



Updated: 2017-09-20

Supplementary Materials

The book was written using *Mathematica* 10 and 11; edited using *Mathematica* 11.0; and tested with *Mathematica* 11.1&11.2 (minors changes are identified below). However, it should still be useful with future versions of the program as well.

If you haven't installed Mathematica locally, you can alternatively run most of the examples included in the book in the cloud using the WOLFRAM PROGRAMMING LAB (<https://lab.wolframcloud.com/app/>). Just log in and select the **Create a New Notebook** option on the bottom left side of the screen.

At the end of each chapter there is a section containing additional resources carefully selected that can be accessed from within *Mathematica* or by pasting the web address in your browser.

In a few cases, the book uses specific files available for downloading from the author's website <http://diarium.usal.es/guillermo/mathematica/>.

Unzip the file called MathematicaBeyondMathematics.zip. The unzipped file will create a subdirectory called **Data** containing all the *supplementary materials*.

- The following function checks the directory of the active notebook.

```
NotebookDirectory[]
```

```
D:\MathematicaBeyondMathematics\
```

- In the directory above you should find a subdirectory named **Data**. With the following command we set the subdirectory **Data** as our default working directory:

```
SetDirectory[FileNameJoin[{NotebookDirectory[], "Data"}]]
```

```
D:\MathematicaBeyondMathematics\Data
```

- The files from **Data** can be imported. For example, to import the Excel file containing information about cell population:

```
Import["Cells.xlsx"]
```

```
{{{time, Population 1, Population 2}, {0.5, 0.7, 0.1}, {1., 1.3, 0.2},
{1.5, 1.9, 0.3}, {2., 2.3, 0.4}, {2.5, 2.7, 0.5}, {3., 3., 0.6},
{3.5, 3.3, 0.7}, {4., 3.6, 0.7}, {4.5, 3.8, 0.8}, {5., 4., 0.8},
{5.5, 4.2, 0.9}, {6., 4.3, 1.}, {6.5, 4.4, 1.}, {7., 4.5, 1.1},
{7.5, 4.6, 1.1}, {8., 4.6, 1.2}, {8.5, 4.7, 1.2}, {9., 4.8, 1.3}}}
```

- The Mathematica packages included in the compressed file should be copied to:

```
FileNameJoin[{$InstallationDirectory, "Addons", "Applications"}]
```

C:\Program Files\Wolfram Research\Mathematica\11.2\Addons\Applications

The author would appreciate any comments or suggestions. Please send them to: guillermo2046@gmail.com, with the subject: 'Mathematica Beyond Mathematics'.

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Since [Mathematica 11.1](#), to display all the outputs in the traditional form (**TraditionalForm**) proceed as follows:

Edit ► Preferences ► Advanced ► Option Inspector ► Cell Options ► New Cell Defaults ► CommonDefaultFormatTypes then type **TraditionalForm** instead of **StandardForm** and all the outputs will be displayed in the traditional form.

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[Only in version 11.0. Instead of](#) `tsm=TimeSeriesModelFit[%]type tsm=TimeSeriesModelFit[%, "ARIMA"]`

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[Instead of](#) `list={{a1, b1, c1}, {a2, b2, c2}, {a3, b3, c3}}; type list={{a1, b1, c1}, {a2, b2, c2}, {a3, b3, c3}, {a4, b4, c4}};`

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The original link for the Rosseta Stone has been moved to (accessed 2017-09-16):	
<code>rosettaimage =</code>	
<code>Import["https://upload.wikimedia.org/wikipedia/commons/c/ca/Rosetta_Stone_BW.jpeg"];</code>	
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Since Mathematica 11.1.1. instead of <code>PolyhedronData["Dodecahedron","Faces"]</code> type <code>PolyhedronData["Dodecahedron","Faces","Polygon"]</code>.	

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Instead of:

```
visibleplanets[planet_, date_, property_] := PlanetData[planet, EntityProperty["Planet",
property, {"Date" -> date}]]
ts[planet_, d1_, d2_, property_] := TimeSeries[#, visibleplanets[planet, #, property]] &
/@ DateRange[d1, d2, "Week"]
```

the functions below are significantly faster:

```
visibleplanets[planet_, d1_, d2_, property_] := PlanetData[planet,
Table[EntityProperty["Planet", property, {"Date" -> DateObject[date]}], {date,
DateRange[d1, d2, "Week"]}]];
ts[planet_, d1_, d2_, property_] := TimeSeries[Transpose[{DateRange[d1, d2, "Week"],
visibleplanets[planet, d1, d2, property]}]]];
```

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Instead of $\text{var}=\{x,y\}$, $\text{ob}=x+y$, $c1=0\leq x\leq 1$, $c2=0\leq y\leq 2$ type $\text{var}=\{x,y\}$; $\text{ob}=x+y$; $c1=0\leq x\leq 1$; $c2=0\leq y\leq 2$;

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