

MATH 4700A – Partial Differential Equations – Fall 2019

Instructor: Dr. Lucy Campbell

Office: 4269 Herzberg Building; **Office hours:** To be decided.

Phone: 613-520-2600 Ext. 1208; **E-mail:** campbell@math.carleton.ca

Web-page: <http://www.math.carleton.ca/~campbell>

Course web-site: <http://www.math.carleton.ca/~campbell/MATH4700> and on **cuLearn**.

Lectures: Mon/Wed, 2:30–4:00 PM, in Southam 314, starting Wed, Sept 4.

Topics:

- First order PDEs and the method of characteristics.
- Second order linear PDEs: classification, canonical forms; characteristics. The wave equation, diffusion equation and Laplace's equation.
- Separation of variables.
- Green's functions.
- Fourier and Laplace transform methods for the solution of initial/boundary value problems.

References:

- H. F. Weinberger, A First Course in Partial Differential Equations with Complex Variables and Transform Methods (available at the bookstore and on 2-hour reserve at the library).
- W. A. Strauss, Partial Differential Equations: An Introduction (E-book available).
- J. Kevorkian, Partial Differential Equations: Analytical Solution Techniques (on 2-hour reserve at the library).

Prerequisites for the course:

MATH 3057 (Functions of a Complex Variable) and

MATH 3008 (Ordinary Differential Equations) or MATH 3705 (Mathematical Methods),
or permission of the School.

Grading scheme:

The final grade will be calculated as:

25% Assignments

25% Midterm exam (during class time)

50% End-of-term exam (during the exam period in December)

Students are required to take the midterm exam and do all the assignments except in case of documented illness or other emergency situation beyond your control, in which case the final exam will be counted for the missing portion of grades. There will be no make-up tests. Students who wish to review their final examination paper must do so by January 15, 2020. This privilege is for educational purposes and not an opportunity to argue about the marking.

Fall Break: There will be no classes from October 21–25.

Academic Accommodation:

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodation in this course, please contact the PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, no later than two weeks before the midterm exam, if accommodation is needed for the exam. After requesting accommodation from the PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodation for the formally-scheduled exam (if applicable). For pregnancy or religious obligations, write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.