MATH 262: PROBABILITY THEORY

IMPORTANT DEFINITIONS

EXPERIMENT: any action whose outcome is uncertain

e.g. flipping a coin, rolling a die,
does it rain today?

SAMPLE SPACE: The sample space of an experiment, denoted S, is the set of all possible outcomes of the experiment

e.g. coin flips: $S = \{H, T\}$

rolling a die: $S = \{1, 2, 3, 4, 5, 6\}$

EVENT: any collection (subset) of outcomes in the sample space

e.g. rolling a die — events include $\{1\}$ — 1 is rolled

simple event contains one outcome

$\{2, 4, 6\}$ — even number is rolled

compound event contains multiple outcomes

S is itself an event — "the sure event"

From set theory:

The **complement** of a set contains everything not in the set.

e.g. if $S = \{1, 2, 3, 4, 5, 6\}$ and $A = \{1, 3, 4\}$

complement of A: $A' = A^c = \{2, 5, 6\}$

$S' = \varnothing = \{\ \}$