

MATH 3003 — Advanced Differential Calculus (Honours)

Winter 2019, Carleton University

Professor: Charles Starling

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Office Hours: Mondays and Thursdays 10:00 – 11:30

Prerequisite: MATH 3001 with a grade of C– or higher or permission of the School.

Lectures: Mondays and Wednesdays 13:05 – 14:35 in Loeb B243

Tutorial: Wednesdays 16:35 – 17:25 in Residence Commons 212

Evaluation: There will be semi-regular assignments, one midterm, and a final exam. The midterm will be held in class on **Wednesday, February 13**.

- Assignments — 30%
- Midterm — 20%
- Final Exam — 50%

Text: *Calculus on Manifolds*, by Michael Spivak.

Course content: We will be doing Chapters 2 – 5 in Spivak. Calendar description: Review of multivariable differentiation and integration. Vector fields, differential forms and exterior algebra. Introduction to manifolds and tangent bundles. Stokes Theorem. Applications such as differential equations and the calculus of variations.

Other resources: The following books are not required, but are good references for this material.

- *Analysis on Manifolds*, by James Munkres. This is on 4h reserve in the Library.
- *An Introduction to Manifolds*, by Loring Tu. This seems to be available electronically through the library to Carleton students and staff.

No calculators will be permitted (or needed) on any test.

Academic Accommodation: Students with disabilities requiring academic accommodations in this course must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Students must confirm their need for accommodation with the Instructor no later than one week before the first quiz. If students require special arrangements to meet their academic obligations, please review the

course outline and write 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.

Pregnancy or Religious Obligation: Please email me 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. For more details, see the Student Guide.

Notes:

- You are expected to attend all classes and tutorials. I will be scanning the notes that I lecture from and I will be putting them on CU Learn. However, they are not a complete record of everything I say in class.
- Students who miss the final exam may be eligible for a deferral. Application for a deferral must be made, with appropriate documentation, to the Registrar's Office within five business days of the examination.