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Grade policy: 65% examinations, 35% quizzes; failing grade: below 50% in either component  

Planned: 3 examinations (*no final*), frequent quizzes on class material, homework assignments (ungraded)  

**Projected course outline**  

I. Introductory Notions  
- probabilistic phenomena, relationship to experiments, intuitive notions  
- event, random variable  
- statistics, inference from limited data and outcomes of repeated experiments  
- random experiment, sample space, sample points  
- probability measures, probability axioms  

II. Conditional Probability  
- motivation, law of total probability, independence of events  
- Bayes’ theorem  
- application to reliability  

III. Random Variables & Transforms  
- distribution function, pmf, pdf (discrete/continuous random variables)  
- characterization, moments  
- jointly distributed random variables, covariance, independence  
- generation of pseudo-random variates for simulation experiments  
- sums of independent random variables, convolution  
- conditional moments  
- transform methods, moment generating function, generating function  
- sums of independent random variables  
- general inequalities and applications, bounds, application to design assessment  
- relative frequency and probability, law of large numbers, precision of measurements  

IV. Selected Probability Distributions & Applications, Statistics  
- discrete, continuous  
- negative exponential random variable  
- Gaussian random variable, Central Limit Theorem, precision of repeated measurements  
- applications in statistics, performance evaluation and reliability  

V. Elements of Stochastic Processes  
- basic notions, examples  
- counting, Poisson process  
- birth and death process, equilibrium, steady state  
- Markov chains, state classification, ergodicity, applications  

*The projected course outline is only an initial plan. The actual number, order and extent of subjects covered may vary depending on a number of factors including, but not limited to, class progress. Cheating and dishonesty are not considered acceptable.*