1. Random process:
   (a) more than one possible outcome
   (b) which outcome will happen is uncertain
   (c) repeatable under “identical” conditions

2. Words: outcome, sample space, event, random variable

3. The probability of an event $E$ is the limit of the relative frequency of occurrence of $E$ as the process is repeated indefinitely.

   $$P(E) = \lim_{n \to \infty} \frac{\# \text{ of time } E \text{ occurs in first } n \text{ trials}}{n}$$

4. Probability models: simple and compound events

5. The binomial model
   (a) $n$ trials
   (b) Each trial has two possible outcomes (“success” and “failure”)
   (c) A constant probability $p$ of success on each trial
   (d) Trials independent one of another

6. R tools.
   - `dbinom(x,size,prob)` Probability of exactly $x$ successes
   - `pbinom(q,size,prob)` Probability of less than or equal to $q$ successes
   - `rbinom(k,size,prob)` select $k$ random trials of the binomial process

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