

MATH 323: PROBABILITY

SUMMER 2008

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Office Hours : Monday-Thursday 11:00-12:00

Textbook : *Mathematical Statistics with Applications* (6th Ed)
by DD Wackerly, W Mendenhall III and RL Scheaffer

Evaluation : Assignments, Mid Term, Final
See over

TARGET SYLLABUS

- The Kolmogorov Axioms, and basic consequent theorems.
- Probability spaces with equally likely outcomes.
- Conditional probability, independence, the law of total probability, Bayes' Theorem.
- Random variables.
- Discrete and continuous univariate distributions.
- Named distributions:
 - The discrete uniform,
 - hypergeometric,
 - binomial,
 - Poisson,
 - continuous uniform,
 - gamma,
 - exponential,
 - chi-square,
 - beta,
 - Normal.
- Transformations in one dimension.
- Moments.
- Moment generating functions: derivation and uses.
- Multivariate distributions:
 - marginal cdfs and pdfs,
 - conditional cdfs and pdfs,
 - conditional expectation.
- Independence of random variables.
- Covariance and correlation.
- Sums of random variables (mgf method and examples: uniform, Poisson, Normal, Chi-square).
- Markov's inequality.
- Chebychev's inequality.
- Definition of convergence in probability.
- The Weak Law of Large Numbers.
- The Central Limit Theorem and applications.

EVALUATION: DETAILS

Please note that the method of evaluation for this class will be **on the following basis only**:

Coursework Assignments	Weekly Beginning Monday 5th May 2008
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Mid-Term	1.5 hours Thursday 15th May 2008 In class
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Final	3 hours
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Final mark for course[‡]: the larger of

10 % Coursework + 30 % Mid-Term + 60 % Final

and

10 % Coursework + 90 % Final

NOTE:

‡ There will no opportunity for a make-up Mid-Term if this examination is missed, and no make-up work in place of any aspect of the course assessment.

ACADEMIC INTEGRITY

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April 29, 2008