

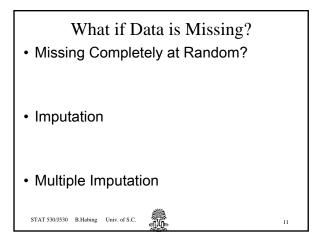


Regression in Terms of Matrices  $y_i = \beta_0 + \beta_1 x_i + \varepsilon_i$ 

Sample Correlation Matrix  
The Sample Correlation Matrix can be  
written as:  

$$\mathbf{R} = \mathbf{D}^{-\frac{1}{2}} \mathbf{S} \mathbf{D}^{-\frac{1}{2}}$$
Where D<sup>-1/2</sup> is the matrix with 1/*s*<sub>i</sub> on the  
diagonals.

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(Multivariate) Normal Distribution  

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{\frac{(x-\mu)^2}{2\sigma^2}} -\infty < x < \infty$$

$$f(x) = |2\pi\Sigma|^{-1/2} e^{-\frac{1}{2}((x-\mu)^T\Sigma^{-1}(x-\mu))}$$
STAT 530/530 B.Habing Univ. of S.C.