Chapter 1

Introduction

These notes are personal notes I have created in the process of studying geometric measure theory and contain a wide variety of definitions and techniques that appear often in the field. The notes were created primarily from a reading course taken with Dr. Gregory Chambers at Rice University in Spring 2021 that followed Dr. Kenneth Falconer's textbook *Fractal Geometry*. One will notice that the proofs of major results are either lacking or not included in these notes. This is because this document is primarily intended as a reference– if the reader is looking for a deeper insight as to why these results are true, I would highly recommend one read the details in *Fractal Geometry*– if the proof isn't in there, then I have listed the source separately with the statement.

The results in this book assume a basic understanding of measure theory, and so one should already know the definition of a measure, σ-algebra, Borel set, and so on. Introductory notes on this topic will be provided in the LibreMath repository (soon).