Statistics 745

Assignment 5

1. **Individual Assignment:** Using the attached **R** code, implement the following with a basis function,

$$\hat{f}(x) = \sum_{m=1}^{M} h_m(x).$$

Put the results in a power point presentation and copy/paste a plot of:

   (a) Fit piecewise regression of an intercept.
   (b) Fit piecewise linear (discontinuous).
   (c) Fit linear (continuous).
   (d) Fit quadratic (continuous).
   (e) Fit cubic (continuous).

2. **Individual Assignment:** Using the attached **R** code, implement the natural spline function,

$$f(x) = \sum_{m=1}^{M} \beta_m h_m(x).$$

First compute it using xgrid between $[0, 2\pi]$. Then on a second plot compute it with xgrid between $[-\pi/2, 5\pi/2]$. Put both plots in a power point presentation.