Stat 550 Virtual Whiteboard
Chapters 8 Regression

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$$E(Y|X=x) = \int y\, f(y|x)\, dy$$

$$\frac{f(x,y)}{f(x)} \quad \text{U} \quad \text{V}$$

Plug-in a KDE

$$\hat{f}(x,y) = \frac{1}{n}\sum_i K_h(x-x_i)\,K_h(y-y_i)$$

$$\hat{f}(x) = \int \quad " = \frac{1}{n}\sum_i K_h(x-x_i) \quad !!$$

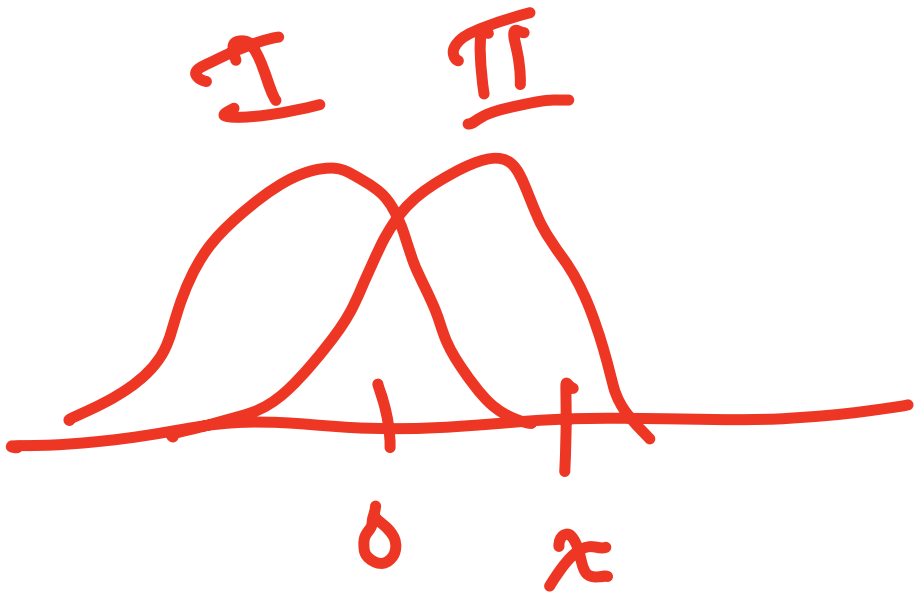
$$\int y\, K_h(y-y_i)\, dy = y_i \quad !!$$

$$\int_y \hat{f}(y|x)\,dy$$

$$\sum_{i=1}^{n} \frac{1}{h} K_h(x - x_i)\, y_i \Big/ \frac{1}{h} \sum_j K_h(x - x_j)$$

$$w_i$$

$$\sum w_i = ? \quad 1$$



$$\frac{f_{II}(x)}{f_I(x)} \quad \frac{e^{-\frac{1}{2}(x-\mu_2)^2}}{e^{-\frac{1}{2}(x-\mu_1)^2}}$$

log odds

$$= -\frac{1}{2}(x-\mu_2)^2 + \frac{1}{2}(x-\mu_1)^2$$

$$= \left.\begin{aligned} &-\tfrac{1}{2}x^2 + x\mu_2 - \tfrac{1}{2}\mu_2^2 \\ &+\tfrac{1}{2}x^2 - x\mu_1 + \tfrac{1}{2}\mu_1^2 \end{aligned}\right\} \times(\mu_2-\mu_1) - \tfrac{1}{2}(\mu_2-\mu_1)(\mu_2+\mu_1)$$