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Mathematics

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The following review appeared in the August 2010 issue of CHOICE:

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Sigmund, Karl. **The calculus of selfishness.** Princeton, 2010. 173p bibl index afp ISBN 9780691142753, \$35.00

In *The Calculus of Selfishness*, Sigmund (mathematics, Univ. of Vienna, Austria; *Games of Life*, CH, May'94, 31-4904; coauthor with J. Hofbauer, *Evolutionary Games and Population Dynamics*, 1998) introduces the reader to a large body of research on mathematical modeling of the evolution of cooperative behavior in repeated games. Using mathematical models, the author shows that in repeated games, such as the famous prisoner's dilemma, strategies involving cooperation with an opponent can actually be advantageous. Through an evolutionary process, such cooperative strategies can eventually become predominant within a population of competitors. This is a topic with important applications in both the life sciences and the social sciences. The reader will require mathematical background in linear algebra and systems of ordinary differential equations to understand the text. Although Sigmund claims in the preface that this book is aimed at undergraduate students in economics, psychology, and biology, the required mathematics background is simply beyond most undergraduates in these disciplines. The book is more likely to be accessible to mathematically inclined graduate students and researchers working in these areas. **Summing Up:** Recommended. Academic libraries serving graduate students and above. -- B. Borchers, *New Mexico Institute of Mining and Technology*