# Lec 11/18

Probability → Statistics

Sampling:     must be random

   Voluntary response   = Bad

   ↳     Simple random sample = Good

☆  Probability governs the random selection process

Data are random: $X_1, X_2, \ldots, X_n$ are RVs.

What's going on on avg, how much variability is there, How do the answers to those questions affect the behavior of the statistic(s).


Def:  Statistic - a function of the sample data: an RV.

[ $\bar{X}$ sample mean    $\bar{s}$ - sample std. dev.   $\hat{p}$ - sample probability

hence each statistic has a probability distribution.

Also - a numerical characteristic of the data.


Def:  parameter - numerical characteristic of the population.

constant, generally unknown.


4702 ( ch 11, 12, 13) - inferential procedures rooted in prob dists

of the statistic.