Probability definitions

Crash course

- We can express the probability of some variable as:
  - $P(y)$: Read as the “**probability of y**"
- If the distribution of x depends on some parameters, we use the conditional probability:
  - $P(y \mid x)$: Read as the “**probability of y given x**”

Probability rules

- If two events, A and B, are **independent**:
  - $P(A \mid B) = P(A)$: If A and B are independent, the probability of A given B is just the probability of A.
- More generally, we have **the product rule**:
  - $P(AB) = P(A)P(B \mid A) = P(B)P(A \mid B)$

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