

### Homework 3: Due Thursday March 7, 2019

1. Solve exercises 32.3, 32.4, 32.9, 32.10, 32.22.
2. This is example 32.5. Consider the case where the correct pdf  $f$  is the Normal(0, 1) density.

**Note:** In what follows, do NOT trust the values given in the book. We have established that there may be typos.

a) Compute the optimal bandwidth for a global estimate (e.g. see the formula at the beginning of section 32.10).

b) Generate a sample of size 500 and compute the MLCV bandwidth  $h^*$ . Repeat this 100 times and report the range of  $h^*$  from your simulations. Is the kernel estimator undersmoothing or oversmoothing?

c) Repeat part b) with samples of size 2000.