Math 265
Linear Differential Equations, Section 101, Fall 2012

Schedule

Date	Topic	Note	Reference
Wed 05-Sep	Linear vs nonlinear, 1st vs 2nd, etc. Direction fields for 1st order		Diffy Qs §1.1,1.2
Mon 10-Sep	Integrating factor method, separable equations		Diffy Qs §1.3,1.4
Wed 12-Sep	Separable equations (brief) and examples/applications of 1st order		Diffy Qs §1.4
Mon 17-Sep	Examples and applications of 1st order		
Wed 19-Sep	Second order constant coefficient with examples (mass-spring/LCR)	HW #1 Due	Diffy Qs §2.1,2.4
Mon 24-Sep	Superposition, existence, Wronskian (briefly)		Diffy Qs §2.1,2.2
Wed 26-Sep	Complex roots		Diffy Qs §2.2
Mon 01-Oct	Repeated roots and higher-order problems		Diffy Qs §2.1,2.3
Wed 03-Oct	Nonhomogeneous equations: undetermined coefficients solution	HW #2 Due	Diffy Qs §2.5

Mon 08-Oct	–		
Wed 10-Oct	Examples and applications: SHO, damping	Midterm 1 (**EVENING**)	Diffy Qs §2.6
Mon 15-Oct	Examples and applications: forcing, resonance, frequency response		Diffy Qs §2.6
Wed 17-Oct	Laplace transform: definition, examples	HW #3 Due	Diffy Qs §6.1
Mon 22-Oct	Solution of ODE with LT; properties of LT		Diffy Qs §6.2
Wed 24-Oct	LT: step response		Diffy Qs §6.2
Mon 29-Oct	Delta function forcing, LT solution		Diffy Qs §6.2
Wed 31-Oct	Examples/review/catch-up	HW #4 Due	
Mon 05-Nov	Systems of ODE, examples		Diffy Qs §3.1,3.2,3.3
Wed 07-Nov	Basic solution of x'=Ax		Diffy Qs §3.4
Mon 12-Nov	–		
Wed 14-Nov	Phase plane analysis, complex eigenvalues examples	Midterm 2 (**EVENING**)	Diffy Qs §3.5
Mon 19-Nov	Complex and repeated eigenvalues, examples	HW #5 Due	Diffy Qs §3.7
Wed 21-Nov	Nonhomogeneous systems: undetermined coefficients solution		Diffy Qs §3.9

Mon 26-Nov	Examples/review/catch-up	
Wed 28-Nov	Examples/review/catch-up	
Fri 30-Nov	–	HW #6 Due

Syllabus

About MAT265
Calendar entry:

> Linear ordinary differential equations. Complex numbers, Laplace transforms, frequency reponse, resonance, step response, systems

Translation:

> An introduction to some techniques that apply calculus and linear algebra to physical or practical problems from electrical and computer engineering, biology, economics and statistics.

Instructor
Ian Zwiers
Scheduled office hours will be announced, or contact the instructor to make an appointment.
Lectures: Monday and Wednesday, 10-11am in Hennings 201

Textbook
Our main reference will be *Diffy Qs* by Lebl.
It is free online, or can be ordered cheaply.

Some other good (free) online resources:
http://tutorial.math.lamar.edu/Classes/DE/DE.aspx
http://www.math.ust.hk/~machas/
http://www.springerlink.com/content/p78848/?MUD=MP
If you are off campus, you may need to use the VPN.

If you prefer a physical textbook, *Elementary Differential Equations & Boundary Value Problems* by Boyce & DiPrima (any edition) is common and often used at UBC.

Clickers will be used in this course. If you do not have one, they are available from the bookstore.

Homework
There will be five or six regular homeworks, posted on the course website and due in class September

19, October 3, 17 and 31, and November 19 and 30.

Exams & Evaluation
Midterms will be held the **evenings** of *Wednesday, October 10th* and *Wednesday, November 14*.

You **must** inform me on or before September 14th of any potential conflicts with the midterm times. The exams will likely be held **7-8pm**.

If you miss a midterm due to a medical emergency, you must present a doctor's note as soon as possible. Your final exam grade will be used instead. There will be no makeup tests.

The final exam will be scheduled by the central administration, as usual.

Your grade for the course will be computed roughly as follows:
Homework/Clickers/etc: 20%
Each Midterm: 15%
Final Exam: 50%

Term grades may be scaled up or down, according to final exam scores, to ensure fairness with section 103.

Contact

You can reach me by **email** (zwiers@math.ubc.ca), or by **phone** (604-822-3918). In either case, please call me '**Ian**'.

Office Hours: **to be announced**.

Drop-in tutoring is located in **LSK 100**.

- Admin Log-in