

Graph Theory

This standard textbook of modern graph theory, now in its fifth edition, combines the authority of a classic with the engaging freshness of style that is the hallmark of active mathematics. It covers the core material of the subject with concise yet reliably complete proofs, while offering glimpses of more advanced methods in each field by one or two deeper results, again with proofs given in full detail.

The book can be used as a reliable text for an introductory course, as a graduate text, and for self-study.

From the reviews:

"This outstanding book cannot be substituted with any other book on the present textbook market. It has every chance of becoming the standard textbook for graph theory." *Acta Scientiarum Mathematicarum*

"Deep, clear, wonderful. This is a serious book about the heart of graph theory. It has depth and integrity." *Persi Diaconis & Ron Graham, SIAM Review*

"The book has received a very enthusiastic reception, which it amply deserves. A masterly elucidation of modern graph theory."

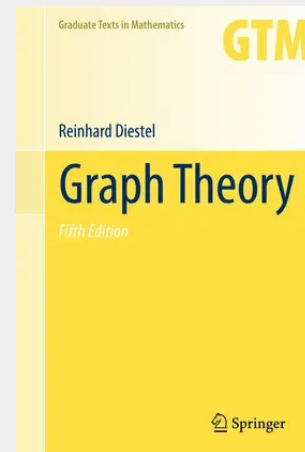
Bulletin of the Institute of Combinatorics and its Applications

"Succeeds dramatically ... a hell of a good book." *MAA Reviews*

"A highlight of the book is what is by far the best account in print of the Seymour-Robertson theory of graph minors." *Mathematika*

"... like listening to someone explain mathematics." *Bulletin of the AMS*

Almost two decades have passed since the appearance of those graph theory texts that still set the agenda for most introductory courses taught today. The canon created by those books has helped to identify some main fields of study and research, and will doubtless continue to influence the development of the discipline for some time to come. Yet much has happened in those 20 years, in graph theory no less than elsewhere: deep new theorems have been found, seemingly disparate methods and results have become interrelated, entire new branches have arisen. To name just a few such developments, one may think of how the new notion of list colouring has bridged the gulf between invariants such as average degree and chromatic number, how probabilistic methods and the regularity lemma have pervaded extremal graph theory and Ramsey theory, or how the entirely new field of graph minors and tree-decompositions has brought standard methods of surface topology to bear on long-standing algorithmic graph problems. Clearly, then, the time has come for a reappraisal: what are, today, the essential areas, methods and results that should form the centre of an introductory graph theory course aiming to equip its audience for the most likely developments ahead? I have tried in this book to offer material for such a course. In view of the increasing complexity and maturity of the subject, I have broken with the tradition of attempting to cover both theory and applications: this book offers an introduction to the theory of graphs as part of (pure) mathematics; it contains neither explicit algorithms nor 'real world' applications.



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