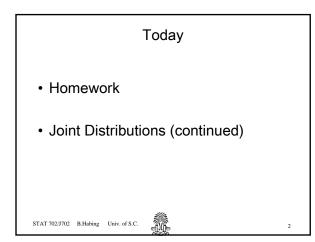
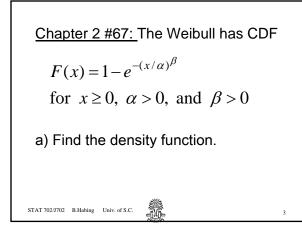
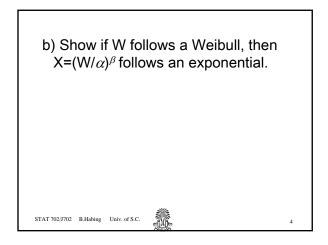
STAT 702/J702 October 5<sup>th</sup>, 2004 *-Lecture 14-*

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c) How could Weibull random variables be generated from a uniform random generator?

Also) Use R to plot the pdf for a few values of alpha and beta to demonstrate how they affect the behavior of the Weibull distribution.

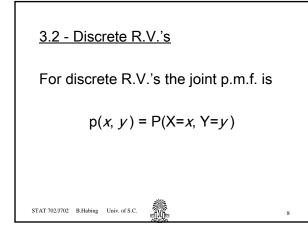
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Chapter 3 – Joint Distributions  
The joint behavior of two random  
variables X and Y is determined by  
there CDF:  

$$F_{XY}(x, y) = P(X \le x, Y \le y)$$

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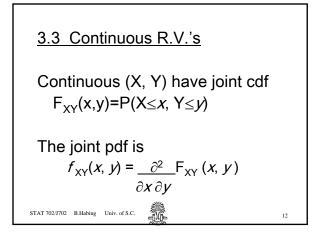
Example) A fair coin is tossed three times. Let X=number of heads in three tossings and Y= difference (in absolute values) between the number of heads and number of tails.

The Marginal p.m.f of X is  

$$p_X(x) = \sum_y p(x, y)$$
  
The Conditional p.m.f. of X is  
 $p_{X|Y}(x \mid y) = P(X=x \mid Y=y)$   
 $= P(X=x, Y=y) / P(Y=y)$   
 $= p_{XY}(x, y)/p_Y(y)$ 

X and Y are independent if  $F_{XY}(x, y) = F_X(x) F_X(y)$ This implies that  $p_{XY}(x, y) = p_X(x) p_Y(y)$ It also works for functions g(x) and h(y). STAT 702/J72 B.Habing Univ. of S.C.

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So  

$$F(x, y) = \int_{-\infty}^{x} \int_{-\infty}^{y} f(u, v) du dv$$
and  

$$P((x, y) \in A) = \iint_{A} f(x, y) dx dy$$
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