

MATHEMATICS 2017

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Featured authors

Daniel W. Cunningham, *SUNY Buffalo State* Author of **Set Theory**

Set theory not only provides a foundation for mathematics, it also provides a foundation for undergraduates who are majoring in mathematics. When I was an undergraduate, one of my first upper-division courses was set theory; a subject that gave me a definite advantage over other students in my ensuing mathematics courses. My book offers this advantage to today's undergraduates. By design, the text is accessible to readers who are new to upper-level mathematics. In particular, I have composed clear and complete proofs throughout the text. The fundamental facts about abstract sets (relations, functions, natural numbers, order, cardinality, transfinite recursion, the axiom of choice, ordinal numbers, and cardinal numbers) are covered and developed within the framework of axiomatic set theory. These topics will also better prepare students who want to pursue graduate study in pure mathematics.

Set theory is a subject that is sufficiently important and interesting to merit its own undergraduate course. Yet, there are undergraduate programs in mathematics that do not offer an upper-division course in set theory. The book can also be used to create and design such a course. I did this at my undergraduate campus, SUNY Buffalo State. I really enjoyed writing the book, and I hope that students will enjoy reading it as well.

Geoffrey R. Goodson, *Towson State University, Maryland* Author of **Chaotic Dynamics**

Dynamical system is a growing and popular area of mathematics. It has become important to prepare undergraduates in a rigorous way for graduate school in dynamical systems. My aim is to provide a thorough introduction to chaotic dynamics at a level that can be appreciated by mathematics majors at any of the 4-year colleges in the United States, and in countries where the medium of instruction is English. Seeing the concrete applications of real analysis and metric space theory to dynamical problems gives students a sense of why advanced mathematics is important and useful.







Set

Theory

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Ecole Polytechnique, Paris

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University of Cambridge

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Logic, categories and sets

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Edwin Mares Victoria University of Wellington and Adriane Rini Massey University, Auckland

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Daniel W. Cunningham State University of New York, Buffalo

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Towards Mathematics of States and Observation Bart Jacobs

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Ali Eskandarian George Washington University, Washington DC

and Valentina Harizanov

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Introduction to Coalgebra

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ORDINAL DEFINABILITY AND RECURSION THEORY





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4

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MATHEMATICAL SCIEVE REMARCH INSTITUTE

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and the

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University of Manchester

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Riemann Zeta Function

The Bloch-Kato

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