

Graphical User Interfaces as Chemical Engineering Educational Tools in University and Informal Learning Environments



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<https://tinyurl.com/FordVersyptGUIs>

Introduction

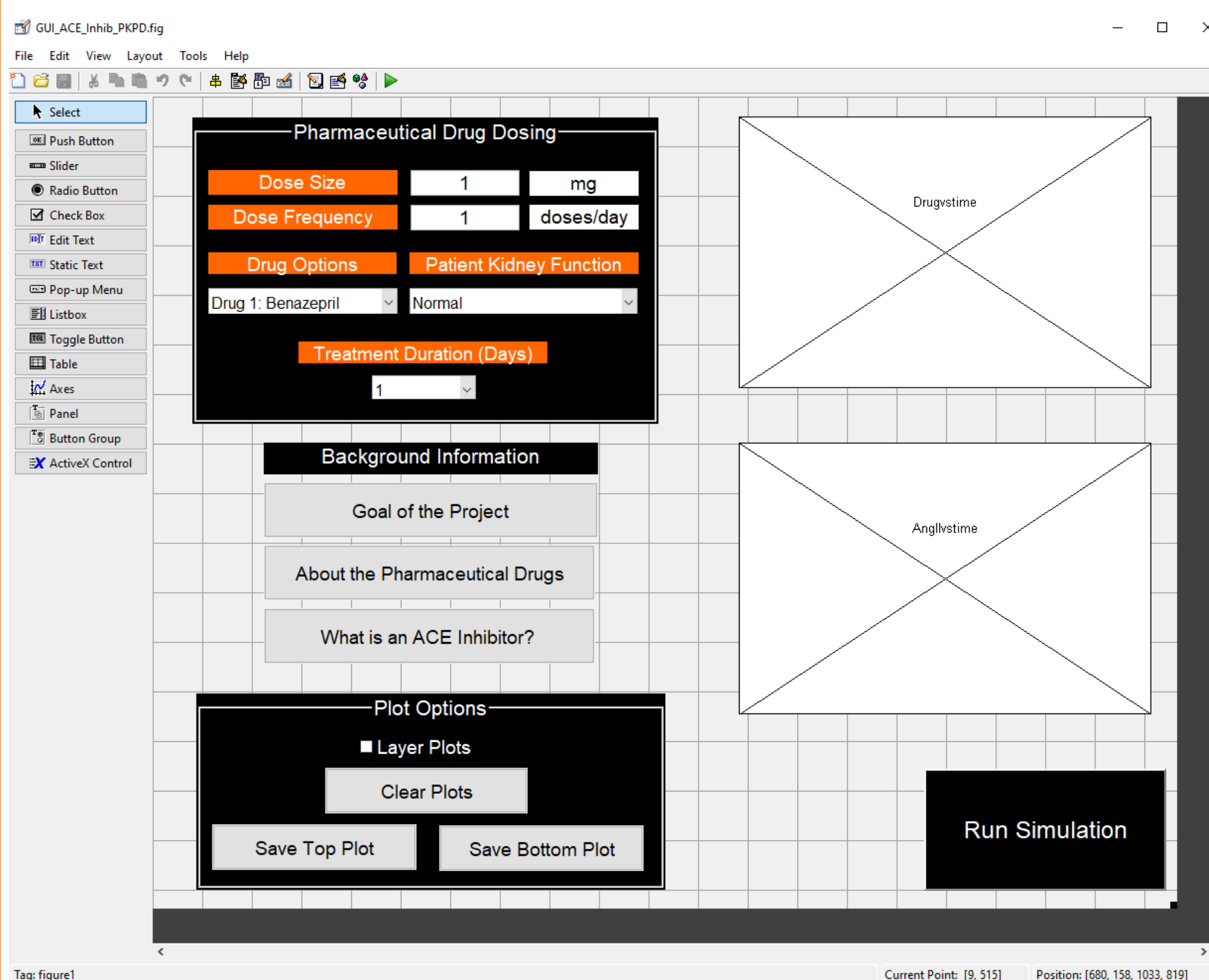
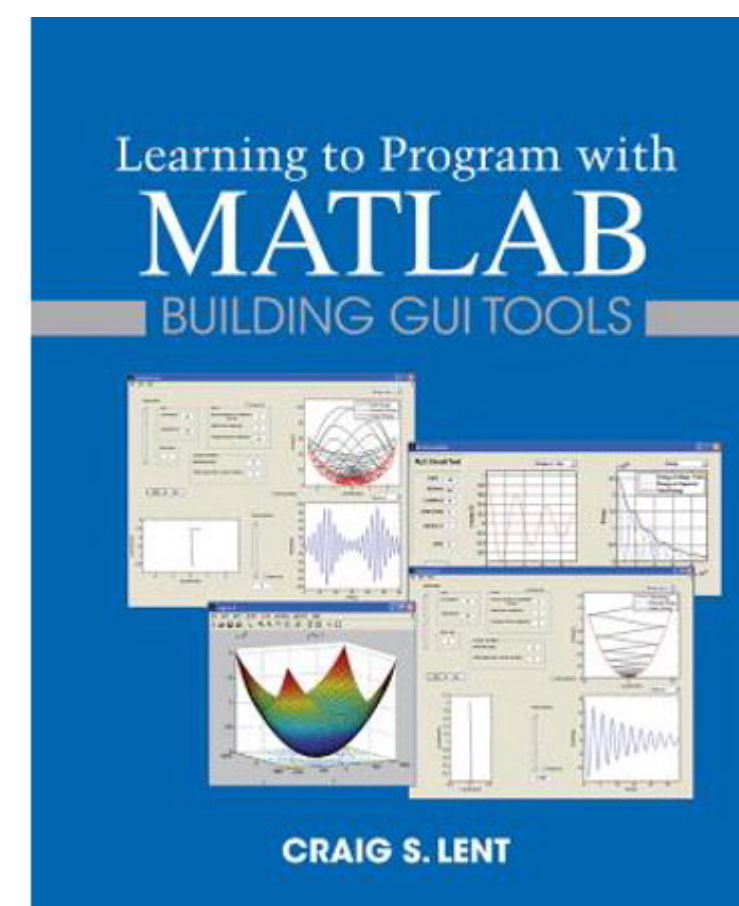
Graphical User Interfaces (GUIs)

