MATH 317 Numerical Analysis - Fall 2017

- **References**: The traditional textbook for this course is Numerical Analysis, by R. L. Burden and J. D. Faires, published by Brooks/Cole, but I am not a big fan of it. There are many, many similar books.

- **Syllabus**: We will discuss numerical root-finding, interpolation and polynomial approximation, numerical differentiation and integration, numerical solutions of equations by iteration and an introduction to numerical solutions of differential equations. We shall also study initial and boundary value problems. We introduce the finite difference method for linear second order PDE's, and draw attention to the special characteristics of elliptic, parabolic and hyperbolic solvers. Error analysis and stability will be a recurring theme in the course.

- **Prerequisites**: Differential Equations (one of MATH 315, 325 or 263), programming (one of COMP 208 or 202). Students should be familiar with the mathematical material taught in a first linear algebra and differential equations course. Programming experience is a formal requirement. Without it you will be spending an inordinate amount of time doing the assignments.

- **Assignments**: Will contain both theoretical and computational questions. You may use any computing language for your assignments. Late assignments will not be graded. Hard copies of assignments are strictly required.

- **Grading**: [Assignments 20%, Mid-term Test 30%, Final Exam 50%], or [Assignments 20%, Mid-term 5%, Final 75%], whichever is largest. No make-up exams, no extra work.

- **Class schedule**: Lectures are on Monday and Wednesday 8:30-10 in the Currie gym, Room 408/9.

- **Instructor**: Peter Bartello, BH910, 514 398-8075, bartello@math.mcgill.ca, Office hours: TBA