

**Math and Medicine: Homework Assignment 9**  
**Due on November 3**

1. Write up a project update describing your recent efforts on your class project. This should (at least!) include your finalized topic, a list of references, and mathematical methods/tools that you expect to use. Turn in a copy in class, and also bring a copy to your individual meetings with Greg (or email him a copy ahead of time).
2. **Extra Credit:**
  - a. Adjust parameters in the Matlab code LIF\_coupled.m and LIF2D\_eiNetwork.m to find interesting spiking behavior (Matlab can be accessed in the computer lab found in LCB 115, and those in the library). For example, by varying the applied current entering cells 1 and 2 independently, can you make cell 2 fire twice as often as cell 1? For the full network, what are some of the changes you notice between an all-to-all coupling scheme, and a sparse connection scheme? Include a printout of the graphs created by the programs.
  - b. Elaborate on some of the topics we discussed in class that would make this a more realistic model capable of being used in understanding DBS.