

15.763/ESD 269/1.274

Queuing modeling assignment – due April 8, 2005

In class we introduced a set of simple queuing models and illustrated their use with a small exercise to create a rough design of recovery area for the Boston marathon.

Your group assignment is to create a similar type of exercise, based on your own work or personal experiences or imagination. You should identify a system that is amenable to modeling as a queuing system. And then ***describe how you might apply one or more of the queuing models to a design study to inform one or more key design decisions***, such as the capacity, or layout, or operating protocol for the system. Finally ***illustrate the application of the models with some rough estimates of the actual system parameters*** (e.g., make a rough estimate of the arrival rate, service rate, etc.). You should ***do some calculations – but they can literally be back-of-the-envelope***.

The intent of the assignment is for you and your group to reflect on how you might apply these models to a rough-cut analysis of something of interest, and then to attempt to do so in a relatively simple setting. The expectation is that you pick a system that is not very complex, e.g., comparable to what we discussed in class or even simpler. For instance, the system might consist of one queue feeding multiple servers or two queues in series, say.

You should submit a short write up (maximum two pages) that describes the system and the design challenge; suggests a queuing model(s) to inform one or more key design decisions; and illustrates the application of the model with your rough estimates of the system parameters. Your report should briefly critique the utility of the model for this context.