Stat 860: Homework 2

Due on Tuesday, Sept. 18

Grace Wahba 4:00 PM

Elijah Bernstein-Cooper

September 17, 2014

Problem 1

1a

A positive definite matrix requires that the matrix is Hermitian and its eigenvalues are positive. Our problem is then reduced to, given positive definite matrices $\boldsymbol{A}$ and $\boldsymbol{B}$, show that the Kronecker product of the matrices is Hermitian and has positive eigenvalues.

Given $\boldsymbol{A} \in \mathbb{R}^{m,n}$ and $\boldsymbol{B} \in \mathbb{R}^{p,q}$, then $(\boldsymbol{A} \otimes \boldsymbol{B})^* = \boldsymbol{A}^* \otimes \boldsymbol{B}^*$

1b