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MATH 1040

Assignment 3

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Example 1:

**Hypothesis**: The legalization of medical marijuana will cause the number of recreational marijuana users to go up.

**Factors that could affect the response**: People that find Marijuana through other means like social interaction could possible skew the numbers. A possible way to account for this, could be to look at the rate that recreational marijuana use was increasing before the legalization of medical marijuana. Then subtract that number from the results of the test we preform when looking for the correlation between medial and recreational marijuana.

**Determine the number of Experimental Units**: As many as time and money will allow us. The more we can get, the more accurate our information will be.

**Control**: The average rate of marijuana users previous to the legalization of medical marijuana will be used as the control for this experiment.

**Experiment**: An initial survey will be given to a group of people to get a basis of past and current marijuana usage. The same survey will be given a period later (6 months, and then 12 months) and we will compare the increase of marijuana users to the rate at which it was increasing prior to the legalization of medical marijuana.

**Experiment 2**: Rather than just record non-use to full recreational use, we could also record data about people that use the medical marijuana and see where they end up as far as recreational use goes.

**Hypothesis Disproval:** The hypothesis could be disproved by finding data that could prove that the legalization of

Example 2:

**Hypothesis**: 20% of alcoholics drink 80% of alcohol.

**Factors that could affect the response**: The location where the data is being collected.

**Determine the number of Experimental Units**: A minimum of 20 locations that sell alcohol, and as many people that will comply with the collection of experiment data. A time frame of at least 1 month will be needed for this experiment.

**Experiment**: We will record information about how much liquor is purchased every time someone goes through the store. Once we have this collection of data, there are a few ways we could go about analyzing the data. A bar graph could show the amount of alcohol is purchased per person. Then we can randomly select people a group of people, and compare the amount of alcohol they have purchased vs the total amount sold. 4 people that each purchase 1 item and then 1 person that purchases 16 bottles could then prove the hypothesis.

**Hypothesis Disproval:** If people go in and purchase large amounts of data, but then then distribute it to other people at events such as parties. This would show that even though that 20% did purchase the larger amount of alcohol, it was given out to other people.

I really enjoyed Matt Fairbanks coming and presenting to us. His knowledge and experience is so valuable and it was interesting to hear his presentation. I did find it interesting, that at the beginning, he said he was going to give us a “full” 2 sided story as far as drug use goes.

By the time it was over, I felt like I got a very 1 sided story as far as drug use goes. I totally agree with everything he said, and I find it all very interesting, but I thought it was a little funny how 1 sided it was. Overall I enjoyed it and thought its application to Statistics was cool and I learned a lot.