- A GUI encapsulates computational software within a visual environment
- Users provide interactive input or point-and-click controls to a GUI
- GUIs display query or simulation results through an automated process without requiring use of a command line interface

Tools for Making GUIs

MATLAB

- GUIDE is a GUI for building GUIs that generates editable template code
- Can package GUIs into MATLAB apps and standalone executables



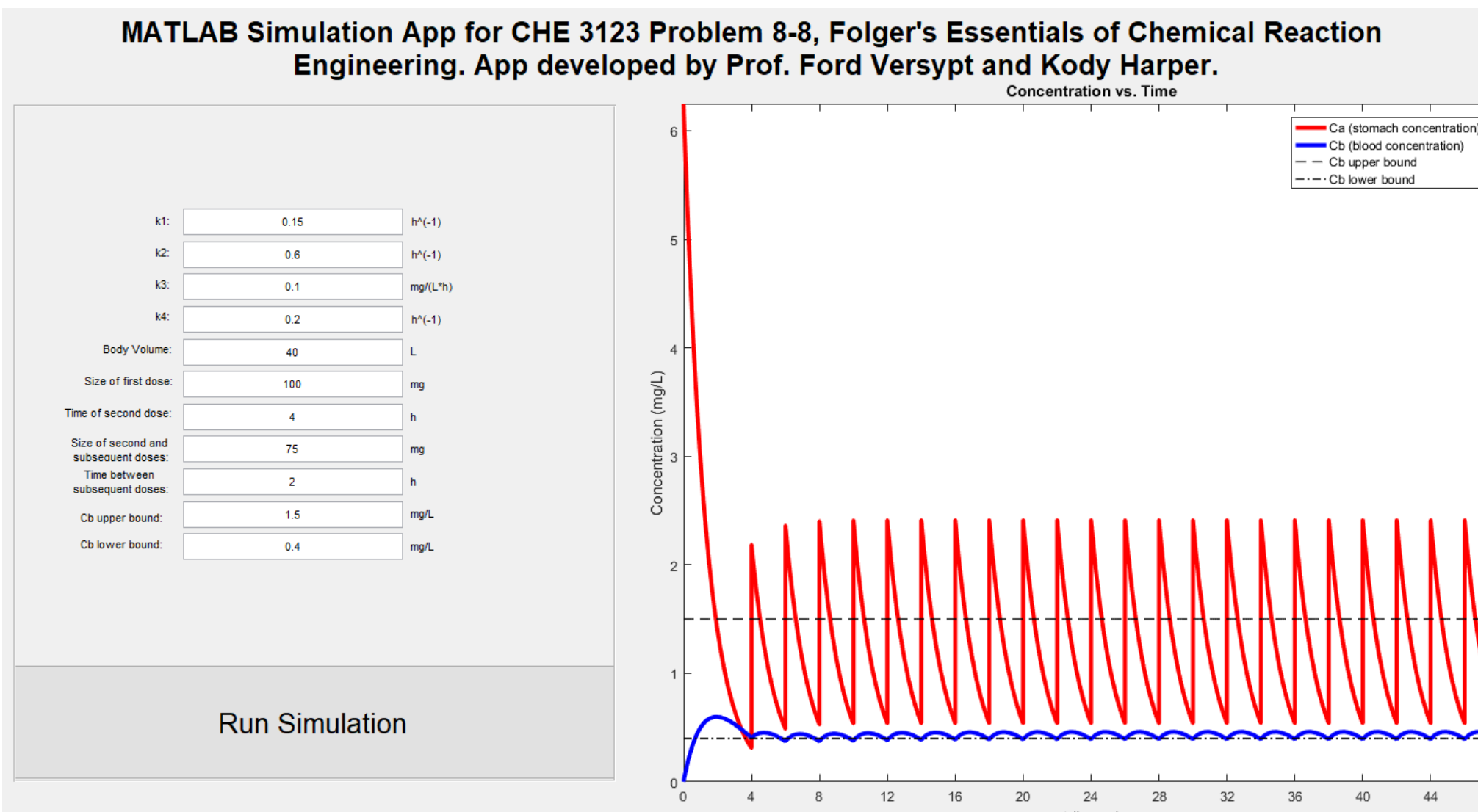
Python

- PyQt5 is one of several library options for GUI development in Python
- Qt Creator is a development environment for PyQt
- More object-oriented than MATLAB

