

## Discrete & Continuous Modelling • MACM202 • Lab Report for Week #6

- usual lab report format.
- due in the MACM202 box monday (evening) 16 february.
- be as quantitative & systematic as possible.

### Simulation Tips

- use the *save* and *load* commands to avoid reproducing data unnecessarily.
- change the random seed, but comparisons between Studies 1 and 2 will be easier if you use a common one for both.
- if you make code changes to the simulation script, be sure that you do not affect the data (system parameters excepted). Save backup versions.
- you may choose to do your data analysis with software other than Matlab (however, the TAs may be of less assistance in computing issues).

### Study #1

- page limit: 2 pages typeset + 1-2 pages annotated graphics.
- single queue with multiple servers.
- the point of this study is to produce statistics which quantify and contrast the two queueing systems.
- the obvious statistics involve the PDFs (with associated mean and variance) for the waiting time and queue length. These are quantities which focus on the clients.
- however, it is not hard to imagine what else might be important from the perspective of the servers or management. Choose some additional creative aspect to quantify, for comparison to your Study #2. Make it clear in your *Motivations* section what extra aspect of the queueing system you will be addressing.
- note the system parameters for this problem.
- section 6.5 of the text is useful for this study.

### Study #2

- page limit: 2 pages typeset + 1-2 page annotated graphics.
- multiple queues with multiple servers.
- for comparison purposes, produce the statistics which complement those you used in the first study.

### Comparison Summary

- page limit: 1 page + 1 page annotated graphics.
- what are the essential differences between these two queueing systems? Within the context of the idealized simulation what are the advantages of each? (For instance, physical space considerations or walking times of these queueing systems is not a relevant issue within our model.) Your family and friends should be able to understand the nature of these conclusions.