

# STAT 110

## Chapter 19 and 20 Definitions

simulation – using random digits from a table or from computer software to imitate chance behavior

- 1) Choose a reasonable probability model that will lead to the right sample space (often easiest to think of as a tree diagram)
- 2) Use random digits to simulate many repetitions quickly.
- 3) The proportion of repetitions for which an event occurs will eventually be close to its probability.

expected value – found by multiplying each outcome by its probability and then summing over all possible outcomes

possible outcomes:  $a_1, a_2, \dots, a_k$

probabilities:  $p_1, p_2, \dots, p_k$

**expected value** =  $a_1 p_1 + a_2 p_2 + \dots + a_k p_k$

law of large numbers - If a random phenomenon with numerical outcomes is repeated many times independently, the mean of the actually observed outcomes approaches the expected value.