

IE 5400 Healthcare Systems Modeling and Analysis
Assignment 02
Spring 2021

Instructor: *Chun-An Chou*

Due 02/13/2021

Question 1 (15%)

Exercise 2.13

Question 2 (15%)

Exercise 2.19

Question 3 (15%)

Exercise 2.26

Question 4 (15%)

Exercise 2.27

Question 5 (15%)

Exercise 2.30

Question 6 (25%)

To ensure service quality in emergence department, a hospital manager likes to have a strong truth about patient arrival pattern so that he can plan sufficient resources in advance. He is looking for an accurate forecast tool for patient arrival prediction. The historical data is given in the attached Excel file. The last 10 days are used for forecast model validation.

- (1) Plot ACF and PACF with lag $k = 1 - 20$. What do you observe from the historical patient arrivals, e.g, trend, seasonality, noise, etc?
- (2) Develop your forecast model $ARIMA(p, d, q)$. Elaborate your determination for the best settings.