**Pre-lab discussion questions**

**Discussion Question Goals:** To ensure that all students are prepared for and understand the day’s experiments and how they fit with the overall goals of the lab series.

**Pre-lab Discussion Question Instructions:** Please make a copy of this document, review the lab manual, and ***independently*** answer the following questions using resources available from lab and/or lecture. Submit a .doc/.docx or .pdf version of your answers to the Pre-lab Discussion Question Assignment on Sakai before the start of lab.

**In-lab Discussion Question Instructions:** In groups of 3-4 students, please 1) share your individual answers to each question, 2) reflect on any differences between answers, and 3) synthesize your thoughts and develop final answers. Your group will then submit a paper version of the questions and answers to your instructor.

**Grading**: Each student will earn 1 point for independently completing and submitting the assignment prior to the start of lab, and the group will earn up to 2 additional points for your in-lab answers, based on the accuracy and completeness of your answers. Thus, each pre-lab discussion questions assignment is worth 3 points total. If you do not submit your individual answers before class, or do not arrive to class at the start of the time for discussion, you will not be eligible to earn any points for that week.

**Discussion Questions**

Name(s):

1. [question omitted, as it related to analysis of previous week’s experiments]
2. You test the activity of an enzyme in the presence or absence of a chemical X. You determine that when X is present, the Km of the enzyme remains the same, but the Vmax changes. You predict that chemical X is acting via:
   1. Noncompetitive inhibition
   2. Competitive inhibition
   3. Uncompetitive inhibition
   4. Mixed inhibition
3. The Michaelis-Menten plot and Lineweaver-Burk plot are two different graphical representations of the same data.
   1. Draw a representative graph with properly labeled axes for each of the different types of plots. Label Vmax and Km on each of your graphs.
   2. Which of these graphs will allow you to definitively calculate the Km? Explain why.
4. Complete an anonymous survey to help assess effectiveness of the LEGO model of enzyme activity conducted at the end of Lab 4. We will discuss conclusions and caveats from this activity at the beginning of lab 5.