Codes for each problem are available at `https://github.com/kjoyce/inverse_problems/tree/master/homework04/codes`

1.

(a) Derive the formulas for the UPRE analogous to (3.18) for GCV. Add lines of code to `Deblur2dPeriodic.m` so that it implements UPRE.

(b) Derive the formulas for the DP analogous to (3.18) for GCV. Add lines of code to `Deblur2dPeriodic.m` so that it implements DP regularization parameter selection methods.

2. Modify `Deblur2DataDriven.m` so that the truncated Landweber iteration, introduced in Chapter 2, is used for solving the deblurring problem. Use the DP stopping rule, i.e. choose the first k such that $\|\boldsymbol{A}\boldsymbol{x}_{\boldsymbol{k}} - \boldsymbol{b}\|^2 \leq n^2\sigma^2$.