

Advanced Theory

Survival Analysis 2005

Problems for February 22, 2005

1) $h_F(t|F) = \exp(b_0 + b_1 F)$

Find the MLE for b_0 and b_1 and for $\text{variance}(\hat{b}_0)$, $\text{variance}(\hat{b}_1)$, and $\text{covariance}(\hat{b}_0, \hat{b}_1)$.

2) Prove:

If Y has a Weibull distribution then,

$$E[Y^r] = \lambda^{-r/\gamma} \Gamma(1 + r/\gamma)$$

For $\lambda = 1/3$, $\gamma = 2$, $a = 2$, and $b = 4$, find $E[Y]$, $\text{Variance}(Y)$, and $P(Y \geq b | Y \geq a)$