AMSC - APPLIED MATHEMATICS & SCIENTIFIC COMPUTATION

AMSC420 Mathematical Modeling (3 Credits)
The course will develop skills in data-driven mathematical modeling
through individual and group projects. Emphasis will be placed on both
analytical and computational methods, and on effective oral and written
presentation of results.
Prerequisite: 1 course with a minimum grade of C- from (MATH240,
MATH341, MATH461); and 1 course with a minimum grade of C- from
(MATH241, MATH340); and 1 course with a minimum grade of C- from
(MATH246, MATH341); and minimum grade of C- in STAT400. And 1
course with a minimum grade of C- from (CMSC106, CMSC131); or
students who have taken courses with comparable content may contact
the department. Also offered as: MATH420.
Credit Only Granted for: AMSC420 or MATH420.

AMSC452 Introduction to Dynamics and Chaos (3 Credits)
An introduction to mathematical dynamics and chaos. Orbits,
bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal
dimension, notions of stability, flows and chaos. Includes motivation and
historical perspectives, as well as examples of fundamental maps studied
in dynamics and applications of dynamics.
Prerequisite: MATH246 and MATH240. Also offered as: MATH452.
Credit Only Granted for: AMSC452 or MATH452.

AMSC460 Computational Methods (3 Credits)
Basic computational methods for interpolation, least squares,
approximation, numerical quadrature, numerical solution of polynomial
and transcendental equations, systems of linear equations and initial
value problems for ordinary differential equations. Emphasis on methods
and their computational properties rather than their analytic aspects.
Intended primarily for students in the physical and engineering sciences.
Prerequisite: 1 course with a minimum grade of C- from (MATH240,
MATH461, MATH341); and 1 course with a minimum grade of C- from
(MATH340, MATH241); and 1 course with a minimum grade of C- from
(CMSC106, CMSC131); and minimum grade of C- in MATH246. Also
offered as: CMSC460.
Credit Only Granted for: AMSC460, CMSC460, AMSC466, or CMSC466.

AMSC466 Introduction to Numerical Analysis I (3 Credits)
Floating point computations, direct methods for linear systems,
interpolation, solution of nonlinear equations.
Prerequisite: 1 course with a minimum grade of C- from (MATH240,
MATH461, MATH341); and 1 course with a minimum grade of C- from
(MATH340, MATH241); and 1 course with a minimum grade of C- from
(CMSC106, CMSC131); and minimum grade of C- in MATH410. Also
offered as: CMSC466.
Credit Only Granted for: AMSC460, CMSC460, AMSC466, or CMSC466.

AMSC498 Selected Topics in Applied Mathematics (1-3 Credits)
Topics in applied mathematics of special interest to advanced
undergraduate students.
Repeatable to: 6 credits if content differs.