

AME 526: Engineering Analytical Method Summer 2010

Location and time

OHE 136

Tuesday and Thursday 2:00 – 5:20 PM

First lecture: Thursday, July 1

Last lecture: Tuesday, August 10

Personnel:

Prof. J.A. Domaradzki

Office: RRB 203

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Phone: 213-740-5357

Office hours: to be determined

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Textbooks

There is no required textbook for this class. Class notes, homework problems, etc., will be posted on the class website. The class notes are based on the textbook *Advanced Engineering Mathematics*, 5th or 6th Edition, by C. Ray Wylie and Louis C. Barrett, McGraw-Hill. That textbook is out of print but used copies are available on different bookseller websites, including Amazon. Among other textbooks, more expensive, but widely available and covering the same material is *Advanced Engineering Mathematics*, 6th Edition, by Peter V. O'Neil, Thomson Engineering, 2006, ISBN 0534552080.

Prior Preparation

Undergraduate-level calculus and ordinary differential equations (ODE)

Topics

- Fourier series
- Fourier transforms
- Generalized functions (distributions)
- Laplace transforms
- Application of Fourier series, and Fourier and Laplace transforms to solution of ODE
- Partial Differential Equations (PDE)
- Classification of linear PDE of the second order
- Initial and boundary conditions for PDE
- Method of separation of variables and series solutions
- Sturm-Liouville problem; eigenfunctions and eigenvalues
- Application of Fourier and Laplace transforms to solution of PDE
- Classification of boundary value problems for linear PDE of the second order
- Green's functions
- Special functions: Bessel functions and Legendre polynomials

Grading

- Midterm exam (1.5 hours) 25%,
- Final exam (2 hours) 50%
- Homework (weekly) 25%

Exams

- Midterm exam is tentatively scheduled for Monday, July 26 (selected not to interfere with regular TTh lectures because the summer session is too short to miss a day of lectures), duration 1.5 hrs, 2-3:30 p.m, the location to be determined.
- Final exam must be held on the last day of classes, i.e., Tuesday, August 10, duration 2 hrs, 2-4 p.m., the location to be determined.
- All exams will be closed book, closed notes. The fact sheet with all relevant formulas will be provided with the exam text.

Homework

- Homework problems will be posted online no later than each **Thursday** and will be due the following **Tuesday**
- No late homework, no exceptions

Last modified June 30, 2010.