

Math 450: Advanced Mathematics for Engineers 1

Section 002, Fall 2006

Instructor: Dr. Victoria Booth

Email: vbooth@umich.edu

Math Dept Office: East Hall 4075, (734) 763-4730

Med School Lab: Medical Science Bldg 1, Rm 7415, (734) 763-2128

Office hours: Tuesdays, Wednesdays and Fridays 10-11am in Math Dept office and by appointment.

Course webpage: <http://ctools.umich.edu/portal>

Class email address: math450-002f06@ctools.umich.edu

Textbook: Advanced Engineering Mathematics, Michael D. Greenberg, 2nd edition

Homework: There will be weekly homework assignments due on Mondays. No late homework will be accepted.

In-class exams: Friday, October 13 and Friday November 10

Final exam: Wednesday December 20, 4 – 6pm, East Hall 1060

Grading: Homework 40%, Exams 60%

Topics covered:

- | | |
|------------|--|
| 9/5-9/8 | Chap 3.4&3.7: Review of ODEs
Chap 4.1-4.2: Review of series, power series |
| 9/11-9/15 | Chap 21.1-3: Complex numbers and complex functions
Chap 17.1-3: Fourier series
Chap 17.4: Half- and quarter-range expansions |
| 9/18-9/22 | Chap 17.5: Differentiation and integration of Fourier series
Chap 17.6: Intro to vector spaces
Chap 17.7: Sturm-Liouville theory |
| 9/25-9/29 | Sturm-Liouville theory continued
Chap 18.1-2: Intro to PDEs, diffusion (heat) equation
Chap 18.3: Separation of variables |
| 10/2-10/6 | Separation of variables continued
Chap 17.9-10: Fourier integral and transform
Chap 18.4: Fourier transforms |
| 10/9-10/11 | Chap 19.1-2: Wave equation, separation of variables, eigenfunction expansions |

10/13	Exam 1
10/16-17	Fall study break
10/18&20	Chap 19.3: 2-D wave equation
10/23-10/27	Chap 19.4: D'Alembert's solution Chap 20.1-2: Laplace equation, separation of variables
10/30-11/3	Chap 20.3: Laplace equation in polar coordinates Chap 20.4: Laplace equation by Fourier transform
11/6-11/8	Chap 21.4: Complex functions in polar coordinates Chap 21.5: Analyticity
11/10	Exam 2
11/13-11/17	Chap 22.1-2: Conformal mapping Chap 22.3-6: Bilinear transformation
11/20-11/22	Bilinear transformation continued
11/24	Thanksgiving break
11/27-12/1	Chap 23.1-2: Complex integration Chap 23.3: Cauchy's theorem
12/4-12/8	Chap 23.4: Fundamental theorem of complex integration Chap 23.5: Cauchy integral formula
12/11-12	Cauchy integral formula continued
12/20	Final Exam 4-6pm East Hall 1060