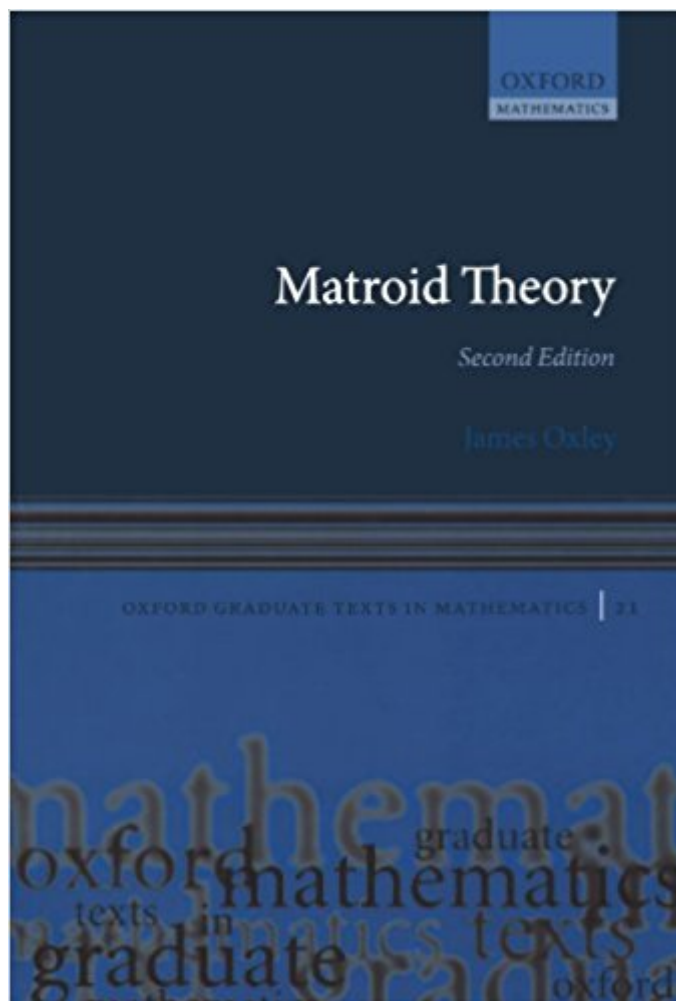


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# Matroid Theory (Oxford Graduate Texts In Mathematics)



## Synopsis

\* What is the essence of the similarity between linearly independent sets of columns of a matrix and forests in a graph? \* Why does the greedy algorithm produce a spanning tree of minimum weight in a connected graph? \* Can we test in polynomial time whether a matrix is totally unimodular? Matroid theory examines and answers questions like these. Seventy-five years of study of matroids has seen the development of a rich theory with links to graphs, lattices, codes, transversals, and projective geometries. Matroids are of fundamental importance in combinatorial optimization and their applications extend into electrical and structural engineering. This book falls into two parts: the first provides a comprehensive introduction to the basics of matroid theory, while the second treats more advanced topics. The book contains over seven hundred exercises and includes, for the first time in one place, proofs of all of the major theorems in the subject. The last two chapters review current research and list more than eighty unsolved problems along with a description of the progress towards their solutions. Reviews from previous edition: "It includes more background, such as finite fields and finite projective and affine geometries, and the level of the exercises is well suited to graduate students. The book is well written and includes a couple of nice touches ... this is a very useful book. I recommend it highly both as an introduction to matroid theory and as a reference work for those already seriously interested in the subject, whether for its own sake or for its applications to other fields." -- AMS Bulletin "Whoever wants to know what is happening in one of the most exciting chapters of combinatorics has no choice but to buy and peruse Oxley's treatise." -- The Bulletin of Mathematics "This book is an excellent graduate textbook and reference book on matroid theory. The care that went into the writing of this book is evident by the quality of the exposition." -- Mathematical Reviews

## Book Information

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James Oxley was born in Australia. After completing his undergraduate studies there, he received his doctorate from Oxford University in 1978 under the supervision of Dominic Welsh. After a postdoctoral position at the Australian National University and a Fulbright Postdoctoral Fellowship at the University of North Carolina, he began working at Louisiana State University in 1982. He has been an Alumni Professor there since 1999. He has written more than one hundred research papers in matroid theory and graph theory and has given over fifty conference talks including plenary addresses at the British Combinatorial Conference in 2001 and an American Mathematical Society meeting in 2002. Fourteen students have completed doctorates under his supervision and he is currently advising five other doctoral candidates. In 1999, he was named LSU's Distinguished Research Master for Engineering, Science, and Technology. From April until July 2005, he was a Visiting Research Fellow at Merton College, Oxford.

This is a great text on matroid theory. This book is far easier to read than other matroid book I have seen (Welsh). Second printing from 2006 fixes some of the errors in the first printing and is cheaper to boot (being a paperback). Caveat: points to wrong book as the paperback of first edition.

Carefully written, thorough and up to date. This book is a uniquely valuable reference for researchers interested in matroid theory.

The author clearly explains the topic. My only complaint is that some of the problems are rather difficult, and there isn't a solution key.

I was very pleased with the condition of the book that I received. The book arrived ahead of schedule to my apartment.

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