

# Stat 400, Chapter 4 Summary ~ things you should know

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## Important concepts:

continuous random variables

probability density functions

cumulative distribution functions

expected value, variance and standard deviation

probability distributions:

- uniform probability distribution

- exponential probability distribution

- normal probability distribution

normal approximation to a binomial probability distribution,

Erlang probability distribution

## Be able to:

given a function, determine whether it could be a probability density function

given a continuous random variable, determine the probability density function

given a continuous random variable, determine the cumulative distribution function

given a probability density function, calculate probabilities

given a cumulative distribution function, calculate probabilities

calculate expected value, variance and standard deviation for a continuous random variable

for each of the probability distributions above,

- calculate probabilities

- calculate expected value, variance and standard deviation

given a normal probability distribution,

- find probabilities for a standard normal distribution using tables of values

- transform a non-standard normal distribution to a standard normal distribution and find probabilities

given a binomial probability distribution,

- determine whether a normal approximation to the binomial is appropriate

- use a continuity correction to approximate binomial probabilities with a standard normal distribution

recognize when an Erlang probability distribution is appropriate, and calculate probabilities