

The University of Western Ontario

London

Canada

Applied Mathematics 4815b

Course Outline 2011-2012

Instructor: V.A. Miransky, MC 271, tel: 519-661-2111 ext. 88708 email: vmiransk@uwo.ca

Classes: Monday 4:30-5:30pm, Wednesday 4:30-6:30pm, MC-204

Textbook: PDEs of Applied Mathematics, E. Zauderer, 3rd edition

(Used copies may be available from students who took this course last year.)

Backup text: Elementary PDEs, R. Haberman, 4th edition (text in AM315)

Marking Scheme: The marking scheme used is one that is to your advantage.

Quizzes: 30% or 40%. 2 or 3 times during the term.

Questions will be chosen from the assigned problems.

Exam: 70% or 60%. (April Exam period)

Topics:

Initial and boundary value problems in bounded regions:

- Types of problems (start at p. 176 in sec. 4.1)
- Review: Separation of variables in two and three dimensions (sec. 4.2)
- Review: Sturm-Liouville problem (sec. 4.3)
- Green's functions for ODEs

Green's functions:

- Integral theorems and Green's functions (sec. 7.1)
- Generalized functions (sec. 7.2)
- Green's functions for bounded regions (sec. 7.3)
- Green's functions for unbounded regions (sec. 7.4)