5‐number summary

Anecdote

Bias/non‐bias

Blind

Blocking

Categorical variable

Control

Double Blind

Expected Values (Two‐way table)

Experiment

Mean

Median

Mode

Modified Boxplot

Observational Study

Observed Values

(Two‐way Table)

Outlier (Calculation)

Parameter

Placebo

Quantitative variable

Randomization

Range

Resistant (with respect to mean median and mode)

Sampling

Skew (left/Right)

SRS (Simple Random

Sampling)

Standard Deviation

Statistics

Survey

Treatment

Variability

**Know how to:**

• Draw a Stem‐and‐Leaf Plot (side – by – side)

• Draw a modified boxplot from the outlier calculation and five number summary)

• Know how to calculate Expected values in a Two‐way Table (R\*C/T)

• Know how to calculate conditional proportions

• Know how to draw a Bar graph from a two‐way table

Study the terms for experiments and surveying – etc.

Some Example of problems

The following is the ***Points For*** and ***Points Against*** for the AFC this season.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Points For** | | | | **Points Against** | | | |
| 94 | 80 | 46 | 67 | 100 | 59 | 64 | 51 |
| 86 | 40 | 55 | 37 | 35 | 47 | 58 | 53 |
| 32 | 24 | 44 | 38 | 29 | 90 | 48 | 23 |
| 57 | 56 | 53 | 71 | 82 | 80 | 72 | 26 |

1. Draw dotplots of these lists below.
2. Draw a stem-and-leaf plot
3. Comment on the distribution, outliers, center, spread, shape etc.

St Algebra College has a problem with attrition. A sizable number of non-graduating students do not return to classes each semester. Is attrition importantly related to race? There is a table below illustrating the attrition/retention of college students based on race.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Race | | | |
| **Attrition** | **White** | **Black** | **Other** |  | |
| **Returned in Spring** | 260 | 80 | 55 |  | |
| **Did not Return** | 85 | 26 | 26 |  | |
|  |  |  |  |  | |

1. Which variable would consider to be the explanatory variable, and which the response?
2. In the table above fill in the marginals and expected values, if the variables are independent
3. What proportion of Blacks did not returned in the spring?
4. What proportion of those that returned in the spring were white?
5. What proportion of students did not return in the spring?
6. Make a Segmented Bar graph of the table
7. Does St. Algebra College need to develop a plan to retain minority students (Explain using information from a and b to back your explanation)?