**Computational problem part 2. Due Friday, April 16**

Consider the bare semi-infinite slab reactor, again. Assume that the reactor is 1 meter thick. The reactor is again fueled with 5% enriched uranium metal and cooled with water. The fuel and coolant are in a 50/50 volume ratio within the core. You will assume that only the isotopes in the rx\_data.py file will be inside the reaction. You will need to add a lumped fission product term but assume that it has no affect on the behavior of the reactor. Assume the core is initially operating at 1MW/m3.

If you were unable to complete the last homework, assume a cosine distribution for the flux, with the flux going to zero at the edges.

1. Hand draw a flow chart for how the code will need to progress. This is an especially important first step.
2. Using the attached coupling.py and burnup.py code files, implement your own transmutation matrix and transmutation matrix solver to push the code forward in time.
3. Plot the number density of each isotope in the core.
4. Plot the criticality of the core over time.