Simulation Project

ENGSCI 355

Problem Description

Trump Hospital wants to your group simulate its General Medicine model so they can get an idea of variability around the ward numbers and how long patients wait before being transferred to wards. You have your historical data on arrival numbers (i.e., admission) and a previous project on General Medicine Length of Stay (LoS) shows that the time *in minutes* a patient stays in a ward follows a Gamma distribution with shape = 1.25180 and rate = 0.00039. Note that mean = shape / rate, so the mean LoS is 1.25180 / 0.00039 = 3210 mins (approx.) or 2.14 days.

Data

Use the excel worksheet *Trump_Data.xlsx* for historical arrival numbers. From these numbers you need to generate arrival times for each patient and then use the LoS distribution to determine when they are discharged.

Deliverables

- A group report of at most 5 A4 sides, detailing your conceptual model by the Thursday lab of week 9. Be sure to include the first 5 steps of CM Communication (from Simulation Lecture 2), i.e.,

    1. Background – problem description

    2. Objectives of the study

    3. Expected benefits

    4. The CM: inputs, outputs, content, assumptions, simplifications

    5. Experiments to run

    An "editor" version of the report is due in Lecture on Monday of week 8 (for aegrotat purposes, not marked, but used for evaluation purposes in the case that the editor does not sit the final exam). The editor for this report is the second member in the group list.

- A group report of at most 5 A4 sides, detailing your simulation model by the Monday lecture of week 12. Be sure to include any relevant data steps (i.e., how you used any data), a brief description of how you implemented your conceptual model, experiments that you ran and results, including how your group validated its model.
  An "editor" version of the report is due in Tuesday lab of week 11 (for aegrotat purposes, not marked, but used for evaluation purposes in the case that the editor does not sit the final exam). The editor(s) for this report is the third (and fourth) member(s) in the group list.

- An individual reflection of at most 1 A4 side, describing: how you worked as a group (i.e., what was your process); what went well; and what improvements you would make if you had to do it all again. This reflection is due by the Thu lab of week 12.