SAMPLE LaTeX PAPER/PROJECT WRITE-UP FORMAT

COLLIN KOFROTH

Abstract. Here's a sample LaTeX template. I'll highlight a few things that I do differently.

Contents

1. A Section

This is how you generate a section. A few things that I want to point out are how the theorem environments look and differ (some are not in italics), and how I modified the remark environment (as well as the example one, which is not shown but similar).

1.1. A Subsection.

This is how you generate a subsection. Here's a theorem.

Theorem 1.1 (Smoothness of Eigenfunctions, Lemma 14.5 in [8])**.** *Let $z \in \mathbb{C}$ and $u \in L^2(M)$ be such that*

$$(-h^2\Delta_g - z)u = 0,$$

interpreted in the sense of distributions. Then, $u \in C^\infty(M)$.

Here's a corollary.

Corollary 1.2. *If z is an eigenvalue, then the corresponding eigenfunction is smooth.*

Proof of Theorem 1.1. I don't want to prove this right now. □

Moving on!

1.2. Another Subsection.

The definitions look a bit different.

Definition 1.3 (Theorem 3.6 in [8])**.** Let $f \in \mathcal{S}(\mathbb{R})$. We say that $\tilde{f}$ is an analytic extension of f to the complex plane provided that

(1) $\tilde{f} \in C^\infty(\mathbb{C})$, $\tilde{f}\big|_{\mathbb{R}} = f$
(2) $\operatorname{supp} \tilde{f} \subset \{z \in \mathbb{C} : |\operatorname{Im} z| \leq 1\}$
(3) $\bar{\partial}_z \tilde{f}(z) = \mathcal{O}(|\operatorname{Im} z|^\infty)$, where $\bar{\partial}_z = \dfrac{1}{2}(\partial_x + i\partial_y)$ is the Cauchy-Riemann operator.

I did not want the definitions to be italicized. Here is one more relevant type of mathematical statement.

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Proposition 1.4. *Let $f \in \mathcal{S}(\mathbb{R}^n)$, and fix a cutoff $\chi \in C_c^\infty((-1,1))$ such that $\chi \equiv 1$ on $[-1/2, 1/2]$. Then,*

$$\tilde{f}(z) := \frac{1}{2\pi}\chi(y)\int\limits_{\mathbb{R}} \chi(y\xi)\hat{f}(\xi)e^{i\xi(x+iy)}\,d\xi$$

is an almost-analytic extension of f to the complex plane (in the sense of Definition 1.3).

2. Another Section

Remarks also look a bit different.

Remark 2.1. Here is a remark on something, probably a very insightful comment. This puts a triangle at the end to indicate the end of the remark, which can be useful since remarks can be long and otherwise blend into the text. △

One last thing is the bibliography. I'm using bibtex; see the file "biblio.bib." One must explicitly cite the articles for them to be shown. I will show some different types here ([1], [2, 3, 4], [5],[6],[7]), but I will omit one item from the aforementioned file (to demonstrate that it will not show up)

Acknowledgments

I want to thank my poor handwriting and past graders for making me learn LaTeX earlier than many others.

Appendix A. Pseudocode

Here's how you can do pseudocode:

Solve $Ax_0 = c$
$r \leftarrow Bx_0 - c$
tol$\leftarrow$ 1e-6
$i \leftarrow 0$
while $\|r_i\| > tol$ **do**
    Solve $Ad_i = r_i$
    $x_{i+1} \leftarrow x_i - d_i$
    i++
end while

References

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