

Example report file

Michael R. Blanton

December 3, 2023

Abstract

This document has an outline of a report with figures, with the sections that your report should contain. The abstract should have a paragraph encapsulation of the motivation, methods, and major results of the report.

1 Introduction

The introduction should give motivation and background material for the project. It should not be overly long, so the background material should only be what is necessary to support the motivation for the project.

The background material (or later parts of the text) may refer to references which the reader can pursue. The BibTeX system is ideal for tracking references. The author of this course's book (Newman 2012) has also written many scientific articles, for example Newman (2002).

The introduction should end with a short outline of the paper. In the following sections we will describe what a methods section should contain (§2),

2 Methods

This section should contain the problem description, any preliminary analysis necessary to help set up the computational problem, and how you did the computation. This section may be fairly long and can be broken into subsections (as may other sections). You should use your judgment about how to organize this section for readability.

2.1 Formulation of the problem

For example, one section might describe how to write the problem in a mathematically convenient form.

2.2 Computational methods

Another section might describe the specific computational methods.

3 Results

This section should contain the results. If appropriate, it should start with test cases with known solutions or other validation tests for the methods. Then it should go on to show the results of your analysis for the more interesting cases.

The discussion in this section is best if it is fairly minimal. “Just the facts” is good place to start. Sometimes it is useful however to impose some narrative flow; i.e. describe why each case is important to look at.

It can be difficult to judge what is appropriate to put in the report. You should begin by being very inclusive regarding the results you should.

This section should definitely have figures (e.g. Figure 1), though they may be appropriate in other sections too.

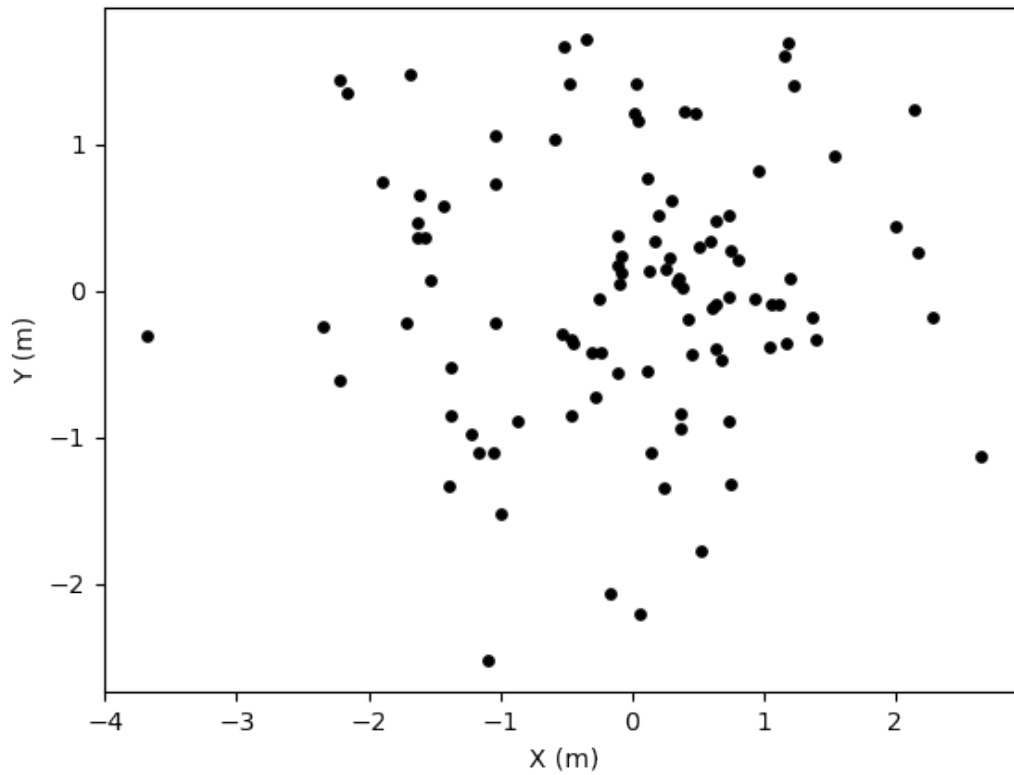


Figure 1: This is just an example. Notice that both axes of the figure are labeled, and the units are given.

4 Discussion

The discussion should be where you impose interpretation on the results. This discussion will have different forms depending on the goals of the project. What can you conclude about the problem or about the methods involved? Are you able to reach a conclusion about the relative merits of different methods? Are these results expected? How does this work compare with previously determined results? What are the caveats and limitations of this work?

References

Newman, M. 2012, Computational Physics (Createspace Independent Pub)

Newman, M. E. 2002, Physical Review Letters, 89, 208701