lecture 8

Experiment

process by which an observation or measurment is obtained

Deterministic (Non-Random)

outcomes can be predicted exactly

Examples: Physics and science F=m.a

Non-Deterministic (Random)

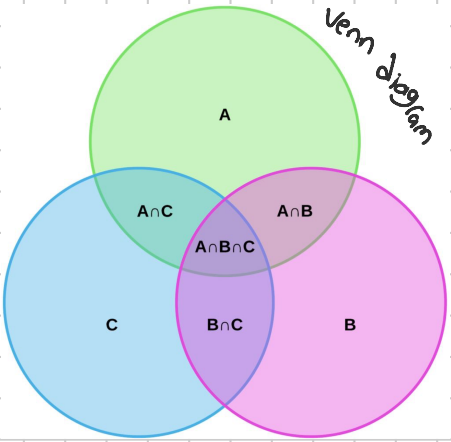
unable to predict the outcomes, or they are not known exactly

but we can describe the probability of the possible outcomes

Examples: Tossing a coin , Rolling a die

The sample space (S)

set of all possible outcomes (S or Ω)



The Event (E)

Types of Events

1. **Null ∅**
impossible event
Contains no outcomes

2. **Entire (S)**
Sure or certain
Contains all outcomes

3. **Simple event**
is the outcome the is observed on a single repitition of the experiment

4. **Compound event**
more than one simple event

Events Relations

Union	Intersection	Complement	Mutually Exlusive
$A \cup B$	$A \cap B$	A^c , $\bar{A}$	$P(A \cap B) = 0$

Key words to recognise which event relation you should perform

- or / at least one of → **Union**
- and / both events → **Intersection**
- not → **Complement**

Assigning Probabilities

- classical method (equally likely outcomes)
- Relative Frequency method (experimentation or historical data)
- Subjective method (Judgment)