

Euclid in the Rainforest: Discovering Universal Truth in Logic and Math

By Joseph Mazur

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Like Douglas Hofstadter's **Gödel, Escher, Bach**, and David Berlinski's **A Tour of the Calculus**, **Euclid in the Rainforest** combines the literary with the mathematical to explore
logic—the one indispensable tool in man's quest to understand the world. Underpinning both math and science, it is the foundation of every major advancement in knowledge since the time of the ancient Greeks. Through adventure stories and historical narratives populated with a rich and quirky cast of characters, Mazur artfully reveals the less-than-airtight nature of logic and the muddled relationship between math and the real world. Ultimately, Mazur argues, logical reasoning is not purely robotic. At its most basic level, it is a creative process guided by our intuitions and beliefs about the world.

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Editorial Review

Review
“Devoid of complex proofs and dense mathematical language; instead, the author has drawn upon his experience as a formative teacher to create a book rich in content that connects with real-world experiences.” —**Library Journal**

“Joseph Mazur brilliantly explores the symbiotic relationship between the physical and the mathematical worlds…A stylish and seductive book that convinces the mind even as it delights the soul.” —**PEN American Center**

From the Back Cover

"How does one summarize a book about rainforest adventures, probability, the Café Luxembourg, Euclid, and prime numbers? This is an absolutely delightful book, full of insight, suffused with gentle humor–a picaresque novel of mathematics. What do we mean by proof and persuasion in the most symbolic of fields, Mazur asks, and responds with stories that effortlessly guide us to the heartland of reason. This is a fabulous book, in all senses, from beginning to end."

—Peter Galison, Mallinckrodt Professor of the History of Science and of Physics,
Harvard University, author of *Einstein's Clocks, Poincairé's Maps*

"*Euclid in the Rainforest* is beautifully written and packed with insights into how mathemeticians convince themselves they are right. Mazur is a talented teacher who knows his subject inside out, and his delightful stories take his readers to the heart of mathematics–logic and proof. This original and charming book is accessible to anyone, and deserves major success."

—Ian Stewart, Professor of Mathematics, University of Warwick, author of *Math Hysteria,* and *Flatterland*

"My chief regret after more than forty years of trying to teach concepts in mathematics and statistics to biology students is that I did not have Mazur's book available. It should be assigned reading for all undergraduates in science."

—R. C. Lewontin, Alexander Agassiz Professor, Harvard University

"Mazur is an excellent storyteller. *Euclid in the Rainforest* is a warm and creative masterpiece that reveals the spirit of mathematics."

—Tadatoshi Akiba, Mayor of the City of Hiroshima

"Mazur has a wonderfully engaging writing style, and a marvelous feel for the interface between the physical world as we experience it every day and the mathematical one. This book is a pleasure to read."

—Joseph Harris, Chair, Department of Mathematics, Harvard University

"Mazur's *Euclid in the Rainforest* is written with warmth and a lifetime's attachment to the things of this world and the forms of the world it manifests. Here are the pleasures of sitting with the author, as a young man, learning his craft in a Greenwich Village cafe from an old professor; and later on, teaching the craft in turn to an eight-year-old. Inspiring stuff. By overhearing such conversations as these, the reader too is led to savor the beauties of mathematics."

—Robert and Ellen Kaplan, co-founders of The Math Circle, and co-authors of *The Art of the Infinite: The Pleasures of Mathematics*

"Delightful, full of insight, suffused with gentle_humor–a picaresque novel of mathematics."

—Peter Galison

How do we know that something is true? How do we know that things really are what they seem? Many people think math and science are the ultimate authorities on reality. Math defines abstract, universal truths; scientific truths are established by experiments in the real world–but underlying both kinds of knowledge is logic. In *Euclid in the Rainforest,* Joseph Mazur examines the three types of logic that are the basis of our knowledge about the world we live in: the classical logic of the Ancient Greeks, the weird logic of infinity, and the everyday logic of plausible reasoning that guides all science today.

Through tales of great moments in the history of math and science, stories of students making discoveries in the classroom, and his own quirky adventures in the Greek Islands, New York, and the jungles of South America, Mazur illuminates how we uncover truth in the tangled web of our experiences–and convince ourselves that we are right.

Euclid took the incipient logic of his time to new heights with his magnificent geometry, the whole edifice of which is built on just five assumptions. That logic rigorously defined proof, cleverly avoiding problems with infinity that were introduced when the Pythagoreans discovered that the diagonal of a square could not be measured and Zeno of Elea used infinity to argue that motion is logically impossible. It would be almost two millenia, though, before a good understanding of the logic infinity emerged and made all kinds of technology possible. Plausible reasoning–which is based on the math of probability– lets us assess the general conclusions we derive from specific cases in scientific studies. It gives us the confidence to believe that a conclusion reached today will be true tomorrow, ultimately driving scientific, and human, progress.

In lucid, ebullient language, Mazur, a professor of mathematics for over thirty years, makes the fundamentals of the three fundamental types of logic widely accessible for the first time. Deeper questions at the heart of the process of discovery are laid bare: What does it mean to believe a proof? Where does the finite end and the infinite begin? How can we be sure that the statements we make about the material world are accurate? Exposing the surprising roles of intuition, belief and persuasion in logic and math, Mazur tells a real-life detective story that has been going on for millenia: the pursuit of ultimate truth about our world, our universe, and ourselves.

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About the Author

Joseph Mazur is Professor of Mathematics at Marlboro College where he has taught a wide range of classes in all areas of mathematics, its history and philosophy. He holds a Ph.D. in mathematics from M.I.T. and has authored many educational software programs, including Explorations in Calculus, the first interactive, Multimedia CD package of simulations for calculus. He lives with his wife in Vermont.

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Users Review

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Typically the book Euclid in the Rainforest: Discovering Universal Truth in Logic and Math will bring you to the new experience of reading a new book. The author style to explain the idea is very unique. If you try to find new book you just read, this book very suitable to you. The book Euclid in the Rainforest: Discovering Universal Truth in Logic and Math is much recommended to you to learn. You can also get the e-book in the official web site, so you can easier to read the book.

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