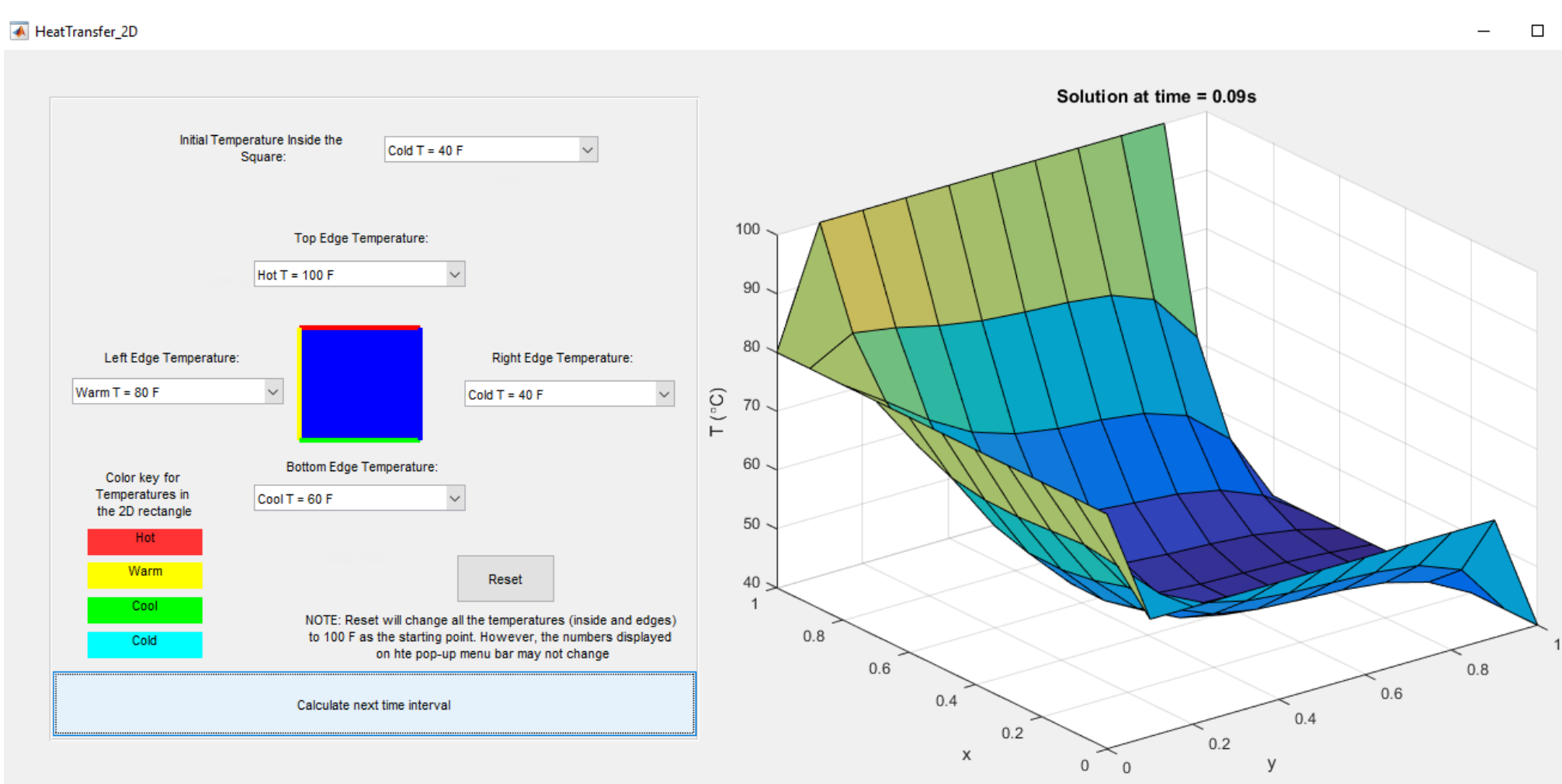


University Classroom GUIs

