

**Links between Technical Terms and Course Components**

Here is that list of technical terms we have described. For each term, you need to know what it is and how it has been used in the readings and lectures. These notes just give some keywords to help you make the linkages of terms with usages.

Experiments and Observational Studies

(Intro by Moore, Gilbert murders, turkey emails)

Random Sample

(Intro by Moore, much more to come ...)

Probability

(sports leagues, cell phone fraud, reliability, weather forecasting, insurance, risky company portfolio, random walks, coin toss analogy)

Simulation

(see Probability above)

Probability Distribution and Data Distribution

(turkey mail, cell phone fraud)

Averages and Proportions

(random walk)

Averages and SDs

(insurance, sports leagues)

Histogram and Bar Chart

(turkey mail, cell phone fraud)

p-values and Hypothesis Tests

(Gilbert murders, cell phone fraud)

Random Walk

(weather forecasting, stock market prediction, illusions of randomness)

Time Series and Prediction

(see Random Walk above)

Reliability

(washing machines, Challenger disaster)

Interaction

(turkey mail)

Covariate

(turkey mail)

Smoothing and Moving Averages

(fuel consumption)

Normal Distribution

(risky company portfolio, insurance)

Theory of Sample Averages

(See Normal Distribution above)

Regression and Prediction

(turkey mail, weather, stock market, lecture about regression)

Residual Plot

(lecture about regression)

## Notes about Week 5 Schedule:

It was advertised as

“5. **Study Design.** Eddy & Smykla 211-226: The Last Frontier: Understanding the Human Mind. Weir 255-270: DNA Fingerprinting. Kahn & Roseman 373-390: Advertising as an Engineering Science. “

But we have less time because of midterm. I am deleting the Weir article “DNA Fingerprinting” as a course requirement (but am happy to discuss with anyone who has a particular interest in this.)

We have already discussed the Kahn & Roseman article (“turkey mail”)and will refer to it again.

The main reading for Week 5 is thus the Eddy & Smykla article: it is about an experiment to decipher MRI imaging of the brain during memory tasks, and it is a good discussion of a realistic study design problem.

Assignment for Week 5: Read the Eddy & Smykla article. (Nothing to hand in)

KLW(2010/02/01)