Mathematics 3260: Ordinary Differential Equations(ODE) – W-04

Slot:04 (Section 001).
Classrooms: C-2033
Time: Lecture MWF 11:00 - 11:50 am.
Instructor: Dr. Margo Kondratieva
Email: mkondra@math.mun.ca
Office: HH-3008
Phone: 737-8074
web page: http://www.math.mun.ca/ mkondra

Prerequisite:

The prerequisite is Math-2000. (and Math 2050 preferred).

Getting Help:

There are few ways of getting help. First, I'll have **office hours from 1pm-2pm on Mondays, Wednesdays and Fridays**, so feel free to come to them. If you need to speak to me outside of those times please make an appointment. If you have a quick question or remark send me an e-mail.

Marking Scheme:

There will be 6 assignments which I'll usually hand out on Fri. They'll usually be due on the following Fri at 11am (see schedule for details) in class or assignment box. Late assignments will not be accepted. The **assignments** will be worth *only* **10**% of your final mark, *but doing them is extremely important for your understanding and success in the course!*

There will also be **one midterm test** on Wed **March 3**. The test will be worth **30**% of your final mark.

The **final exam** will cover the entire course. It will be worth **60**% of your final mark.
Note: If you miss an assignment or midterm for an acceptable reason, write me a note explaining the circumstances and I'll shift the weighting for the missed work to the final exam. Such notes should be submitted within a week of the missed event.

Missing the final exam is a much more serious matter. It can be deferred if you have three exams all scheduled within a 24 hour period, or if you suffer bereavement or serious medical problems. Deferrals must be officially applied for using forms that you can obtain from the General Office (HH-3003).

Formula Sheet and Calculators:

Graphing calculators such as the TI81,82,83,84,85,86 are allowed during tests and the final exam. However, calculators that can do symbolic manipulations such as the TI89, TI92, or HP48G are not allowed. If you use your calculator to store notes or formulas, you must delete this material before the start of any test, or exam. Bringing electronic notes into an exam is the equivalent of bringing in a cheat sheet, and will be dealt with in the same way (see MUN calendar).

Text and Course Outline:

The official text is <u>Elementary Differential Equations and Boundary Value Problems.</u> (*Seventh Edition*) by W.Boyce and R. DiPrima.

We'll cover the following material, which is organized into five units:

Unit 1	Introduction	Book
1.1	Definitions and Examples. Math. Models with ODEs	1.1, 1.2
1.2	Classification of ODEs	1.3
Unit 2	**First order ODEs**	**Book**
2.1	Linear ODE with variable coefficients	2.1
2.2	Separable ODE	2.2
2.3	Modeling with ODEs	2.3, 2.5
2.4	Nonlinear ODE	2.4
2.5	Autonomous ODE	2.5
2.6	Integrating factors	2.6
2.7	Existence and Uniqueness: examples and contre-examples.	2.8
Unit 3	**Second order ODEs**	**Book**
3.1	Homogeneous ODE with constant coeffitients	3.1
3.2	Fundamental Solutions	3.2
3.3	Linear independence	3.3
3.4	Complex root of the characteristic equation	3.4
3.5	Reduction of order	3.5
3.5	Reduction of order	3.5
3.6	Method of undetermined coefficients	3.6
3.7	Variation of parameters	3.7
3.8	Some applications.	3.8, 3.9
Unit 4	**Laplace Transform**	**Book**
4.1	Definition and properties	6.1
4.2	Solving ODE using Laplace transform	6.2
4.3	Convolution	6.6
Unit 5	**Linear Systems of ODEs**	**Book**
5.1	Short review of Linear algebra	7.1-7.3
5.2	Homogeneous linear systems with constant coefficients	7.5, 7.6
5.3	Fundamental matrises	7.7

Important Dates:

Jan 8	Classes Begin	Feb 6	Assign #2 due
Jan 23	Assign #1 due	Feb 20	Assign #3 due
Jan 22	Last Drop Date(100% refund)	Feb 23-25	Break
		Feb 26	Last Drop Date WAP
Mar 3	Assign #4 due	Apr 2	Assign #6
Mar 3	**TEST**	Apr 7	Review for Final
Mar 19	Assign #5 due	Apr 7	Classes end
		Apr 12-21	Final Exams