

Course outline for MATH 1005, Section G
School of Mathematics and Statistics
Carleton University

Amir Nasr,
amir.nasr@carleton.ca

Winter 2021

1 Textbook

Ordinary Differential Equations and Infinite Series. 2nd Edition, Sam Melkonian. Nelson Publishing. (Hard copies available at the Carleton University Bookstore.)

2 Lecture, TA, and office hours

- Lectures are scheduled for Tuesdays & Thursdays 10:05 - 11:25, Starting Jan 12. All lectures will be recorded and uploaded and Tuesday lectures will be live using Zoom.
- Tutorials are scheduled for Thursdays 16:35 - 17:25, Starting Jan 21. Tutorial sessions will be live through culearn, using BBB. (It may changes depending preference of TAs)
- Office hours of TAs and myself will be announced later but we will be using BBB. (It may changes depending on preference of TAs)

3 Assignments and tests

Format of tests and assignments will be announced later

4 Method of evaluation

- Tutorial attendance expected but not graded.
- The best 3 of 4 tests: 40%
- The best 8 out of 11 assignments: 30%
- Final: 30%

There will be 11 assignments due every Saturday 23:59 except Jan 16 & Feb 20. Assignments will be posted one week ahead.

There will be 4 tests of 50 minutes during tutorials on Jan 28, Feb 11, Mar 11, & Apr 1.

There is a 3 hour long test at the end of the term.

There will be no makeup test or late submission assignment option. If you miss a test and have a supporting document (doctor notes, etc.), its mark will be distributed over other tests.

Week	Sections	Topics
1	1.1, 2.1, 2.3	Basic concepts, Separable equations, first-order Linear equations.
2	2.2, 2.4, 2.5	Functions of two variables, Partial derivatives, The Chain Rule, Exact equations, Bernoulli's equation
3	3.1, 3.2	Homogeneous linear equations with constant coefficients, Cauchy-Euler equations, reduction of order.
4	3.3	Non-homogeneous linear equations, method of undetermined coefficients, variation of parameters.
5	5.1	Linear systems
6	No classes	Hooooray
7	6.1	Linear systems, Sequences.
8	6.2	The integral test, p-series, estimation of sums, The comparison tests
9	7.1	Alternating series, The ratio and root tests. Surface integrals and some applications
10	7.2	Taylor polynomials and approximations, Power series.
11	8.1	Representation of functions as power series, Taylor and Maclaurin series.
12	8.2	Fourier series.
13	Review	Review.

NOTES:

- Students with disabilities requiring academic accommodations in this course are encouraged to contact the [Paul Menton Center](#) to complete the necessary forms.
- Students with religious or pregnancy needs are welcome to contact me directly.