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Abstract: This paper introduces new and old features of the SAS System for the estimation and simulation of systems of first-order differential equations with emphasis on examples in kinetics. In the pharmaceutical industry, estimation and simulation are used to aid research of the flow of drugs through various compartments in the body and to help understand drug interactions within a body compartment, that is, organs, tissue, and blood. The models for these two problems are normally expressed as systems of differential equations. New features in the MODEL procedure allow for easy expression of these models. Applications of these new tools to other fields are briefly discussed. The SAS procedures discussed include PROC MODEL and PROC IML.