

Methods of Applied Mathematics

MATH 5593

Time and Place: T Th 2:00-3:15 p.m. in MSCS 428

Professor: Igor E. Pritsker

Office: MSCS 519C

Office Hours: T Th 9:30-10:30 a.m.

Office Phone: 744-8220

E-mail: igor@math.okstate.edu

Web: <http://www.math.okstate.edu/~igor/>

Textbook: J. H. Davis, *Methods of Applied Mathematics with a MATLAB Overview*, Birkhauser, 2003.

Virtually all areas of mathematics can be applied to problems arising in natural sciences and engineering. As a consequence, Applied Mathematics is a very diverse subject. Our course is primarily devoted to the applications of Fourier analysis. We shall consider Fourier series, their applications in partial differential equations and boundary value problems; methods associated with the Laplace, Fourier, and discrete transforms; further topics if time allows. This material is contained in Chapters 2, 3, 6, 7, 8.

Your grade will be determined by the Midterm (40%) and the Final (40%) Exams, as well as by the regular home assignments (20%).

Prerequisites: Vector Calculus (MATH 4013) and Intermediate Differential Equations (MATH 4233) courses.

Additional references:

1. F. B. Hildebrand, *Methods of Applied Mathematics*, Dover, 1992.
2. M. H. Holmes, *Introduction to the Foundations of Applied Mathematics*, Springer, 2009.
3. J. D. Logan, *Applied Mathematics*, Wiley, 2006.
4. G. Strang, *Introduction to Applied Mathematics*, Wellesley-Cambridge Press, 1986.