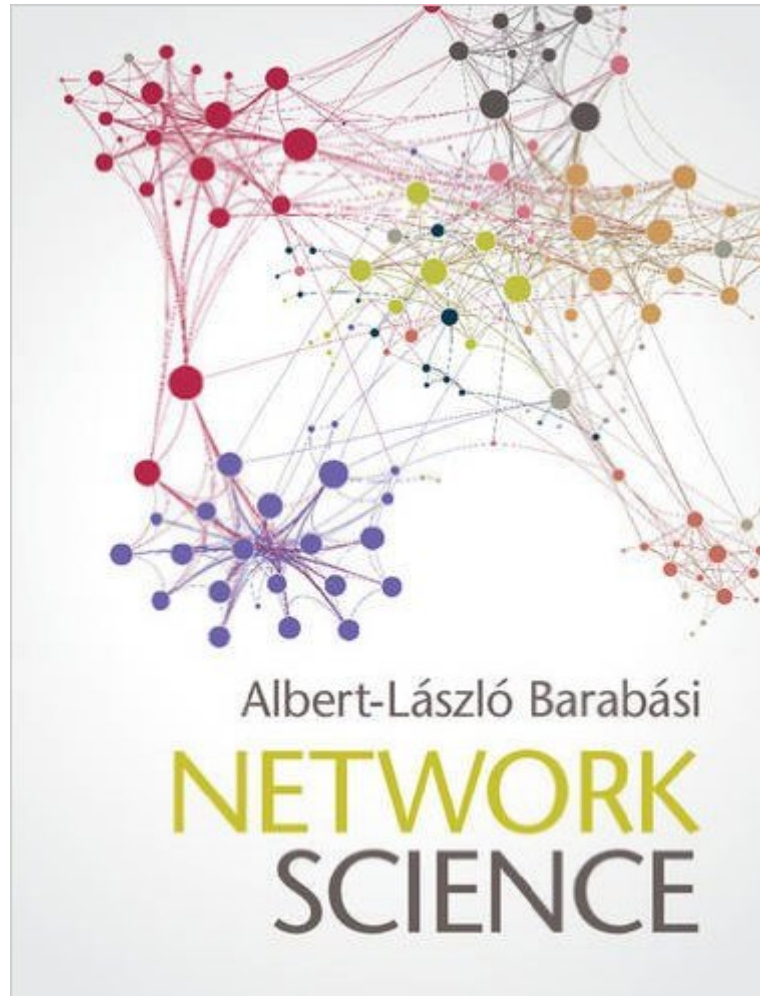


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# Network Science



## Synopsis

Networks are everywhere, from the Internet, to social networks, and the genetic networks that determine our biological existence. Illustrated throughout in full colour, this pioneering textbook, spanning a wide range of topics from physics to computer science, engineering, economics and the social sciences, introduces network science to an interdisciplinary audience. From the origins of the six degrees of separation to explaining why networks are robust to random failures, the author explores how viruses like Ebola and H1N1 spread, and why it is that our friends have more friends than we do. Using numerous real-world examples, this innovatively designed text includes clear delineation between undergraduate and graduate level material. The mathematical formulas and derivations are included within Advanced Topics sections, enabling use at a range of levels. Extensive online resources, including films and software for network analysis, make this a multifaceted companion for anyone with an interest in network science.

## Book Information

Hardcover: 474 pages

Publisher: Cambridge University Press; 1 edition (August 5, 2016)

Language: English

ISBN-10: 1107076269

ISBN-13: 978-1107076266

Product Dimensions: 7.4 x 1 x 9.7 inches

Shipping Weight: 2.6 pounds (View shipping rates and policies)

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Best Sellers Rank: #54,948 in Books (See Top 100 in Books) #21 in [Books > Science & Math > Physics > Mathematical Physics](#) #26 in [Books > Computers & Technology > Networking & Cloud Computing > Networks, Protocols & APIs > Networks](#) #66 in [Books > Textbooks > Computer Science > Networking](#)

## Customer Reviews

Studies in complexity gained momentum in Economics after Brian Arthur's work (Arthur (2015) and Foster (2005)) as the head of New Mexico's Santa Fe Institute in the late 1980s. With applications on various fronts, complex dynamical systems approaches have been applied to different fields of research in Economics and other sciences. Applications are used, for example, in Game Theory, Political Science, Biology and Physics. Original applications in Economics were on modeling of financial markets, individual agents' decision-making rules in various contexts and

studies on path-dependence and technological dynamics with increasing returns. The Atlas of Economic Complexity presented in the previous section advances the discussion of complexity combining it with Big Data techniques to create what is perhaps one of today's most relevant economic databases for world trade analysis. The term Big Data has been widely used in various contexts to describe the explosive growth of data available from the digital world. At its roots, Big Data deals with a large volume and variety of high-velocity data. In a wonderful compilation of his works on and the history of scale-free complex networks, Barabasi (2002) provides a detailed explanation of the concepts and recent contributions to network science within the context of Big Data in different fields of knowledge; some practical examples of which include the internet itself, the network of Hollywood actors and films, biological and linguistic networks, among many more. The simple case of the US airlines network (see figure 1 below) as presented by Barabasi (2002) explains in a clear manner the concept of scale-free complex networks. The first network is that of the US highway system with many connection nodes (each city is a node) and no relevant hubs.

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