

Topics for Final Exam

SEAS 8510

One note sheet, front and back. I intend to allow Excel.

The following are likely test topics on the final. Items bolded are likely to be quantitative.

- Definition of probability
- Random variables and their types
- Sample Spaces
- Event Spaces
- **Set Theory**
- **Axioms of Probability**
- **Conditional Probability**
- **Multiplication Rule**
- **Bayes Theorem**
- Independence
- Naïve Bayes Classifiers
- Decision Trees
 - **Entropy**
 - **Information Gain**
 - **Gini Index**
- Random Forests
- Bagging
- **Discrete Distributions**
 - **PMF, CDF**
 - **Word problems possible**
- **Continuous Distributions**
 - **PDF, CDF**
 - **Word problems possible**
 - **Mean and variance**
 - **Rule of thumb for standard normal distribution**
 - **Calculation questions likely to be based on Uniform, Normal, Exponential**
 - Relationship between Gamma and Exponential Distributions
- **Value of the inverse distribution functions for parameters**
- Reading box plots
- **Covariance/Correlation**
- Null Hypothesis/Alternative Hypothesis
- Purpose of significance levels
- **P-value calculation examples from lectures**
- How to decide to accept or reject null hypotheses
- **T-tests**