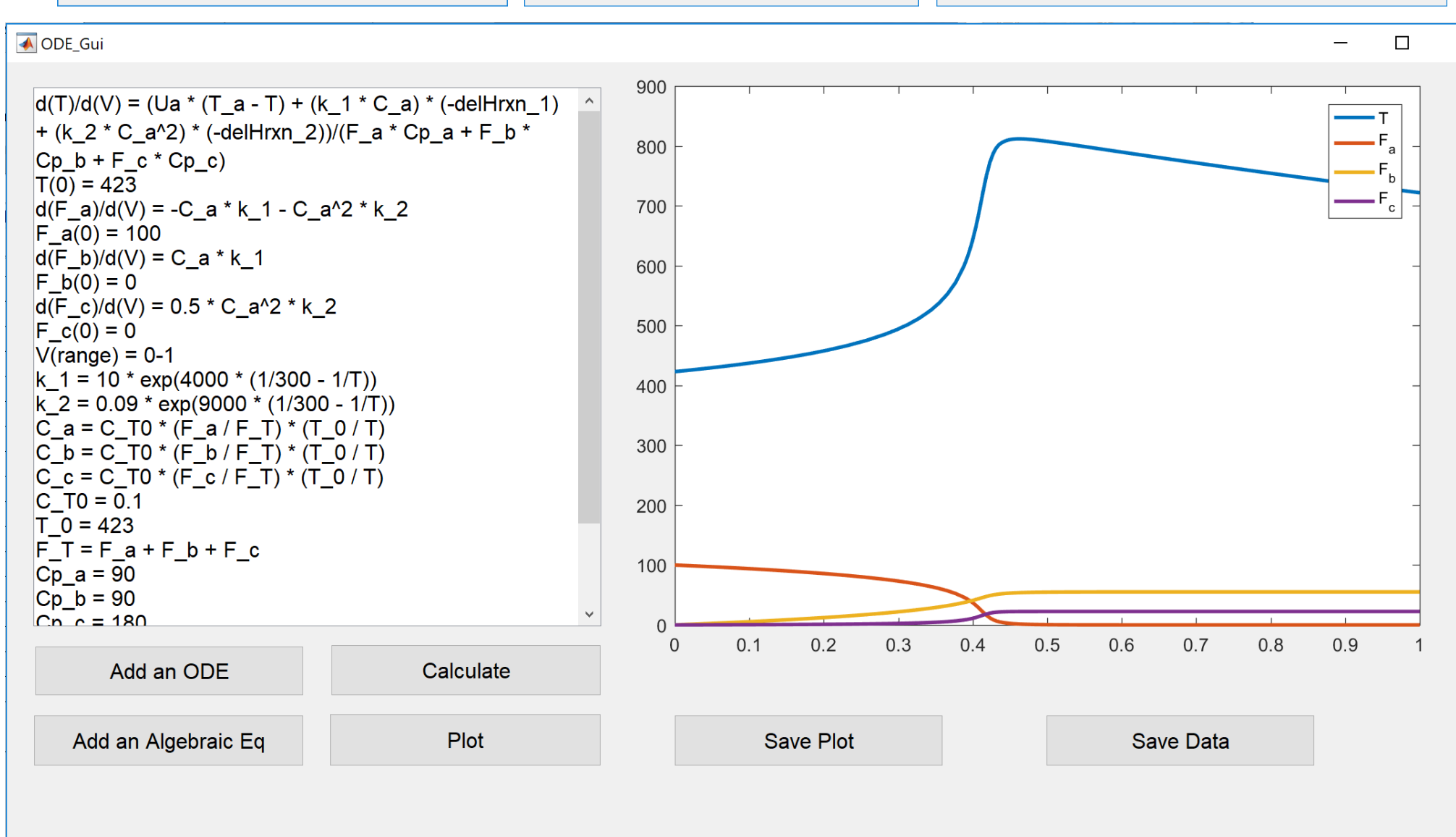
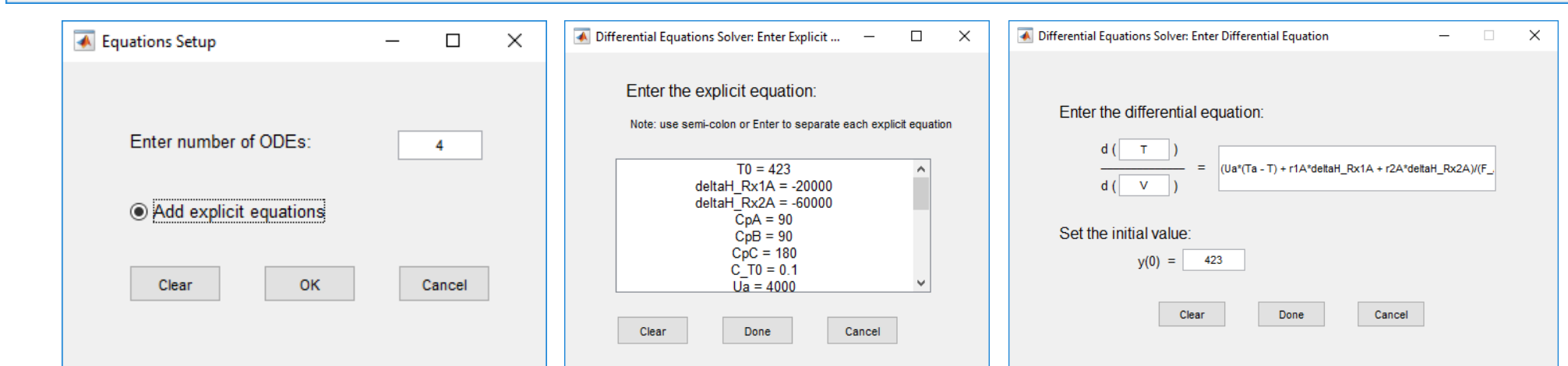
