation for examination domain. Also, a significantly positive correlation was observed between students study skills and their Grade Point Average (GPA) of previous term ($P=0.001$, $r=0.269$) and satisfaction with study skills ($P=0.001$, $r=0.493$). The findings indicated that students study skills need to be improved. Given the significant relationship between study skills and GPA, as an index of academic achievement, and satisfaction, it is necessary to promote the students study skills. These skills are suggested to be reinforced, with more emphasis on weaker domains.

Example Article Abstract 3

This study explored the pattern of video game usage and video game addiction among male college students and examined how video game addiction was related to expectations of college engagement, college grade point average (GPA), and on-campus drug and alcohol violations. Participants were 477 male, first year students at a liberal arts college. In the week before the start of classes, participants were given two surveys: one of expected college engagement, and the second of video game usage, including a measure of video game addiction. Results suggested that video game addiction is (a) negatively correlated with expected college engagement, (b) negatively correlated with college GPA, even when controlling for high school GPA, and (c) negatively correlated with drug and alcohol violations that occurred during the first year in college. Results are discussed in terms of implications for male students engagement and success in college, and in terms of the construct validity of video game addiction.

Kahoot Quiz

Log on at kahoot.it



P-Value Group Discussion 1

- 1 How do you interpret a p-value?
- 2 Does a low p-value mean that what you have found is statistically significant? Does this mean it is important?
- 3 Can a p-value be 0?
- 4 If you get a low p-value does that mean you accept the alternative hypothesis?
- 5 What threshold do we compare our p-value to? Why do we compare it to this threshold?
- 6 BONUS: For a normal distribution how are the p-values distributed?

P-Value Group Discussion 2

- 1 For Question 1, what would you expect to happen your p -value if you used 10 simulations versus 10,000 simulations? Explain.
- 2 For Question 1d, which one(s) are valid? Explain.

Written Assignment

Imagine you work as a business analyst for Coca Cola. Your CEO has asked you to deliver a summary of these new research findings (for question 1) by the end of the day. Its already 3:30 pm and its a Friday!

Remember, your CEO is a busy person. They only want the most important information and they dont want to read more than half a page of text. Use visuals to help get key points across, if you can. The CEO has only limited statistical background, so make sure everything is clear and makes sense! Remember to start with the purpose - your CEO is busy, they probably forgot what this was about! Also make sure to include a complete, but concise, summary of the methods, key results, and conclusion. You should also state how confident you in these research findings remember, youre the statistics expert and the CEO is counting on you to summary this research!