



## METADATA

**Title:** Mathematica for economists

**Other Titles:** -

**Language:** Greek

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**ISBN:** 978-618-5726-53-9

**Subject:** LAW AND SOCIAL SCIENCES, MATHEMATICS AND COMPUTER SCIENCE

**Keywords:** Computational mathematics / Mathematica / Wolfram / Mathematical economics / Microeconomics

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**Bibliographic Reference:** Kotsios, S., & Lomis, I. (2024). Mathematica for economists [Postgraduate textbook]. Kallipos, Open Academic Editions. <http://dx.doi.org/10.57713/kallipos-169>

### Abstract

This book focuses on utilizing Mathematica and the Wolfram language for economic applications. It is not meant to be a manual for using Mathematica but aims to introduce readers to the necessary concepts needed to begin working with economic applications, even if they do not have prior programming experience. The approach taken relies on the historically older and more conservative commands and usages of the language. It acknowledges that there have been advancements in computing and the continuous expansion of command libraries. For instance, Mathematica can now interpret natural language and has access to numerous databases across scientific fields, as well as incorporating cutting-edge artificial intelligence technologies. Though the use of these advanced features is encouraged, the text emphasizes the importance of understanding basic programming principles and the structure of the language before exploring more advanced features. The book's content is divided into three parts. In the

first part, Mathematica is treated as a powerful calculator capable of performing simple arithmetic operations to complex higher mathematics problems using both symbolic and numerical methods. It also enables users to create various types of graphical representations. The second part introduces the Wolfram language as a general programming language that supports various programming paradigms (e.g., procedural programming, functional programming, etc.). This presentation assumes no prior programming knowledge but may assume knowledge of economic theory and mathematics in some cases. By combining programming capabilities with the rich set of built-in commands, readers can effectively tackle a range of mathematical and economic problems. The third part utilizes the concepts presented in the first two parts in a series of applications in economics, computational mathematics and financial mathematics. Presenting these applications often assumes knowledge of economic theory and mathematics.