

ST552, Homework 6

Due Monday, Nov 4, 2013 (extended to Wed, Nov 6)

1. Show that, under the normal Gauss-Markov model $\mathbf{y} \sim N(\mathbf{X}\mathbf{b}, \sigma^2\mathbf{I})$, the least squares estimator $\mathbf{\Lambda}\hat{\mathbf{b}}$ of an estimable function $\mathbf{\Lambda}\mathbf{b}$ has the smallest variance among all unbiased estimators (MVUE) *directly*. (In class we showed it indirectly by showing that $\mathbf{\Lambda}\hat{\mathbf{b}}$ is a function of sufficient statistic.)
2. JM 6.8 (p152)
3. JM 6.9 (p152)
4. JM 6.10 (p152)
5. JM 6.24 (p154)
6. JM 6.25 (p155)