MATH 2306: Ordinary Differential Equations

3 Credit Hours

Prerequisite: A grade of "C" or better in MATH 2202

An introduction to the theory of ordinary differential equations (ODEs), methods of solving first and higher order linear differential equations and linear systems, some applications in the sciences and engineering, the Laplace transform and its application in solving differential equations and linear systems, and Euler's numerical algorithm.

MATH 2335: Numerical Methods for Engineers

3 Credit Hours

Prerequisite: A grade of 'C' or higher in MATH 2202, and ((CSE 1321 and CSE 1321L), or ECET 3710 or ME 1311)

This course is an introduction to numerical approximation techniques in the solution of problems encountered in engineering and science. Topics include Taylor polynomials, iterative methods for root finding, interpolation, numerical quadrature and differentiation. Error analysis, effective application, and limitations of methods are emphasized. Notes: Not intended for mathematics or mathematics education majors.

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MATH 2345: Discrete Mathematics

3 Credit Hours

Prerequisite: MATH 1113 or MATH 1190 or MATH 1179

An introduction to the fundamentals of discrete mathematics. Topics include sets, formal logic, methods of proof, counting relations, functions, graphs and trees, and finite state automata.

Notes: Not intended for mathematics or mathematics education majors.

MATH 2390: Introduction to Logic, Set Theory, and Proofs

3 Credit Hours

Prerequisite: MATH 2202

This course introduces to students the foundations of logic, set theory, and basic proof techniques. The course serves as a bridge from the procedural and computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, axiomatic approach, and formal proof.