

ST 705 Linear models and variance components

Lab practice problem set 5

February 9, 2022

1. In lecture, we proved a lemma that $(X'X)^gX'$ is a generalized inverse of X .
 - (a) Verify that $X(X'X)^g$ is a generalized inverse of X' .
 - (b) We proved that $P_X := X(X'X)^gX'$ is the unique projection onto $\text{column}(X)$. Is $(X'X)^gX'$ the unique generalized inverse of X ?
2. Exercise 2.12 from Monahan.