

## Modeling Project #1

A pharmaceutical company is developing a new medication to be taken as a pill. The medication has effect when it is in the bloodstream of an individual. To be effective, the concentration of medication in the bloodstream must be above a certain level called the *therapeutic level*. Unwanted side effects or toxicity can occur if the medication concentration is above a higher level called the *toxic level*. The company must decide how frequently a specific dose must be taken to maintain the concentration at or above the therapeutic level. It also must decide the maximum number of consecutive doses that can be taken to keep the concentration below the toxic level. Develop and analyze a model to address these issues. Make your model general enough to handle this new medication and others that may be developed in the future.

You should analyze this situation and write a technical report as if you are a consultant who has been hired by the pharmaceutical company to make a recommendation. Assume the readers of the report have some technical background but have not analyzed this specific question. Since you have a deadline for this report, you should develop a model that is simple enough to give some results and complex enough to give meaningful results. Your report can include comments on the strengths and weaknesses of your model and suggestions for improving the model.

This project is due on Wednesday, October 4.