Linear Algebra: A Modern Introduction

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David Poole's innovative book prepares students to make the transition from the computational aspects of the course to the theoretical by emphasizing vectors and geometric intuition from the start. Designed for a one- or two-semester introductory course and written in simple, "mathematical English" the book presents interesting examples before abstraction. This immediately follows up theoretical discussion with further examples and a variety of applications drawn from a number of disciplines, which reinforces the practical utility of the math, and helps students from a variety of backgrounds and learning styles stay connected to the concepts they are learning. Poole's approach helps students succeed in this course by learning vectors and vector geometry first in order to visualize and understand the meaning of the calculations that they will encounter and develop mathematical maturity for thinking abstractly.

David Poole is Professor of Mathematics at Trent University, where he has been a faculty member since 1984. Dr. Poole has won numerous teaching awards: Trent University's Symons Award for Excellence in Teaching (the university's top teaching award), three merit awards for teaching excellence, a 2002 Ontario Confederation of University Faculty Associations Teaching Award (the top university teaching award in the province), a 2003 3M Teaching Fellowship (the top university teaching award in Canada, sponsored by 3M Canada Ltd.), a 2007 Leadership in Faculty Teaching Award from the province of Ontario, and the Canadian Mathematical Society's 2009 Excellence in Teaching Award. From 2002-2007, Dr. Poole was Trent University's Associate Dean (Teaching & Learning). His research interests include discrete mathematics, ring theory, and mathematics education. He received his B.Sc. from Acadia University in 1976 before earning his M.Sc. (1977) and Ph.D. (1984) from McMaster University. When he is not doing mathematics, David Poole enjoys hiking and cooking, and he is an avid film buff.

Other Books

Introduction to Vectors and Tensors, To Volume 1 This work represents our effort to present the basic concepts of vector and tensor analysis. Volume 1 begins with a brief discussion of algebraic structures followed by a rather detailed discussion of the algebra of vectors and tensors. Volume 2 begins with a discussion of Euclidean manifolds, which leads to a development of the analytical and geometrical aspects of vector and tensor fields. We have not included a discussion of general differentiable manifolds. However, we have included a chapter on vector and tensor fields defined on hypersurfaces in a Euclidean manifold. In preparing this two-volume work, our intention was to present to engineering and science students a modern introduction to vectors and tensors. Traditional courses on applied mathematics have emphasized problem-solving techniques rather than the systematic development of concepts. As a result, it is possible for such courses to become terminal mathematics courses rather than courses which equip the student to develop his or her understanding further.

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