

EMAT 213
Ordinary Differential Equations
Winter 2006

Instructor: _____

Office/Tel No.: _____

Office Hours: _____

Course Examiner: Dr. M. Bertola, Email: bertola@mathstat.concordia.ca

Text: *Advanced Engineering Mathematics*, by Zill and Cullen, 2nd Edition (with Student Solution Manual).

Tests: Two 1-hour tests will be given during the term.
PLEASE NOTE: It is the Department's policy that tests missed for any reason, *including illness*, cannot be made up. If you miss a test, the final exam can count for 100% of your final grade.

Final Exam: Students are responsible for finding out the date and time of the final exams once the schedule is posted by the Examinations Office. Any conflicts or problems with the scheduling of the final exam must be reported directly to the Examinations Office, *not* to your instructor. It is the Department's policy and the Examinations Office's policy that *students are to be available until the end of the final exam period. Conflicts due to travel plans will not be accommodated.*

Final Grade: The maximum of the weighted average of the test (20% each) and the final (60%), or the final exam alone (100%).

Assignments: The assignments are not to be handed in, but are very important as they indicate the level of the problems that the students are expected to solve. The solutions to the assignments are in the Student Solution Manual. The book also provides answers to odd-numbered problems in Appendix.

Week	Sections	Topics	Exercises	Numbers
1	1.1	Definition and Terminology	1.1	3, 6, 12, 19
	1.2	Initial-Value Problems	1.2	3, 9
	2.2	Separable Differential Equations	2.2	3, 6, 9, 21, 24, 30
2	2.3	Linear Equations	2.3	3, 6, 9, 27, 30
	2.4	Exact Equations	2.4	3, 6, 9, 21, 24
	2.5	Solutions by Substitution	2.5	3, 6, 12, 15, 18, 21, 24, 27
3	2.7	Linear Models (Growth and Decay, Newton's Law of Cooling)	2.7	3, 9, 12, 15, 18, 21, 24 Review Exercises Chapter 2
	17.1	Complex Numbers	17.1	6, 12, 18, 24, 27, 36
4	17.2	Form of Complex Numbers: Powers and Roots	17.2	3, 6, 12, 15, 21, 24, 27, 30
	3.1	Preliminary Theory: Linear Equations	3.1	3,6,18,27,36,39
5	3.3	Homogeneous Linear Equations with Constant Coefficients	3.3	3, 6, 12, 15, 21, 36
	3.4	Undetermined Coefficients		3,6,9,15,24,30,33
6	3.5	Variation of Parameters	3.5	3, 6, 9, 15, 18
	3.6	Cauchy-Euler Equations	3.6	3,6,9,15,18,21,27
7	3.7	Reduction of Order (Examples 1, 2)	3.7	3, 6, 12, 21
	3.8	Linear Models: Initial Value Problems (3.8.1, 3.8.2, 3.8.3)	3.8	3, 6, 18, 21, 27, 30, 33
8	3.9	Linear Models: Boundary Value Problems	3.9	1, 2, 3, 5, 6, 9,12,20,28
	5.1.1	Review of Power Series (begin)		
9	5.1.1	Review of Power Series (only radius of convergence)	5.1	1 to 12
10	5.1.2	Power Series Solutions	5.1	15, 18, 21, 24, 27, 30
	10.1	Systems: Preliminary Theory	10.1	3, 9, 15, 18, 19, 21
11, 12	10.1	Preliminary Theory	10.1	3, 9, 15, 18, 19, 21
	10.2	Homogeneous Linear Systems	10.2	3, 6, 21, 24, 33, 36, 45
	10.3	Solution by Diagonalisation	10.3	3, 6, 9
	10.4	Non-Homogeneous Linear Systems	10.4	3, 6, 12, 24
	10.5	Solution by exponentiation	10.5	1,2,3,4,8,9
13		REVIEW		