Final Exam Prep Session

- Exam and expectations
- A bit of summary and review
- Work through examples of
  - Two sample test for means or proportions
    - 3 different choices – means with z, means with t, proportions (sig. test only right?), plus other choices – review choices, only one full example
  - Nominal associations
    - Bivariate tables – won't really review here
    - Chi-square (sig. test)
    - Phi or Cramer's V and Lambda (assoc. test)
  - Ordinal Associations
    - Bivariate tables – won't really review here
    - Gamma (assoc. test)
    - Gamma (sig. test)
  - Interval-Ratio level variables
    - Scatterplots and the best fitting regression line
    - Pearson's r, r^2 (assoc.test)
    - Rho (sig. test)

Practice Questions set 1

- We have gathered information looking at 5 Canadian cities with different rates of economic growth. We are interested in the extent to which higher infrastructural quality might support higher economic growth. To that end, we also have information on the completeness, moderness and state of repair of city infrastructure, organized into a scale out of 25 with a higher score indicating higher quality of infrastructure.
- Here is the Raw data

City	Infrastructural quality	Economic Growth Rate (%)
1	9	0.05
2	10	0.76
3	17	3.2
4	21	6
5	14	1.8

- What is the predicted impact per unit increase in infrastructural quality on economic growth?
- What is the predicted rate of growth for the cities with the highest and lowest quality scores? What would the growth be for a perfect score?
- What is the strength of the association?
- By what percentage have we reduced our errors in predicting the dependent variable by including information on the independent?
- Is the relationship significant?

Practice Question 2

- A survey was given to a random sample of investors in 2 Canadian cities.
- Respondents were asked to score the city in terms of a variety of infrastructure related investment decisions.
  - The resulting investment infrastructure index is scored out of 80.
  - City 1 had 76 respondents and had a mean score of 62 with a standard deviation of 6. City 2 had 44 respondents and a mean score of 56 with a standard deviation of 8.
  - Does City 1 have a significantly higher investment infrastructure score than City 2?

Practice questions set 3

- Here we are looking at the amount of joblessness as it currently relates to the size of various Canadian cities. Our expectation is that since bigger cities are economically growing faster, they will have less joblessness than slower growing cities. We have a random sample of urban respondents from across Canada and have noted the population size, and the amount of joblessness in the cities they live in. Here are the results:

Amount of joblessness experienced by population size of city of residence				
	City size			
Joblessness	<50 000	50 to 99 999	100 000 plus	Total
low	185	345	555	1085
moderate	215	239	240	694
high	61	62	111	234
Total	461	646	906	2013

- What is the strength of the relationship?
- How much does having information on the independent improve our ability to predict the dependent?
- What can we say about the pattern and/or direction of the relationship?
- Is the association significant?
- You might be asked to chat about a bivariate table, calculate the appropriate percentages, and/or interpret some of these on the test – here we will skip to appropriate test of association and significance

Practice Questions set 4

- We are interested in the gendered experience of economic growth in a mid-sized Canadian city. We took a random sample of 286 working adults from the same city. Among other things, we measured their gender, and the increase in their total earnings since last year, organized into 'higher increase' and 'lower increase'. Of the 97 women, 56 fell into the lower category and 41 fell into the upper category. Of the 189 men, 67 of them fell into the lower category and 122 into the higher category.

- What can we say about the pattern and/or direction of this association?
- What is the strength of the association?
- By knowing gender we increase the accuracy of predicting size of earnings increase by how much?
- Is the relationship statistically significant?