MATHEMATICS 296

PROBLEM SEMINAR IN MATHEMATICAL MODELING

I. Introduction

    A. Catalog Description

In this class students are given examples of problems from an annual international mathematical modeling contest. The students, in groups and with faculty mentoring, develop approaches to the problems. The students and faculty also discuss winning solutions to the problems. The students are expected to participate in the contest and give a presentation of their solution. The course meets once per week, is graded on a pass/fail basis, is a 0 credit course, and can be repeated. *Prerequisites: MATH 280 and 290 or permission of the instructor.*

    B. Objectives

Provide an opportunity for students to prepare for and participate in the COMAP mathematics modeling contest. The COMAP mathematics modeling contest is now interdisciplinary and students from other science fields may also have an interest. Interested and capable students of all majors may benefit from taking this class.

    C. Prerequisites

MATH 221 and 232 or permission of the instructor

II. Topics

- Time management and team-work
- Classic problems
- Library resources
- Online resources
- Software and the ACL (Advance Computing Lab)
- Problem solving strategies

III. Bibliography

The COMAP modeling contest website: http://www.comap.com/undergraduate/contests/mcm/

THE UMAP journal website (where solutions are published):

http://www.comap.com/search.cgi?words=UMAP&product_type_9=1

An introduction to mathematical modelling / Neville D. Fowkes & John J. Mahony Wiley & Sons, 1994

Mathematical methods and models for economists / Angel de la Fuente

Cambridge University Press, 2000

Elementary mathematical models: order aplenty and a glimpse of chaos / Dan Kalman

Mathematical Association of America, 1997

Industrial mathematics: modeling in industry, science, & government / Charles R. MacCluer

Prentice Hall, 2000

A concrete approach to mathematical modelling / Michael Mesterton-Gibbons Wiley & Sons, 1995

A course in mathematical modeling / Douglas D. Mooney & Randall J. Swift Mathematical Association of America, 1998