

Mathematical Methods for Electrical and Computer Engineering

Prerequisites:

One of MATH 215, 255, 256, 265 and one of MATH 152, 221, 223.

Instructor:

Joel Feldman

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phone	604-822-5660
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home page	http://www.math.ubc.ca/~feldman
office hours	Tue 2:30–3:30, Wed 2:00–3:00, Thurs 2:00–3:00

Text (Optional):

R. W. Boyce and R. C. DiPrima, Elementary Differential Equations and Boundary Value Problems, John Wiley.

Other References:

Alan Oppenheim, Alan Willsky with S. Hamid Nawab, Signals and Systems, second edition, Prentice Hall, 1997.

Richard G. Froese, Partial Differential Equations UBC M257/316 Lecture notes free on the Web at <http://www.math.ubc.ca/~rfroese/notes/Lecs316.pdf>

I will post all handouts, problem sets, etc. on the web at <http://www.math.ubc.ca/~feldman/m267/>

Topics:

1. Review of ordinary differential equations.	1 hour
2. Introduction to partial differential equations – wave and diffusion equations.	1 hour
3. Method of separation of variables.	2 hours
4. Introduction to Fourier Series.	4 hours
5. Complex Numbers.	1 hour
6. Applications of Fourier Series to circuits.	4 hours
7. The Fourier transform with applications.	4 hours
8. The Dirac delta function and convolutions.	2 hours
9. The telegraph equation.	2 hours
10. Discrete Fourier transform.	5 hours
11. The z–transform.	5 hours
	Midterms 4 hours
	Review <u>1 hour</u>
	36 hours

Grading:

- There will be four 50 minute midterms on Friday, January 26, Monday, February 12, Wednesday, March 7 and Monday, March 26. The best three out of four midterm exams (with 0 for a missed exam) will count for 50% of the course grade.
- The final exam will count for 50% of the course grade.
- Homework will not be handed in. You are strongly advised to work out the homework problems in detail. The suggested homework problems will be posted.
- In order to make course grade standards consistent across sections the raw final grade will be scaled.

Policies

- The midterms and final examination will be strictly closed book: no books, notes, formula sheets or calculators will be allowed.
- There is no supplemental examination in this course.
- Missing the midterm normally results in a mark of 0. Exceptions may be granted in two cases: prior consent of the instructor or a medical emergency. In the latter case, the instructor must be notified within 48 hours of the missed test, and presented with a doctor’s note immediately upon the student’s return to UBC.
- No make-up exams will be given.

Schedule

	Mon	Wed	Fri
Jan	1 no class	3 no class	5 no class
	8	10	12
	15	17	19
	22	24	26 Test 1
	29	31	2
Feb	5	7	9
	12 Test 2	14	16
	19 midterm break	21 midterm break	23 midterm break
	26	28	2
Mar	5	7 Test 3	9
	12	14	16
	19	21	23
	26 Test 4	28	30
Apr	2	4	6 Good Friday
	9 Easter Monday	11	13 no class