Title of your thesis

Bachelor-Arbeit

zur Erlangung des Grades

Bachelor of Science (B.Sc.)

im Studiengang Mathematik

am Department Mathematik der
Friedrich-Alexander-Universität Erlangen-Nürnberg

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von **Your Name**

Betreuer: Prof. A
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1 The first Chapter

1.1 A

Let us begin with some basic definitions.

DEFINITION 1.1. *s*

We'll this obviously leads to the following.

THEOREM 1.2 (MUCH WOW RESULT). *I'm one heckin pretty result! You gotta admit that right?*
Look an equation

$$a^2 + b^2 = c^2.$$

Wow i have so much to say.

State what that would actually be!

1.2 B

Hello

1.3 C

This is pretty cool section.

Do you like lewis huey and the news?

2 How to do math

This chapter is dedicated to the functionality of the template concerning its actual and inherent purpose: mathematics.

2.1 Theorem and Definitions

In the following we will use some material from [1] to showcase the possibilities. The package used for theorem numbering and styling is `tcolorbox`, which is a modern and versatile way to create nice boxes embedded in and consistent numbering scheme. The commands which provide the environments for theorems, definitions etc. are defined in the file *styles/fau-appearence.sty*. We will not fully explain how to define these commands within the `tcolorbox` context, but we will showcase how to use them. The following

```
\begin{theorem}{Euler 1763}{fermat}
Here could be your result.
\end{theorem}
```

will result in the output

THEOREM 2.1 (Euler 1763). *Here could be your result.*

The number of the theorem is assigned automatically. The second argument defines the theorem addition as displayed above and the third argument defines the name of the label that is used to reference Theorem 2.1. While LaTeXprovides the basic commands for cross-referencing, the use of `tcolorbox` suggests the usage of the `cleveref` package that enhances some of the basic features and is indeed very clever. The above reference was defined by the command

```
\cref{thm:fermat}
```

where the prefix `thm:` was defined in the `tcolorbox` settings. The following environment prefix combinations are provided by *styles/fau-appearence.sty*:

- theorem - thm,
- definiton - def,
- lemma - lem,
- corollary - cor,
- remark - rem.

The actual appearance of the theorem can be specified by the packet option `thmboxing` for `fau-appearence.sty`, where this file uses

```
\usepackage[thmboxing=thmstyle_plain]{styles/fau-appearence}.
```

. If you want to specify the style of theorems, definitions etc. you have to use

```
renew here plz
```

showcase some of the boxes we provide

DEFINITION 2.2. *A mapping $\mu : 2^X \to [0, \infty]$ is called a **measure** on the nonempty set X provided*

(i) $\mu(\emptyset) = 0$ *and*

(ii) *if*

$$A \subset \bigcup_{k \in \mathbb{N}} A_k,$$

then

$$\mu(A) \leq \sum_{k \in \mathbb{N}} \mu(A_k).$$

We can reference single items of a enumeration with the help of the enumitem package. For example concerning Definition 2.2 we can add the informtion that Item 2.2(ii) is called subadditivity.

THEOREM 2.3 (MUCH WOW RESULT). *I'm one heckin pretty result! You gotta admit that right?*
Look an equation

$$a^2 + b^2 = c^2.$$

Wow i have so much to say.

State what that would actually be!

2.2 B

Hello

2.3 C

This is pretty cool section.

Do you like lewis huey and the news?

Books

[1] L. C. Evans. *Measure Theory and Fine Properties of Functions, Revised Edition (Textbooks in Mathematics)*. Chapman und Hall/CRC, Apr. 2015.