Problem 8.6. You should do this problem using smoothing splines (section 5.4).

Using smoothing splines:

(a) You can use (8.21) to get an estimate of $\hat{\sigma}$.
(b) The Bayesian method will require you to use a large matrix $H$ (corresponding to the large number of smoothing spline basis elements).
(c) You can bootstrap 100 samples and repeat the procedure in (a) on each one.

Also try to (d) use cross-validation to estimate the error of the smoothing spline estimate in part (a), and also estimate this error using a bagging version of this estimator.

Please show your source code/commands as well as results.