

### Sampling Error vs. Non-sampling Error

↓  
mistakes made during sampling process

ex: voluntary response  
convenience sample  
undercoverage

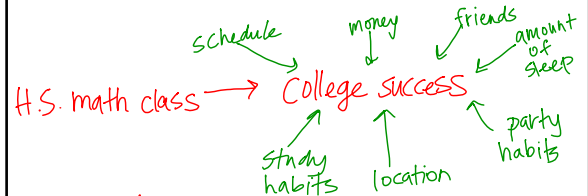
↓  
can hurt our data even if we took a census

ex: response bias

### 4.2a

Observational Study: observe individuals and collect data without imposing a treatment

Experiment: purposely imposing a treatment and measuring the response  
\*used to prove cause/effect



Confounding:  
When it is impossible to separate the effects of 2 variables

↳ we try to prevent this when conducting an experiment

### Basic Vocab of Experiments

Experimental Units: the individuals we experiment on (if they are humans, we call them subjects).

Treatment(s): the specific condition being applied to the individuals

Factor: the variable(s) that we are testing (like explanatory variable)