

Probability Theory

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Lecture 1: Intro to Probability

1 Basics of Probability

What data do you need to specify probability? You need the **set of all outcomes**, a list of everything that could possibly occur as a consequence, and the likelihood of each event.

Example. For a roll of a dice, the set of all outcomes would be $\{1, 2, 3, 4, 5, 6\}$. The list could include things like “the result is 3”, or “the result is ≥ 4 ”, and the likelihood would be $\frac{1}{6}$ for each of the results.

1.1 Basics of Set Theory

Definition 1. A **set** is an unordered collection of elements. **Elements** are objects within sets.