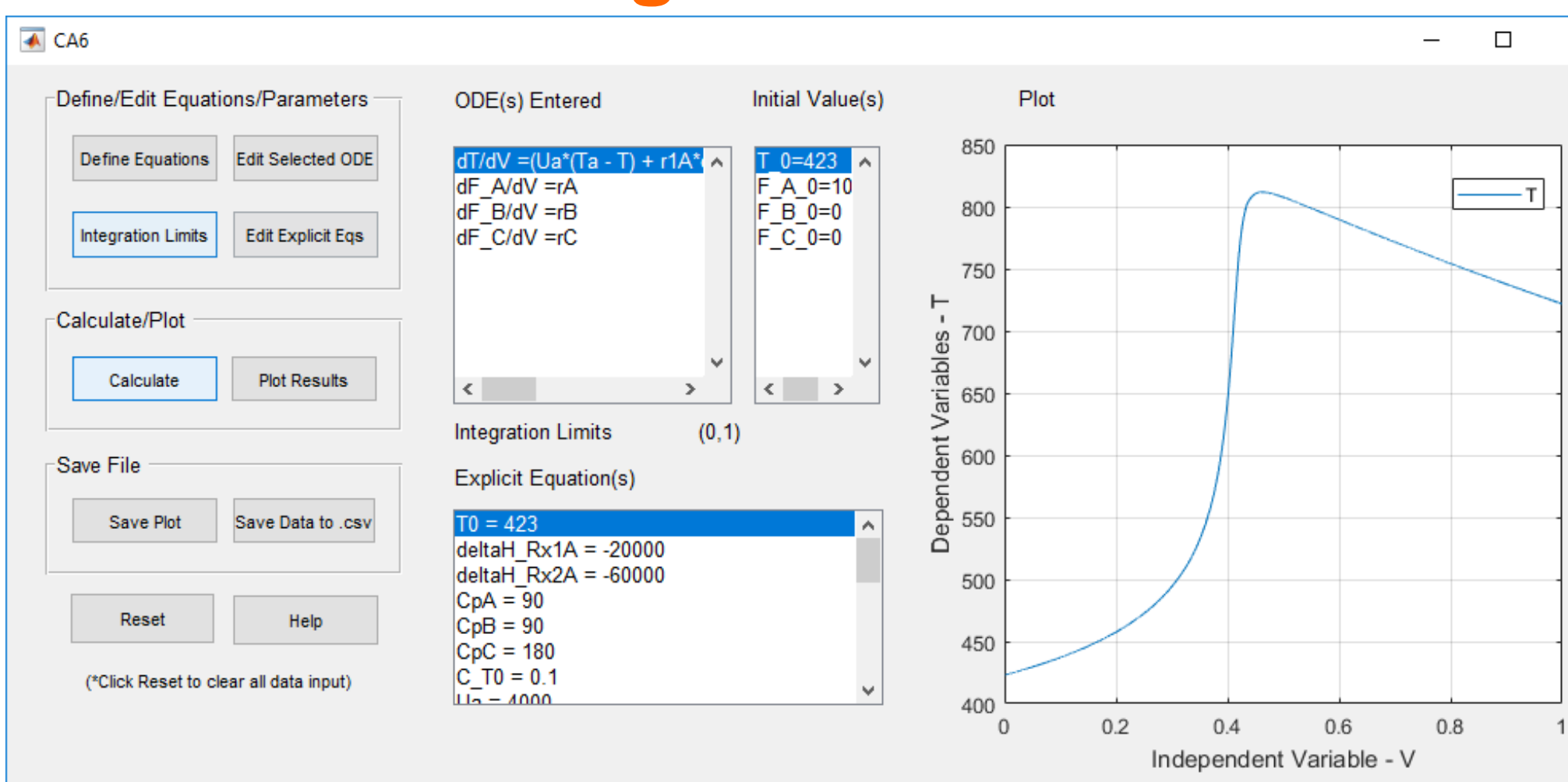
Kinetics



