## 1 Investigating only ONE variable at a time

| | Graphical Procedures | Statistical Procedures |
|---|---|---|
| Continuous | Histogram<br><br>Boxplot<br><br>QQ Plot<br><br>Error Bar Chart<br><br>High-Low Chart | Descriptives<br>5-Point Summary<br>- N<br>- Mean<br>- SD<br>- Min<br>- Max<br><br>One Sample t-test<br><br>Median Test |
| Categorical | Bar Chart<br><br>Pie Chart | Frequency Table<br><br>Binomial Test<br><br>Chi-Square Goodness of Fit Test |

## 2 Investigating only TWO variables at a time

*One IV → One DV*

| | Graphical Procedures | Statistical Procedures |
|---|---|---|
| Continuous IV → Continuous DV | Scatter Plot | Pearson Correlation Coefficient<br><br>Spearman Correlation Coefficient |
| Categorical IV → Continuous DV | Clustered / Paneled Bar Charts | Pearson Chi-Square Crosstabs<br><br>Many families of other crosstabs tests |
| Categorical IV → Continuous DV | Side by Side Boxplots<br><br>Error Bar, and High-Low Charts<br><br>Pyramid Plots | Independent Samples t-test (2 groups)<br><br>Paired Samples t-test (2 groups)<br><br>One Way ANOVA (3+ groups)<br><br>Non-Parametric tests |
| Continuous IV → Categorical DV | Boxplots Laid Horizontally | Simple Regression:<br><br>- Binary Logistic<br><br>- Multinomial Logistic<br><br>- Ordinal Logistic (Proportional Odds) |

## 3 Investigating MANY Variables all at once

*Many IVs → One DV*

| | Graphical Procedures | Statistical Procedures |
|---|---|---|
| Continuous & Categorical IVs → Continuous DV | Scatter Plots with Markers<br><br>Clustered / Paneled Boxplots, Error Bar, and High-Low Charts<br><br>Interaction Line Plots | Multiple Linear Regression |
| Continuous & Categorical IVs → Categorical DV | Clustered / Paneled Bar Charts | Multiple Regression:<br><br>- Binary Logistic<br><br>- Multinomial Logistic<br><br>- Ordinal Logistic (Proportional Odds)<br><br>Poisson Regression<br><br>Other Generalized Linear Models |

## 4 Repeated Measures / Longitudinal / Clustered / Multilevel / Mixed Procedures

| | Graphical Procedures | Statistical Procedures |
|---|---|---|
| Continuous & Categorical IVs → Continuous DV | Lines Plot (Spaghetti Plot) | Repeated Measures ANOVA<br><br>Linear Mixed Models a.k.a. Hierarchical Linear Models (HLM) |
| Continuous & Categorical IVs → Categorical DV | Lines Plot (Spaghetti Plot)<br><br>*with jitter artificially added for better visualization* | General Estimating Equations (GEE) Models<br><br>Non-Linear Mixed Models |