

EE 497B

**Probability and Random Processes
for Electrical Engineers**

Lecture 7

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Lecture 7 Topics

- Independent Events
 - Two Independent Events
 - Three Independent Events
 - More Than Three Independent Events
- Sequential Experiments and Tree Diagrams

Independent Events

- Concept: Two distinct events, A and B, are *independent* if the fact that A occurs does not affect the probability of B occurring
- If two events, A and B, are independent, it follows that
 - $P[A|B] = P[AB] / P[B] = P[A]$
 - $P[B|A] = P[AB] / P[A] = P[B]$
- The last set of relationships require that
 - $P[AB] = P[A]P[B]$