



## Logic and Complexity

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Lassaigne, Richard

Springer London,  
2004

Electronic books

Monografía

Logic and Complexity looks at basic logic as it is used in Computer Science, and provides students with a logical approach to Complexity theory. With plenty of exercises, this book presents classical notions of mathematical logic, such as decidability, completeness and incompleteness, as well as new ideas brought by complexity theory such as NP-completeness, randomness and approximations, providing a better understanding for efficient algorithmic solutions to problems. Divided into three parts, it covers: - Model Theory and Recursive Functions - introducing the basic model theory of propositional, 1st order, inductive definitions and 2nd order logic. Recursive functions, Turing computability and decidability are also examined. - Descriptive Complexity - looking at the relationship between definitions of problems, queries, properties of programs and their computational complexity. - Approximation - explaining how some optimization problems and counting problems can be approximated according to their logical form. Logic is important in Computer Science, particularly for verification problems and database query languages such as SQL. Students and researchers in this field will find this book of great interest

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**Título:** Logic and Complexity by Richard Lassaigne, Michel Rougemont

**Editorial:** London Springer London 2004

**Descripción física:** 1 online resource (x, 361 pages)

**Mención de serie:** Discrete Mathematics and Theoretical Computer Science

**Contenido:** Part 1: Basic Model Theory and Computability -- Propositional logic -- Deduction systems -- First order logic -- Completeness of first-order logic -- Models of computation -- Recursion and decidability -- Incompleteness of Peano Arithmetic -- Part 2: Descriptive Complexity -- Complexity: time and space -- First order definability -- Inductive definitions and second order logic -- Models of parallel computations -- Space complexity: the classes L, FL, NL, PSPACE -- Definability of optimisation and counting problems -- Part

**ISBN:** 9780857293923 electronic bk.) 0857293923 electronic bk.) 9781447110521 1447110528 0857293923

**Materia:** Computer science Logic design Computational complexity Mathematical optimization Distribution (Probability theory) Computational complexity. Computer science. Distribution (Probability theory) Logic design. Mathematical optimization.

**Autores:** Rougemont, Michel

**Enlace a formato físico adicional:** Print version 9781447110521

**Punto acceso adicional serie-Título:** Discrete mathematics and theoretical computer science

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