Stat 400, Chapter 5 Summary ~ things you should know
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Important concepts:

double integrals

jointly distributed random variables, discrete and continuous

independence of jointly distributed random variables

arithmetic and algebraic combinations of jointly distributed random variables

    expected value of such combinations

covariance of jointly distributed random variables

correlation coefficient for jointly distributed random variables

sampling distribution

Central Limit Theorem

Be able to:

evaluate a double integral over a given rectangular region

given jointly distributed random variables

    construct a probability distribution for paired discrete random variables

    verify a joint probability density function for paired continuous random variables

    calculate probabilities for ordered pairs (x, y)

    determine marginal probability functions

    determine whether jointly distributed random variables are independent

given arithmetic/algebraic combinations of jointly distributed random variables, calculate expected value

calculate the covariance of jointly distributed random variables

determine the correlation coefficient for jointly distributed random variables

apply the central Limit Theorem to answer questions about probabilities involving a sample mean