

GEOSCIENCE EDUCATION SEMINAR
PROJECT 1

You are working as an evaluator for the Educational Innovations Corporation. They specialize in evaluative services for companies that want to improve the productivity of their employees. Your worker bees have gone and collected data using a survey that has proven validity and reliability with large populations. Your job is to; (1) organize the data in a meaningful way, (2) analyze the data via graphs and charts; (3) determine if the trends you are seeing are statistically significant according to your chosen statistical test; (4) submit a summative review to your client with graphs and easy to understand analyses.

There are 276 *Geoscience Surveys: Attitudes and Preconceptions about the Geosciences* that were completed in the Fall 2005 and have been scanned from 13 sections of Physical Geology Lab. Six GTAs collected the data in their labs. The attached survey has two options:

- a) Students can answer questions 1-25
- b) Students can answer questions 1-19, skip 20-25, answer 26-29

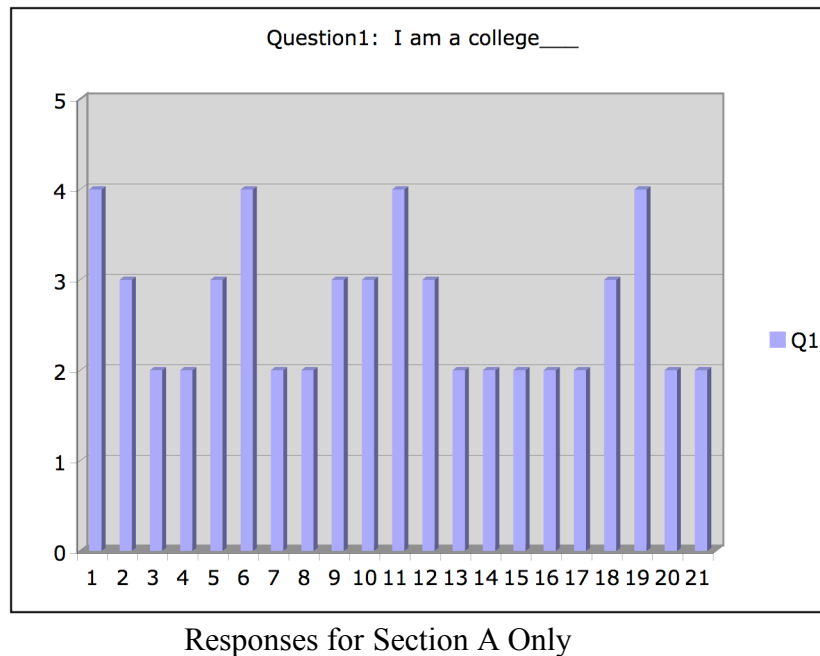
The reason we are conducting this survey is to learn more about our students in the introductory labs. We want to know their:

- Interests and background
- Attitudes and preconceptions
- Career interests
- Potential interest in a Geoscience Career

1) The first step in analyzing the data is to organize it in an excel spreadsheet (ss). The ss should have the question number across the x-axis and the student responses split into different sections along the y-axis.

	Q1	Q2	Q3	Q4
6132	4	4	3	5
2620	3	1	5	4
3810	2	3	4	4
7323	2	4	2	5
3985	3	4	1	3
8024	4	3	2	5
408	2	2	4	1
729	2	2	4	3
4584	3	2	3	4
9881	3	3	4	5

The next step is to generate graphs that can show trends in the data. For each question show the responses of each student in each section. You will end up with either 25 or 23 graphs that have the answer choices along the y-axis (strongly agree, agree, etc.) and the sections along the x-axis. Also make graphs that show cumulative responses across all the sections. What I mean by this is for question 1 what was the cumulative response from all the participants. This includes one graph for each question showing the summative responses. See example below.



After you have visually looked and analyzed your graphs you should make interpretations of the data. For example, Question # 13 revealed that most (give a %) students do not view a geoscience degree as a viable pre-law degree based on the data. This will take time, so leave enough time to analyze your graphs and make sense of what you are doing.

The last step in analyzing the data is to determine if there is a statistical significance to what you are seeing. Visually seeing patterns in graphs does not always translate to statistical significance. Depending on which test you learned about last week, apply this to your data. Excel will run all three tests (chi-square, t-test, Pearson correlation). It is up to you to decide how you want to correlate or compare your groups or find mean differences within them.

Write up a summative report on this survey.