Heat Transfer

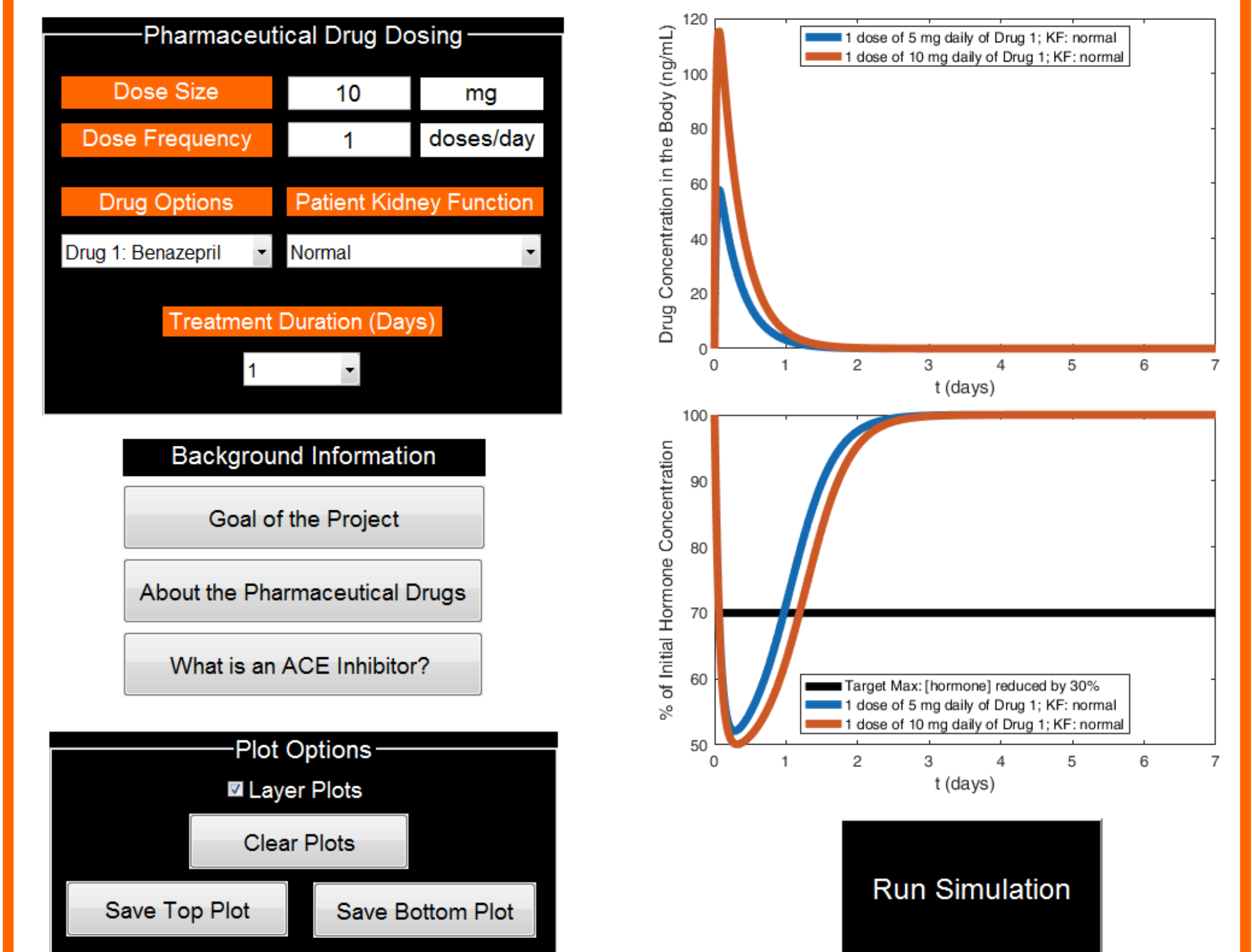


Applied Numerical Computing for Scientists & Engineers

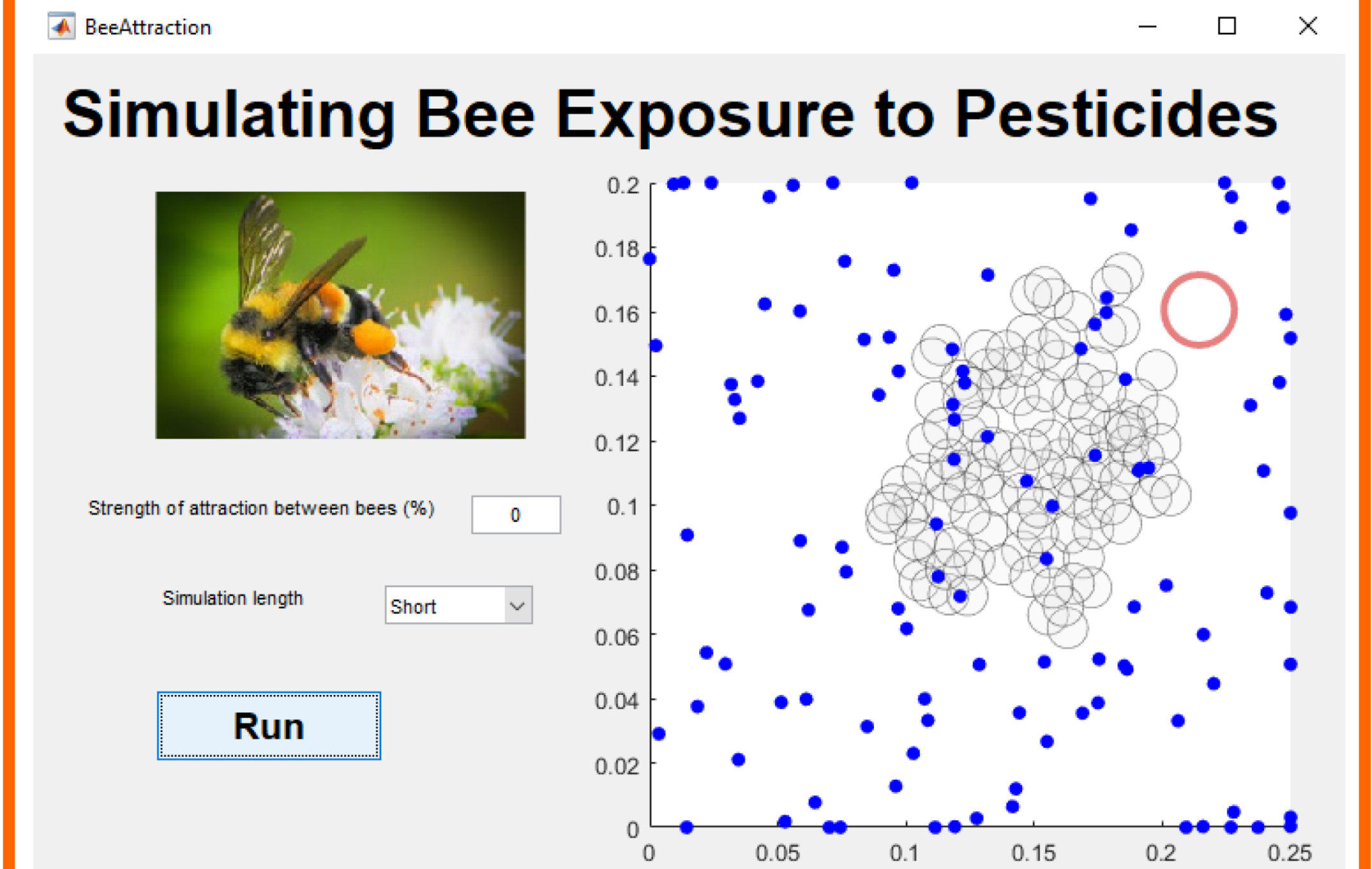


Research GUIs for Outreach

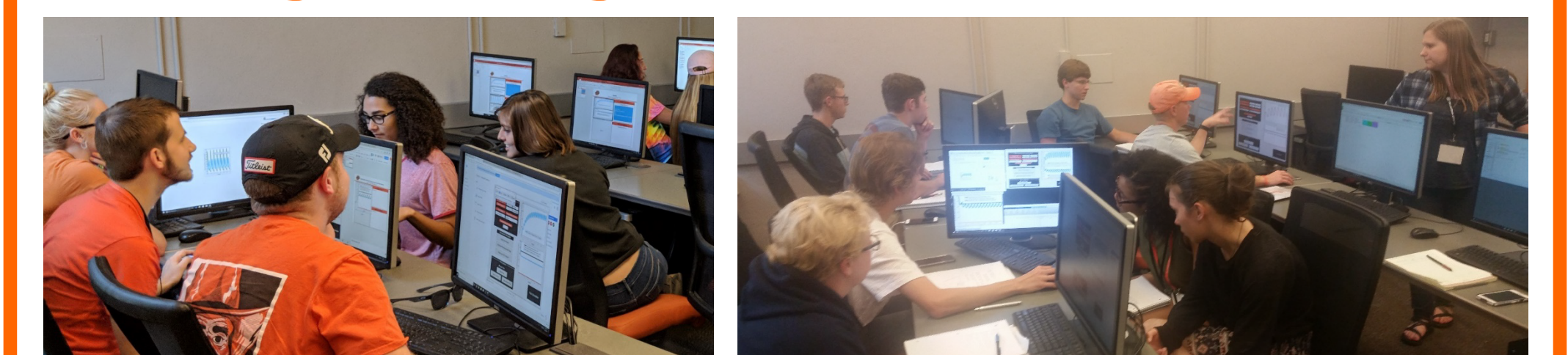
Pharmaceutical Drug Dosing for Chemical Engineering Design



Bee Responses to Pesticides



Summer Bridge Camp for Engineering Freshmen



Women in Science Conference Expo for 6th-12th Grade Girls & Teachers

