Big Idea: A statistic has a distribution.

Population \[\rightarrow\] Parameter \[\leftarrow\] Statistic

Sample

1. Two examples:
   (a) The median of a (silly) population produced in class.
   (b) The mean GPA of Calvin seniors in 2003.

2. We want to understand sampling error.

3. We put the above picture into a probability model.

4. What is a simple random sample?

5. What is a statistic?

6. What is a population?

7. What is a parameter?

8. The sampling distribution of a statistic.

9. The **BIG** problem: what is the sampling distribution?

**Homework - due Thursday, April 3, 2008**

1. Read Section 5.1.

2. Do problem 5.1.2.

**Useful R**

```r
> sr=read.csv('http://www.calvin.edu/~stob/data/sr.csv')
> names(sr)
[1] "SATM" "SATV" "ACT" "GPA"
> r=replicate(10000, mean( sample(sr$GPA,30,replace=F) ) )
> mean(r)
[1] 3.220603
```