

ST 705 Linear models and variance components

Lab practice problem set 8

March 9, 2022

1. Let A be an $n \times n$ matrix. Show that if A is positive-definite, then it must be symmetric. Construct a counter example if this statement is not true. Do not simply appeal to the Cholesky factorization. What is the contrapositive of this statement? Think about what this contrapositive statement means.
2. Prove that if a (symmetric) matrix is positive definite, then all of its eigenvalues are greater than zero.