

Course Information

Engineering Mathematics

ENG ME 400

Spring 2010

Course Description

Mathematical methods and concepts applied to the modeling and solution of engineering problems. Vector calculus, complex variables, partial differential equations, and matrix algebra.

Prerequisite

CAS MA 226

Lectures

Lectures are held in MET B02B on Tuesdays and Thursdays from 2 p.m.– 4 p.m. You are strongly encouraged to ask questions during lecture and to offer answers to questions asked by the professor, even if you are not sure they are correct. Attendance will be taken at these lectures and used as one indicator of your level of effort. Ringers on cell phones should be turned off during lecture.

Discussion Section

You are required to register for the discussion section (B2). The discussions will be held occasionally in CAS 221 on Wednesdays from 4 p.m.–5 p.m. If a discussion is not announced in lecture, then assume that it will not be held.

Instructor

- Professor J. Gregory McDaniel
- Email: jgm@bu.edu
- Office Location: Room 406 of 110 Cummington Street
- Office Phone Number: 617.353.4847
- Home Phone Number: 781.861.0202
- Office Hours: Wednesdays 2:00–4:00 p.m. or by appointment. To arrange an appointment, email at least two suggested times and a summary of your questions.

Teaching Fellow

To be announced

Course Materials

- Required Text: *Advanced Engineering Mathematics, Second Edition*, Michael D. Greenberg, ISBN 0-13-321431.
- Class handouts

Grading

Your final course grade is calculated according to the following distribution:

- Quizzes: 40%
- Midterm Examination: 30%
- Final Examination: 30%

and the following ranges

- $> 92.5 = A$
- $90 - 92.5 = A-$
- $87.5 - 90 = B+$
- $82.5 - 87.5 = B$

- $80 - 82.5 = B-$
- $77.5 - 80 = C+$
- $72.5 - 77.5 = C$
- $70 - 72.5 = C-$
- $60 - 70 = D$
- $< 60 = F$

Quizzes

Quizzes will be given roughly once a week. The lowest quiz grade will be dropped.

Midterm Examination

The midterm examination will be given in class on Thursday, March 4, 2010.

Final Examination

The final examination has not yet been scheduled by the University, so please do not make travel arrangements until that schedule is announced. A Final Examination will be given for this course during the time scheduled by the University.

Missed Quizzes and Examinations

Here is the policy regarding a missed event (i.e. quiz or examination):

- If you know ahead of time that you will miss the event, you must notify the Professor in writing and describe your reason for missing the event.
- If you do not know ahead of time that you will miss the event, you must notify the Professor in writing as soon as possible after the event and describe your reason for missing the event.
- If the Professor determines that the reason is appropriate, you will be excused from the event and the grade will not count in determining your course grade. If the Professor determines that the reason is not appropriate, you will receive a zero for that event.
- The following reasons are not appropriate: oversleeping, working on an assignment for another course, travel for pleasure.

Collaboration Policy

- You may collaborate with classmates on the assigned homework.
- You may not collaborate with classmates on the Quizzes, Midterm Examination, and Final Examination.

Withdrawals, Drops, and Incompletes

Please see the important dates listing from the University Registrar. These will be strictly enforced. Incompletes will be permitted only for extenuating circumstances and they must be arranged before the final examination.

Course Syllabus

Engineering Mathematics

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Note that numbers in parentheses refer to chapters in *Advanced Engineering Mathematics* by Michael D. Greenberg.

1. Systems of linear algebraic equations; Gauss elimination (8)
2. Vector space (9)
3. Matrices and linear equations (10)
4. The eigenvalue problem (11)
5. Differential calculus of functions of several variables (13)
6. Vectors in 3-space (14)
7. Curves, surfaces, and volumes (15)
8. Scalar and vector field theory (16)
9. Fourier series, Fourier integral, and Fourier transform (17)
10. Diffusion equation (18)
11. Wave equation (19)
12. Laplace equation (20)
13. Functions of a complex variable (21)
14. Conformal mapping (22)
15. Complex integral calculus (23)
16. Taylor series, Laurent series, and the Residue Theorem (24)