

## DATA130013: Homework 6

Due in class on May 10, 2018

1. Shumway's book (4th ed.) Problems 3.9, 3.12, and 3.14.
2. Use the notations in Definition 3.9 on page 99, show that both  $X_{t+h} - \hat{X}_{t+h}$  and  $X_t - \hat{X}_t$  are uncorrelated with  $\{X_{t+1}, \dots, X_{t+h-1}\}$ .
3. Read Appendix B1 about the basics for Hilbert space and the Projection theorem. Such geometric knowledge provides insightful ideas.