

Assignment 4: Math 446/546

- This homework consists of TWO questions, carrying different marks.
- Please upload your answers and any required source code by the deadline listed on Blackboard.
- All questions are based on Lecture 5.

Question 1 [15]. Suppose that you compare a 3 parameter model with a 4 parameter model with AICs, -201 and -203 respectively. Using a likelihood ratio test, can you reject the null hypothesis, in favor of the smaller model, for the larger model at the 95% significance level? Provide all workings and state all assumptions clearly. Hint: You may use the Wilk's approximation.

Question 2 [15]. For the ARMA(2,1) model fitted to the Huron lake depth dataset (as demonstrated in class), estimate and contrast the 95% confidence interval of the MA(1) parameter using Fisher Information confidence interval estimation versus the profile likelihood method versus the bootstrap method.