Uncertainty and Expected Value

#CMSC320 #probability_statistics #M1

Uncertainty

> ✎ **Definition**
>
> Uncertainty is the *error in predicted compared to observed* values of some event.

- Measures of uncertainty
    - Confidence, standard deviation, IQR, etc.
- High levels of uncertainty associated with greater variability in outcomes.

Expected Value

> ✎ **Definition**
>
> The *expected outcome* based on some *repeated trail* of a statistical experiment.

$$E[X] = \sum x_i p(x_i)$$

Note: the upper bound of the expected value sum is the number of all possible statistical outcomes