Chemical Kinetics: Special Topics

Chemistry 126

There are three optional assignments. Read this entire page before starting.

Do only one of the options for full credit. Select only ONE option.

OPTION 1

Imagine a manufacturing plant of your design producing a gadget, vehicle, or whatever you want to make the story interesting. Describe how this plant functions, and outline a few specific steps of the *mechanism* of the process, including an explanation of the terms *reversible*, *irreversible*, and *rate-determining* steps. Explain (at a level any 4^{th} grader could understand) the terms *steady state*, *catalyst*, and *product inhibition*. Define the term *rate of reaction* in terms of specific parts require for assembly and a specific *overall equation* for the manufacturing process. Bring into the story adequate descriptions of the action and or attitude of the employees that serve to illustrate the action of molecules in actual chemical reactions.

OPTION 2

Come to the showing of the movie *The Day the Earth Stood Still* (1951, B/W, 70 minutes). All students and "friends" of Chemistry 126 are welcome. For credit you will need to sign in for attendance and also write a short analysis of the movie (no more than one page) in relation to its relevance both historically (in the context of the cold war) and in the politics of the contemporary world. In your discussion, bring in the concepts *reversible*, *irreversible*, and *rate-determining* steps, *steady state*, *catalyst*, and *product inhibition* in a political context. **(Please feel free to join us for popcorn and soda at the movie even if you decide to turn in one of the other two optional assignments.)**

OPTION 3

Write a short thoughtful essay (1-2 pages) in response to the following statements: All of what we have been learning this semester is based on the tenet that simple probability and "mindless" chance underlie all processes, both living and nonliving. Evolution is simply a natural extension of the probability of chemical reactions on a grand scale; life does not in any way violate the Second Law of Thermodynamics. Does God play dice? Briefly discuss how what you have learned this semester in Chemistry 126 relates to your own personal religious or philosophical perspective.