

Meeting: 1003, Atlanta, Georgia, MAA CP S1, MAA Session on Meeting the Challenge: Relationship Between Mathematics and Biology in the 21st Century

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Student Projects Using the Mathematical Models of Pharmacokinetics.

How much medication should a patient take and how often should he take it to achieve and maintain effective concentrations of the drug in his body? This presentation will discuss projects from an introductory calculus class that have students discover and use the mathematical models used in pharmacokinetics. The projects explore how the models change depending on the how the drugs are administered (single IV dose, IV drip or oral doses) and what happens to the concentrations as doses are given repeatedly. Students combine and apply their knowledge of exponential functions, extreme points, and geometric series to complete the projects. An introduction to some pharmacological terminology will be given to help understand the mathematical models being used. (Received September 09, 2004)