

Legal Probabilism

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Key topics week #1 to week #6

1. Probability
 - (a) Sample space and probability model
 - (b) Axioms
 - (c) Conditional probability
 - (d) Interpretations of probability
 - (e) Bayes's theorem
 - (f) Odds version of Bayes's theorem
2. More probability
 - (a) Algebraic reasoning and proofs
 - (b) Inconsistency of events (lack of overlap)
 - (c) Probabilistic dependence of events
 - (d) Independence and the product rule
3. Applications of Bayes' theorem
 - (a) Medical diagnosis
 - (b) Collins
 - (c) DNA evidence
 - (d) Lucia de Berk
 - (e) Sally Clark
4. Probabilistic fallacies
 - (a) Inversion fallacy / prosecutor's fallacy
 - (b) Base rate fallacy
 - (c) Uniqueness fallacy
5. Types of evidence
 - (a) Identification evidence: feature matching, DNA, fingerprints
 - (b) Incredible coincidences
 - (c) Statistical generalizations and profiling
6. Tools for evidence evaluation versus decision-making
 - (a) Likelihood ratio
 - (b) Bayes theorem
 - (c) Probability threshold as decision criterion
 - (d) Expected utility theory
7. Where these topics are explained
 - (a) Stanford Encyclopedia Entry on 'Legal Probabilism'
 - (b) Look especially to sections 1.1, 1.2, 1.3, 2.1, 4.1, 4.2, 5.1, 5.2, 5.3