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March 2008 Vol. 45 No. 07

SCIENCE & TECHNOLOGY

Mathematics

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The following review appeared in the March 2008 issue of CHOICE:

45-3838 H61 2007-4811 CIP
Brown, Courtney. **Graph algebra: mathematical modeling with a systems approach.** Sage Publications, CA, 2008. 95p
bibl index afp ISBN 9781412941099 pbk, \$19.95

Brown (political science, Emory Univ.) is well known for research on mathematical modeling in the social sciences. His book introduces the graph algebra approach to modeling systems in the social sciences. In this approach, block diagrams similar to those used by electrical engineers are used to represent the inputs, outputs, feedback loops, and other relationships between groups within a social system. The resulting models can be easily turned into systems of difference equations. If sufficient data are available, model parameters can be estimated from the data using regression analysis. Brown also considers the extension to continuous time models and systems of differential equations. A surprising omission is the lack of any discussion of computer software for simulating systems models; its use has become very important in recent years. Compare Brown's book with John D. Sterman's *Business Dynamics: Systems Thinking and Modeling for a Complex World* (2000), which discusses a very similar modeling approach and includes computer applications. **Summing Up:** Recommended. Graduate students; faculty and researchers. -- B. Borchers, *New Mexico Institute of Mining and Technology*