BST 6200 Spatial Statistics and Disease Mapping

Homework 2

Due Wednesday March 4 at 5:00 pm

If possible, save your R Markdown file and email it to me. Make sure "BST 6200" is in the subject line. If this isn't possible, send me a PDF file by email, again with "BST 6200" in the subject line.

This homework assignment is really just a collection of problems, so there is no need to write it up as a report. Be sure your name is at the top of the file, whether it be an R Markdown or a PDF file.

1. Consider the bramblecanes data from class. For each of the three ages of bramble canes (0, 1, or 2) construct the following:
   a) a kernel density estimate and display it with a heat map (use trial and error to get an appropriate bin width)
   b) a hexagonal bin plot
   c) an estimate of the *K* function along with the envelope for testing CSR.

2. Consider the location of trees in the trees.csv data set given on Blackboard.
   a) Create a ppp object that has region [0,200] by [0,200].
   b) The tree diameters are given in the variable dia. Make a histogram for the tree diameters.
   c) Construct a kernel density and display it with a heat map.
   d) Display the kernel density with a set of contours.
   e) Estimate the *K* function and plot it along with the envelope for testing CSR.
   f) Consider only the trees with diameter less than or equal to 20. Repeat part (e).