A Simple Introduction to *Mathematica* for Undergraduate Research Projects

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Preface

This book is written especially for the students of MATH 3120 and 3130 at Austin Peay State University in Clarksville, TN, but we hope it reaches a wider audience.

If you have never programmed before...

This pamphlet assumes you have done at least a little programming before, possibly in C, C++, FORTRAN, Visual Basic, or some other language. If not, *that is completely fine.* We will walk you through a little basic programming here so that you can get your feet wet, and then you will be ready to take on chapter 1!

CHAPTER 1

A Review of Some Stuff You've Probably Seen Before

Before beginning this chapter, it is assumed that you know a few things about programming already. Specifically, you will need to know how to

(1) assign values to variables
(2) evaluate *Mathematica* cells

and if you don't, that's quite alright. Just see the section "*If you have never programmed before...*" on page vii, and even if you have done a bit of programming before, we will walk you through some basic *Mathematica*.

1. Variable Assignment

The first thing we need to know in any language is how to assign variables. Probably you are thinking "*I learned this in CSCI 1010!*", but *Mathematica* is a subtle language, and does not always work as you might expect if you are coming from C++ or FORTRAN.

```
i = 1;
j := 2;
k = 3
l := 4
```

Looking at this example, we can see that there are four slightly different ways to "assign" values to a variable, so let's discuss this a bit. If you put this code into a *Mathematica* cell, you will see that, upon evaluating the cell,

APPENDIX A

Finding Help on the Internet

One of the greatest resources for *Mathematica* help on the internet is StackOverflow/Mathematica.