BMENE4000 Drug and Gene Delivery

Due Sept 20, 2016 Tuesday, 10 pm

Assignment 1

A continuous, steady release of drugs from a controlled release device may not be the ideal in some therapeutic situations. A responsive delivery system, where the drug is released according to some stimulus, such as an increase in blood glucose level, would be the most desirable. However, that is challenging and typically would require a feedback control. For this assignment, describe something simpler, a pulsatile delivery system, where the drug can be released in discrete bolus(es) at different times. Please see diagram on the right. The “off” period need not be perfectly zero release.

Describe one drug carrier design that can achieve such pulsatile release. First describe briefly three systems you have examined, then explain your rationale for choosing the one for this assignment. Review the innovations and strength of this system. If possible, point out the deficiency and suggest improvement. Use no more than one page, excluding figures or tables, and cite the references for the three drug delivery systems you have looked at. Attach the manuscript, only one, for the best system you are describing in this assignment.

In addition, for students with a last name of A to L, separately create a powerpoint file, using TWO slides only, to make your point why the chosen system is interesting. Learn to present your idea in a concise and convincing manner. More does not mean better—relevant does.

Tip: Don’t just pick the first paper you come across. The quality of the example you pick reflects your critical understanding of the concept. There may not be enough recent examples, and you are allowed to pick from examples published 2006 onward.

Observe the following requirements:

1. For the Word file, use 1-inch page margins throughout and use font 12. Put your name in the page margin.

2. For the powerpoint file, put your name in the upper right corner of the first slide.

3. Upload the word document, powerpoint file, and one cited PDF manuscript to the course website.

4. Submit by the deadline unless with permission.