MATH 4800-001 Reports 1-14 Specification

Instructor: Alp Uzman

Subject to Change; Last Updated: 2024-11-25 15:21:00-07:00

1 Background

Weekly Reports 1 to 14 serve as a substitute for traditional homework assignments in this semester's MATH 4800. While specific guidelines for style and content must be followed, you have considerable flexibility in choosing the content of your weekly report, within the framework of collective restrictions.

Collective Work   Your weekly reports are designed to simulate the collaborative yet competitive nature of mathematical research. Collaboration is encouraged, reflecting how mathematicians work on open problems. However, if two reports overlap, only the first submission will be assessed; the later one will receive a zero for the overlapping content. This policy emphasizes the importance of originality and timing, similar to the social dynamics of real-world research. As part of the same research community, you will need to communicate with each other about what you are working on. As your instructor, I will oversee this process much like a journal editor/referee.

2   What to Submit

The content of your weekly report is up to you, as long as it aligns with the course scope[1] and is within reasonable limits[2]. Possible report contents include:

- detailed and rigorous solutions of problems from the course references,

- detailed and rigorous solutions of exercises suggested in class,

- discussions and study of generalizations of theorems or formulas from the references or class discussions,

- completions of gaps in proofs of theorems discussed in class,

- studies of the preliminaries of a particular article,

- ...

3   Style, Formatting, and References

Your report should consist of complete grammatical sentences, interspersed with mathematical expressions. If you include an exercise or problem from a book, you must provide the full statement of the problem, along with the relevant page and section numbers. All weekly reports must be prepared using Latex. The length of a weekly report should be between 2 to 5 pages not counting the acknowledgements and references, relative to the preamble of the template TEX file available under the Files tab on Canvas:

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[1]As per the syllabus, the scope of the course is limited to topics that have a "citation distance one" from one of the main resources.

[2]If you have any doubts about the reasonability of your topic, please consult with the course staff.

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\documentclass[oneside,letterpaper,notitlepage,12
  pt]{amsart}

\usepackage[marginparwidth=1.5in,
            top=1in,
            bottom=1in,
            left=1.25in,
            right=1.25in,
            headheight=60pt
            ]{geometry}

\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}

\usepackage{mathtools}
\usepackage{amscd}
\usepackage{amsthm}
\usepackage{amssymb}
\usepackage{amsmath}
```

All resources must be properly cited, and any collaboration or assistance (including the use of generative tools) must be acknowledged in a separate Acknowledgments section. Some textbooks for this course, as listed in the syllabus, include complete solutions or hints for exercises[3]. If you use these solutions or hints, you must rewrite the solution in your own words and acknowledge the source[4].

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[3]For example, Barnsley's book contains almost complete solutions to almost all exercises. Falconer's *Fractal Geometry* has selected solutions available in the Solution Manual under the "Browse by Resource" tab at www.wileyeurope.com/fractal. The Petrunin book has "semisolutions" and the Pesin-Climenhaga book has hints for exercises.

[4]For instance, your solution may start "Based on Petrunin's semisolution on p.156, we argue as follows...". For deeper understanding, consider exploring alternative solutions.

4   Generative AI and Computer Algebra Systems Regulations

Should you decide to use either a generative AI tool or a computer algebra system while preparing your report, you must properly acknowledge where and how these tools were used in your report.

5   How to Submit

Submit the following files on the Canvas page for the assignment:

1. Your work as a PDF file rendered in Latex.

2. All the source files for your PDF, including the TEX file as well as any supporting files (such as a BIB or PNG file).

> **Canvas will not warn you if you miss submitting one of the files above. Unless all the items above are submitted, your submission will be incomplete and graded accordingly.**

6   When to Submit

Weekly Reports 1 to 14 are due on the following dates:

- WR1 due on September 1, 2024 at 11:59 PM

- WR2 due on September 8, 2024 at 11:59 PM

- WR3 due on September 15, 2024 at 11:59 PM

- WR4 due on September 22, 2024 at 11:59 PM

- WR5 due on September 29, 2024 at 11:59 PM

- WR6 due on October 6, 2024 at 11:59 PM

- WR7 due on October 13, 2024 at 11:59 PM

- WR8 due on October 20, 2024 at 11:59 PM

- WR9 due on October 27, 2024 at 11:59 PM

- WR10 due on November 3, 2024 at 11:59 PM

- WR11 due on November 10, 2024 at 11:59 PM

- WR12 due on November 17, 2024 at 11:59 PM

- WR13 due on November 24, 2024 at 11:59 PM

- WR14 due on December 1, 2024 at 11:59 PM

Late submissions will not be accepted unless you contact the course staff with a valid excuse before the deadline.