# Topics from Stop Working & Start Thinking

## Convergent vs divergent science

## Selecting an appropriate measurement scale and precision level

## Hypothesis generation tips

## Implications of reducing the dimensions of a problem

## Prediction vs predilection

### Importance of disprovability

## “Deficit experiments”

## Testing the tests: “Protocol Experiments”

## “Retrodifction”

## Parameters vs Variables

## Bias

## Confounds

## Interpreting Variables: Finding meaning in measures

## Meaning of the word “Analysis”

## Sample and Population: Descriptive and inferential statistics

## Why do statistics?

## Sample size

## Random Sampling

### Inbred Mice as exceptions

## Sources of variance

### Measurement error/bias

### Hetorogenious populations

### Variable parameters

## What Power level will your audience care about?

### Depends on onquestion

## Be careful of historical data, because of clumping

## Double-blind

## Placebo effect

## Data transformation: normalization and rescaling

## Power analysis, pre-experimental

## Explicit inclusion of priors: Bayesian Thinking

## False Positives

## Null hypothesis issues, logical fallacies

## Issues with positive testing and statistical …

## Type I vs Type II Errors: weighing the costs of each

## Reductionisms

## Factors in Believability

### Consistency

### Status of authority

## Kinds of Experiments:

### Deficit Experiments

### Latin Square

### Result-Reversed

## Reporter Bias

## Zipf’s :aw

## Bernards’ Law

## Repeat measurements

### Reliability

### Bias

## Problems with respect for authority

## Proper Data Selection and Rejection Criteria

## Infertility Study: Guzick…Naus, 1994

## Asimov Dec 19944 quote

## Gigerenzen 2002