

MAT257 Notes

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This document is a collection of notes for the course MAT257: Analysis II, as taught by Professor Edward Bierstone in 2018 at the University of Toronto. The notes are a combination of notes I made in class (which can be found in their original form in the **notes** folder in this repository) and scans of handwritten notes which Professor Bierstone has generously given me the permission to use.

1 Introduction

TODO: [this](#)

2 Differentiation

TODO: [this](#)

3 Integration

3.1 The (Riemann) Integral Over a Rectangle

TODO: [this](#)

3.2 Integrals Over More General Bounded Sets

TODO: [this](#)

3.3 Fubini's Theorem

TODO: [this](#)

3.4 Partitions of Unity

TODO: [this](#)

3.5 Change of Variables

TODO: [this](#)

3.6 Parametrically Defined Curves

TODO: [this](#)

4 Manifolds

4.1 What is a manifold?

TODO: [this](#)

4.2 Functions Between Manifolds

TODO: [this](#)

4.3 Manifolds with Boundary

TODO: [this](#)

4.4 Multilinear Algebra

TODO: [this](#)

4.5 Vector Fields and Differential Forms

TODO: [this](#)

4.6 The Differential Operator

TODO: [this](#)

5 Integration on Manifolds

TODO: [this](#)

5.1 Integration of Parametrized Curves

TODO: [this](#)

5.2 Integral of a k -form over a k -cube

TODO: [this](#)

5.3 Integration of Differential Forms on Manifolds

TODO: [this](#)

5.4 Manifolds with Boundary

TODO: [this](#)

5.5 Stoke's Theorem on Manifolds

TODO: [this](#)