Math 3113/3133: Partial Differential Equations II/Methods of Mathematical Physics II

Course Outline (Winter 2012)

Prerequisites: Mathematics 3111 or 3131 (Partial Differential Equations I/Methods of Mathematical Physics I)

Lectures: MWF 11:30AM-12:30PM, RB3024

Instructor: Fridolin Ting
Email and Telephone: fting(at)lakeheadu.ca, 343-8688
Office: RB2018
Office hour: WF 12:30pm-1:30pm or by appointment.
Course Web-site: http://flash.lakeheadu.ca/∼fting/math3113&3133_2012.html

Required Text: Richard Haberman, "Applied Partial Differential Equations", 4th Edition.

Grading Scheme	Assignments (10)	30%
	Midterm Exam	30%
	Final Exam	40%

Assignments: There will be weekly assignments (10 in total scheduled). They will be handed out every *Monday* at the beginning of class and available on the course website) and the following Monday in lecture in class. Assignment solutions will be posted on ERES (the Lakehead University electronic library reserves) and a link will created on the course web page.

Midterm Exam: Tentative Date: Monday, March 5, 2012 during the lecture hour.

Final Exam: Date: TBA by Registrar.

Course Description: Introduction to finite element numerical methods for PDEs; solving (in)dependant nonhomogeneous PDEs (including Poisson's equation) method of eigenfunction expansion and Green's functions; solving PDEs in infinite domains using Fourier, Laplace transforms and Green's functions; method of characteristics and Quasi-linear PDEs. Applications to heat, wave, Laplace and Poisson's equation. We will cover Chapters 6, and 8 to 13 in Habermann. If time permits, we will cover selected topics in Chapter 14: Dispersive waves.