Exam 1.
Answers to be e-mail to nazareay@buffalostate.edu before Thursday, March 12.

Pharmacokinetics.

1. Frequently one may need to estimate a likely dose taken some hours previously to a measured drug concentration. This can be calculated if a reasonable estimate of half-life is available:

\[ C_x = C_{measured} \times \exp \left( \frac{0.693 \times time}{half \_life} \right) \]

where \( C_x \) is the concentration at (time) hours before the measurement.

Show this equation is correct. List some of possible limitations.

2. For alcohol, this equation does not apply since ethanol elimination is for the most part zero-order. Using Michaelis-Menten equation, explain why?

3. Drugs with high octanol-water partition coefficients generally have high volumes of distribution. Explain, using the appropriate equations.

Sampling

1. Anticoagulants: why they are necessary in blood test? Suggest an example of wrong results if an unsuitable anticoagulant was used for the blood test.

2. How it is possible to separate aspirin (pK = 3.5) and cocaine (pK= 8.6) using liquid-liquid of solid phase extraction?

3. Show an example of “inorganic “ poison determination, in which speciation is necessary and total amount(concentration) of the element in the sample is not sufficient.