



American University  
of Central Asia

Applied Mathematics and Informatics Program

# Heart Rate Modeling

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A Thesis Submitted to the Applied Mathematics and Informatics Program of American University of Central Asia in Partial Fulfillment of the Requirements for the Degree of  
**Bachelor of Arts**

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# 1 INTRODUCTION

**Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi lacinia ante leo, id tristique turpis semper nec.** Phasellus at feugiat libero. Fusce sed porta quam. Vivamus bibendum nulla in urna sagittis, vel aliquam neque commodo. Ut a faucibus arcu, eu placerat ex. Vestibulum nec quam neque. Sed vitae quam sit amet tellus suscipit aliquam id eget ipsum. Mauris consequat tristique scelerisque. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec in tempus nunc, laoreet pretium sem. Proin commodo, augue eu mollis hendrerit, sapien est lobortis tellus, mattis convallis tortor lacus a augue. Phasellus euismod aliquet iaculis. Aenean fringilla euismod lectus sit amet mollis. Proin erat erat, pharetra vel diam in, consectetur hendrerit odio. Praesent lacinia tellus tempor est consectetur, eget eleifend est sollicitudin.

## 1.1 Hello there

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### 1.1.1 Methods

**Donec tempor sodales tortor a facilisis. Duis neque est, hendrerit ac lobortis ac, fermentum non augue. Proin commodo quis nisi at congue. Mauris congue ante non purus hendrerit aliquet. Sed neque odio, dignissim et maximus interdum, vehicula quis metus. Praesent sagittis tincidunt est, eu tempor dui pharetra vitae. Pellentesque maximus euismod tellus sed blandit.**

## 2 METHOD 1

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Mauris ipsum quam, rhoncus nec vehicula vitae, viverra et nisi. Nullam pellentesque non magna sit amet efficitur. Duis efficitur lectus in placerat euismod. Fusce eu diam odio. Maecenas vehicula dapibus erat, ac vehicula tellus tempus non. Vestibulum pharetra varius leo, a posuere ante posuere ut. Donec sit amet bibendum nulla, sed ultricies libero.

Here are some mathematics examples using the standard word font for times new roman. This shall be used for comparison as well. I will hope that I can replicate this exactly using LuaLaTex. I hope so.

$$(x + a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k} \quad (2.1)$$

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left( a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$$

In Figure 2.1 we can see what was indicated by (2.1)

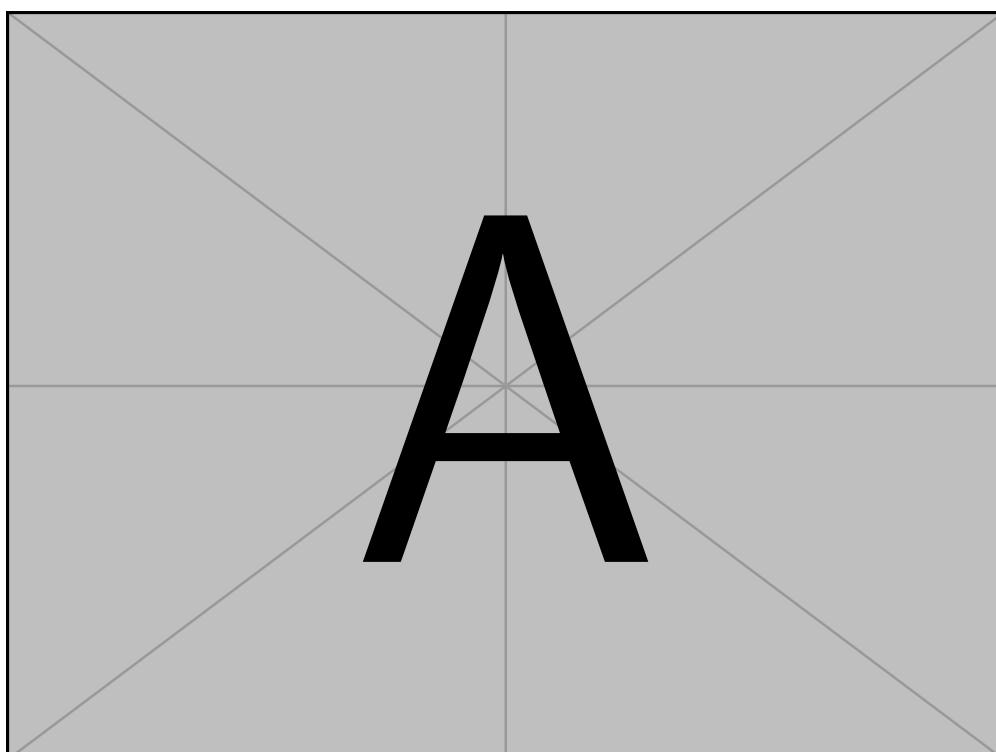


Figure 2.1: This is a test caption

Table 2.1 may illustrate why Figure 2.1 looks the way it looks.

A	B	C
231123.2134234	30491234	02341029348
231123.2134234	30491234	02341029348
231123.2134234	30491234	02341029348
231123.2134234	30491234	02341029348

Table 2.1: This is a test caption for the table