Course Announcement

Math 420/620 Mathematical Modeling (Capstone Course)

Mathematical modeling is the link between mathematics and the rest of the world. You are presented with a question. You think about it and refine it, phrasing it in precise mathematical terms. Once it has been turned into a mathematical question, you use mathematical techniques to find the answer. [If the problem is messy (as real problems usually are), then you use appropriate computer techniques to handle the messy details.] Then you reverse the process, translating the mathematical answer back into English, describing the real-world conclusions you draw from the mathematical analysis.

In Math 420/620, you will learn to formulate mathematical models for real-world problems, solve those problems by using modern mathematical and computer techniques, and then express your conclusions in a way that a normal, intelligent person can understand, even if that person never took calculus.

In this course, we will explore optimization methods, continuous and discrete dynamical systems, and random processes in the context of real problems from science, engineering, business, medicine, and agriculture. We will use computational tools including graphics, spreadsheets, computer algebra systems (MAPLE), and commercial packages such as LINGO and MINITAB.

Text: Mathematical Modeling, by Mark Meerschaert, 3rd Ed. (2007), Academic Press, Boston.

Fall 2009
MWF 10-10:50
635 AB

Chris Herald
784-4647
herald@unr.edu

Prerequisite: MATH 283 R with a "C-" or better; MATH/STAT 352 OR MATH 461; CH 201; ENG 102; and junior or senior standing.