# Graphs & Digraphs, Fifth Edition (Textbooks in Mathematics)

*By Gary Chartrand, Linda Lesniak, Ping Zhang*

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- New or expanded coverage of graph minors, perfect graphs, chromatic polynomials, nowhere-zero flows, flows in networks, degree sequences, toughness, list colorings, and list edge colorings
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Despite a field that has evolved over the years, this student-friendly, classroom-tested text remains the consummate introduction to graph theory. It explores the subject's fascinating history and presents a host of interesting problems and diverse applications.

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## Editorial Review

Review

Gary Chartrand has influenced the world of Graph Theory for almost half a century. He has supervised more than a score of Ph.D. dissertations and written several books on the subject. The most widely known of these texts, **Graphs and Digraphs**, … has much to recommend it, with clear exposition, and numerous challenging examples [that] make it an ideal textbook for the advanced undergraduate or beginning graduate course. The authors have updated their notation to reflect the current practice in this still-growing area of study. By the authors' estimation, the **5th edition** is approximately 50% longer than the 4th edition. … the legendary Frank Harary, author of the second graph theory text ever produced, is one of the figures profiled. His book was the standard in the discipline for several decades. Chartrand, Lesniak and Zhang have produced a worthy successor.
?John T. Saccoman, *MAA Reviews*, June 2012 (This book is in the MAA's basic library list.)

As with the earlier editions, the current text emphasizes clear exposition, well-written proofs, and many original and innovative exercises of varying difficulty and challenge. … The fifth edition continues and extends these fine traditions.
?Arthur T. White, *Zentralblatt MATH* 1211

Now in its fifth edition, its success as a textbook is indicative of its quality and its clarity of presentation … The authors also describe the fascinating history behind some of the key problems in graph theory, and, to a lesser extent, their applications. This book describes the key concepts you need to get started in graph theory … . It provides all you might need to know about graph embeddings and graph colorings. Moreover, it analyzes many other topics that more general discrete mathematics monographs do not always cover, such as network flows, minimum cuts, matchings, factorization, decomposition, and even extremal graph theory … this thorough textbook includes hundreds of exercises at the end of each section. Hints and solutions for odd-numbered exercises are included in the appendix, making it especially suitable for self-learning.
?Fernando Berzal, *Computing Reviews*, September 2011

**Praise for the Fourth Edition:**
… a popular point of entry to the field … has evolved with the field from a purely mathematical treatment to one that also addresses the needs of computer scientists.
?*L'Enseignement Mathématique*

… emphasizes clear exposition, well-written proofs, and many original and innovative exercises of varying difficulty and challenge … For 25 years, **Graphs & Digraphs**, in its various editions, has served as an exemplary introduction to the emerging mathematical disciplines of graph theories, for advanced undergraduate and graduate students. It has also served established graph theorists, combinatorialists, and other discrete mathematicians, as well as computer scientists and chemists, as a useful reference work. The fourth edition continues these fine traditions.
?*Zentralblatt MATH*

About the Author

**Gary Chartrand** is a professor emeritus of mathematics at Western Michigan University. **Linda Lesniak** is

a professor emeritus of mathematics at Drew University. **Ping Zhang** is a professor of mathematics at Western Michigan University. All three have authored or co-authored many textbooks in mathematics and numerous research articles in graph theory.

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**Helen Wright:**

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