

Introduction to Volume 5 Issue 1

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Forward

The articles in this issue of the Journal of Computational Science Education touch on an array of approaches to learning both computational techniques and science concepts. They present examples that teach concepts using workstation environments and using parallel computing architectures.

The article by Winfield et. al. discusses the use of several tools associated with computer aided drug design and how they were integrated into the undergraduate curriculum. They describe the software they used and the case study assignment. They then provide data on the learning outcomes associated with the course.

Joiner and Walters provide a description of a new version of GalaxSeeHPC that can be used for large scale galactic dynamics simulations. After reviewing the technical changes in the software, they outline results of several example simulations and scenarios for students to investigate the structure of galaxies.

Akman provides a framework for introducing the use of genetic algorithms for teaching concepts in regression analysis and optimization of regression models. He presents an Excel macro that can be used as a teaching tool to demonstrate the how the genetic algorithm can be used to arrive at an approximation of the best solution to a multiple linear regression problem.

Finally, Dillon, Anderson-Herzog, and Brown discuss the pros and cons of using visual programming environments for teaching introductory programming skills. They compare the trade-off between the easier learning curve in such an environment with the possibility of misconceptions about the steps required to program, compile, and execute a program in a command line environment.