STATS 3005 Time Series III
Assignment 2
2018

Assignment 2 is due by 5pm on Friday 17th August 2018.

Assignments are to be submitted in the handin box on Level 6, Ingkarni Wardli

The data set `LakeHuron` contains annual measurements of the height in feet (one foot equals 12 inches) of Lake Huron in the North American Great Lakes region from 1875 to 1972. The data can be accessed in `R` by typing `data(LakeHuron)`.

1. Obtain a time series plot of the data.

2. Obtain the correlogram of the data and comment (with justification) on whether a white noise process would be a suitable model for the data.

3. Smooth the data using a three-point moving average filter and obtain a plot showing the raw and smoothed data.

4. Smooth the data twice using a three-point moving average filter and obtain a plot showing the raw and smoothed data.

5. Smooth the data using a five-point moving average filter and obtain a plot showing the raw and smoothed data.

6. Smooth the data using a smoothing spline and obtain a plot showing the raw and smoothed data.

7. Compare the effects of the different methods of smoothing on this series.

8. Calculate and plot the differenced series.

9. Obtain the correlogram of the differenced data and also a normal quantile plot. Comment (with justification) on whether Gaussian white noise is a reasonable model for the differenced series.

<div align="right">Assignment total: 20 marks</div>