Tutorial

Permutation

- A *permutation* of n distinct elements x_1, x_2,…, x_n is an ordering of the n elements.
  - n!
- r-permutation: n!/r!

Combinations

- An *r-combination* of X is an **unordered selection of r elements of X** = $\{x_1, x_2, \ldots, x_n\}$, for $r \leq n$

$$C(n,r) = \frac{P(n,r)}{r!}$$

Discrete probability

- The probability P(E) of an equally likely event E from the finite sample space S is:
  - P(E) = |E| / |S|
  - where |X| is the number of elements in a finite set X.
- Conditional probability

$$P(B \mid A) = \frac{P(A \cap B)}{P(A)}.$$