

Thesis Title

A Thesis
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The Academic Faculty

by

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Thesis Title

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This work is dedicated to my mother and father and to the many others, though unnamed, who helped me in the completion of this task.

PREFACE

This is the preface.

ACKNOWLEDGEMENTS

I want to gratefully acknowledge all those who helped me in this task.

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SUMMARY

We study the effects of warm water on the local penguin population. The major finding is that it is extremely difficult to induce penguins to drink warm water. The success factor is approximately $-e^{-i\pi} - 1$. Replace this text with your own abstract.

CHAPTER I

INTRODUCTION

Every dissertation should have an introduction. You might not realize it, but the introduction should introduce the concepts, background, and goals of the dissertation.

CHAPTER II

SAMPLE MATHEMATICS AND TEXT

2.1 *In-line and Displayed Mathematics*

The expression $\sum_{i=1}^{\infty} a_i$ is in-line mathematics, while the numbered equation

$$\sum_{i=1}^{\infty} a_i \tag{1}$$

is displayed and automatically numbered as equation 1.

Let H be a Hilbert space, C be a closed bounded convex subset of H , T a non-expansive self map of C . Suppose that as $n \rightarrow \infty$, $a_{n,k} \rightarrow 0$ for each k , and $\gamma_n = \sum_{k=0}^{\infty} (a_{n,k+1} - a_{n,k})^+ \rightarrow 0$. Then for each x in C , $A_n x = \sum_{k=0}^{\infty} a_{n,k} T^k x$ converges weakly to a fixed point of T .

Two sets of L^AT_EX parameters govern mathematical displays.¹ The spacing above and below a display depends on whether the lines above or below are short or long, as shown in the following examples.

A short line above:

$$x^2 + y^2 = z^2$$

and a short line below.

A long line above may depend on your margins

$$\sin^2 \theta + \cos^2 \theta = 1$$

as will a long line below. This line is long enough to illustrate the spacing for mathematical displays, regardless of the margins.

2.2 *Mathematics in Section Heads* $\int_{\alpha}^{\beta} \ln t dt$

Mathematics can appear in section heads. Note that mathematics in section heads may cause difficulties in typesetting styles with running headers or table of contents entries.

¹L^AT_EX automatically selects the spacing depending on the surrounding line lengths.

2.3 Theorems, Lemmata, and Other Theorem-like Environments

A number of theorem-like environments is available. The following lemma is a well-known fact on differentiation of asymptotic expansions of analytic functions.

Lemma 1 *Let $f(z)$ be an analytic function in \mathbb{C}_+ . If $f(z)$ admits the representation*

$$f(z) = a_0 + \frac{a_1}{z} + o\left(\frac{1}{z}\right),$$

for $z \rightarrow \infty$ inside a cone $\Gamma_\varepsilon = \{z \in \mathbb{C}_+ : 0 < \varepsilon \leq \arg z \leq \pi - \varepsilon\}$ then

$$a_1 = -\lim_{z \rightarrow \infty, z \in \Gamma_\varepsilon} z^2 f'(z), \quad (2)$$

Proof. Change z for $1/z$. Then $\Gamma_\varepsilon \rightarrow \bar{\Gamma}_\varepsilon = \{z \in \mathbb{C}_- : \bar{z} \in \Gamma_\varepsilon\}$ and

$$f(1/z) = a_0 + a_1 z + o(z). \quad (3)$$

Fix $z \in \bar{\Gamma}_\varepsilon$, and let $C_r(z) = \{\lambda \in \mathbb{C}_- : |\lambda - z| = r\}$ be a circle with radius $r = |z| \sin \varepsilon/2$.

It follows from (3) that

$$\frac{1}{2\pi i} \int_{C_r(z)} \frac{f(\lambda) d\lambda}{(\lambda - z)^2} = \sum_{m=0}^1 a_m \frac{1}{2\pi i} \int_{C_r(z)} \frac{(\lambda - z)^m d\lambda}{(\lambda - z)^2} + R(z), \quad (4)$$

where for the remainder $R(z)$ we have

$$\begin{aligned} |R(z)| &\leq r^{-1} \max_{\lambda \in C_r(z)} o(|z|) = r^{-1} \max_{\lambda \in C_r(z)} |\lambda| \cdot O(|z| + r) \\ &= \frac{|z| + r}{r} \cdot O(|z| + r) = \frac{1 + \sin \varepsilon}{\sin \varepsilon} \cdot O(|z|). \end{aligned}$$

Therefore $R(z) \rightarrow 0$ as $z \rightarrow \infty, z \in \bar{\Gamma}_{\varepsilon/2}$, and hence by the Cauchy theorem (4) implies

$$\frac{d}{dz} f(1/z) = a_1 + R(z) \rightarrow a_1, \text{ as } z \rightarrow \infty, z \in \bar{\Gamma}_{\varepsilon/2},$$

that implies (2) by substituting $1/z$ back for z . ■

Head	Head	Head
entry	entry	entry
entry	entry	entry
entry	entry	entry

Table 1: Sample table.

CHAPTER III

SOME ANCILLARY STUFF

Ancillary material should be put in appendices, which appear just before the bibliography.

Create your BibTeX bibliography by adding a BibTeX field using your BibTeX database and the gatech-thesis BibTeX bibliography style. Compile the document and create the bibliography using the usual methods. Then, delete the BibTeX field from your document and compile again. The `\references` TeX field that follows will include the bibliography in the typeset document and also include a listing for the references in the table of contents.

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VITA

Arthor U. Thor was born in an insignificant town whose only claim to fame is that it produced such a fine specimen of a researcher.