

Conclusion to *STAT* 121

Please note...

- Please fill out your student evaluations of the course (if you haven't done so already).
- Finals Week Open Lab Hours: 10-2 FSaMTW
- Review session by Dr. Heaton Thursday 12/12 10-11:30 in 1161 WVB
- Review session by Dr. Christensen Thursday 12/12 1-2:30 in 1102 JKB

What was in Stat 121?

1. Data Collection
2. Univariate Quantitative Data Analysis
3. Univariate Categorical Data Analysis
4. Analysis of Multiple Means
5. Analysis of Multiple Proportions
6. Simple Linear Regression
7. Multiple Linear Regression

Look at How Far You've Come...

Article

active learning
in higher education

The effects of social media usage on attention, motivation, and academic performance

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Look at How Far You've Come...

Table 2. Summary of moderated multiple regression analysis for variables predicting GPA ($N=616$).

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	3.22	0.02	136.24	0.000
Attention	0.020	0.003	7.48	0.000
MTUAS	-0.004	0.001	-2.50	0.012
MTUAS X attention	0.0001	0.0002	0.42	0.670

GPA: grade point average; MTUAS: Media and Technology Usage and Attitude Scale.

The second model considered the role of effort regulation in the relationship between social media usage and GPA. The findings differed from the first model that considered attention in one important way. When taking effort regulation into consideration, the relationship between social media usage and GPA was no longer significant. Greater effort regulation, however, was associated with higher reported GPAs. In other words, students who scored higher in effort regulation were more likely to have higher GPAs. See Table 3 for model statistics.

Table 3. Summary of moderated multiple regression analysis for variables predicting GPA ($N=627$).

	<i>B</i>	<i>SE</i>	<i>T</i>	<i>p</i>
Constant	3.22	0.02	139.46	0.000
Effort	0.048	0.005	9.80	0.000
MTUAS	-0.002	0.001	-1.52	0.127
MTUAS X effort	0.000	0.000	0.02	0.980

GPA: grade point average; MTUAS: Media and Technology Usage and Attitude Scale.

Statistical Problem Solving

1. Come up with a hypothesis or question you want to answer.
 - Identify: population & parameter
2. Appropriately gather data from the population
 - Tip: Use randomization
3. Explore the data
 - Determine variable types (categorical, quantitative), plot it (densities, bar plots, etc.),
 - determine a population model (how you are describing the population based on the what you found in the sample)

Statistical Problem Solving

4. Run an appropriate test

- Check to make sure your data can be used to make a conclusion about the population (assumptions)
- One mean; Two means; ANOVA; One proportion; Two proportions; Chi-square; Regression

5. Draw a conclusion about the population

What is Beyond 121?



Unanswered Questions from 121

1. From regression: what do we do if its nonlinear? Dependent? Not quantitative?
2. From ANOVA: what do we do if we don't have equal standard deviations? How can we correct for multiplicity?
3. Stuff we swept under the rug: What do we do with big data that can't fit on a laptop? How do we get really accurate predictions? What if we have very few observations (rare/extreme events)?
4. Data types we didn't even talk about: Text data, time series, multinomial, JSON, etc.

Skills in Statistics

- Methods for Extracting Information from Data (Stat 230, 330, 348, 486)
- Interacting with Data / Computing (Stat 250, 286)
- Understanding Probability and How to Calculate Probabilities for Events (Stat 240, Stat 340)
- Specializations:
 - Actuarial Science (Stat 274, etc.)
 - Biostatistics (Stat 437, 469)
 - Business Analytics (Stat 420, 421)
 - Machine Learning and Artificial Intelligence (Stat 348, 386, 486)

How about a Stat minor?

- Basic Computing Skills: STAT 250
- Basic Methods: STAT 230, STAT 330
- Data Visualization: STAT 281
- An Elective

Careers in Statistics and Data Science

1. Statistician (small-big data)
2. Data Scientist (medium to HUGE data)
3. Actuary
4. Database Administration
5. Biostatistician
6. Market Researcher
7. Business Analyst
8. Machine Learning Engineer
9. Artificial Intelligence
10. Epidemiologist

THANK YOU FOR A GREAT SEMESTER!