Introduction to Volume 9 Issue 1

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Forward

In this issue, Chen presents an approach using Berkeley Madonna to help students explore chemical kinetics problems. He presents the nature of the approach used to model several different chemical systems and the exercises that were created for students. He then describes the implementation of the approach in several classes, comparing the results from using Berkeley Madonna with earlier approaches using spreadsheets and Vensim.

Hirst describes the use of systems modeling approaches used in several classes and also used with faculty who attended summer workshops. She summarizes the reactions of each of the different audiences to the use of systems models to solve problems. She also provides a number of example problems that were used in the various settings.

Ruggiero, Zhao, and Ford Versypt developed a final project assignment for an interdisciplinary applied numerical computing upper division and graduate elective related to the solution of ordinary differential equations. Students used MATLAB to build and test a graphical user interface for solving ODE's. The overall design of the assignment is reviewed along with the verification case.

Finally, Kopenhafer and O'Shea describe the results of a student modeling project testing several star formation models. Results using the modeling code Enzo to compare various approaches to modeling this system. Kopenhafer then summarizes the impact of the work on her baccalaureate program and beyond.