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Decision Sciences

Designed as an advanced undergraduate or graduate textbook, *Decision Sciences* provides a unified perspective of a rich and varied field. *Decision Sciences* synthesizes current research about different types of decision making, including individual, group, organizational, and societal.

Special attention is given to the linkage between problem finding and problem solving. The principal message emerging from the book is that decision making entails a complex set of processes that need to be understood in detail in order to develop sound prescriptions or policy advice.

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Decision Sciences

An integrative perspective

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To Stephanie, Gail, and Joyce,
and especially our children;
That they may choose wisely

Preface

This book reflects our current and evolving thinking about the field of decision sciences. It is somewhat embarrassing to admit that it has been over 10 years since we first envisioned writing what was originally intended to be a monograph. Had we ever imagined that it would take us so long to complete, it is not clear that we would have ever started on this endeavor. Now that we have finally finished, we are glad that we were not perfectly informed about the convoluted path it would take.

One of the reasons for the hiatus between start and finish has been the burgeoning literature in the field of decision sciences. Many of the recent studies have raised more new questions than they have answered old ones. The other principal factor that has caused the long gestation was the many pleasurable discussions among the three of us, which repeatedly stimulated us to reflect anew on what the field of decision sciences is really all about.

In truth, the field of decision sciences is still in its infancy compared with the many disciplines from which it draws, such as philosophy, economics, sociology, psychology, and even management science. It was only in 1974 that the Decision Sciences Group was formed at the Wharton School. Since that time a number of universities around the country and the world have formed decision sciences centers as well. Each one has its own orientation and flavor, but the basic mission is generally the same: to understand and improve decision making.

Our definition of the field of decision sciences is quite broad and has led us to cover more territory than perhaps should be encompassed in a single volume. However, since we feel it is important to focus on both the problem-finding and problem-solving aspects of decision making, we necessarily touch on many subjects. Specifically, we see an increased need for careful descriptive analyses of the institutional arrangements associated with specific problems as well as the actual decision process itself. Only by understanding this context in detail can one suggest meaningful ways of improving decision making. This descriptive–prescriptive linkage is a central focus throughout the book.

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In general, the book examines decision making at multiple levels, starting with individual choice and then moving on to group, organization, and societal levels. Even though we cover each of these areas in separate chapters, we stress at the outset that important nestedness of these levels occurs within problems: For instance, an individual choice is usually embedded in a group or social context that can greatly influence the final action.

Our book can be read on several different planes. For those not familiar with the field of decision sciences, the book is designed to be a broad introduction, as the title suggests. Although not a formal textbook, the book covers many of the decision science concepts in sufficient detail to provide students with the key insights or messages of a particular theory or model. There are no formal proofs in the text itself. However, some that we feel are of critical importance are included in technical appendixes. We also have endeavored to provide a comprehensive set of references for each of the areas discussed that unfulfilled readers can turn to for more meat.

For researchers familiar with many of the concepts of decision sciences, the book presents an alternative framework for analyzing problems. Ours is only one of several ways to approach the field of decision sciences. We are quite partial to this approach, but recognize that it may constrain others. We welcome a dialogue with our colleagues on other ways one can structure and operationalize the area.

For practitioners, this book identifies a number of the pitfalls associated with decision making and suggests ways of improving the process. A variety of contexts is used to illustrate the different approaches. We look forward to gaining more insight from this sample set concerning how to apply these concepts to other problems.

Even though we are pleased to have completed this book at last, we view it as the continuation of a dialogue with our colleagues in the years to come. The field of decision sciences is in an unusually fertile stage of development. We hope our book provides a timely overview and synthesis that may direct our and others' efforts in the most promising directions.

This book owes a great deal to a number of our friends and colleagues, who have contributed their ideas and suggestions to it. In the early stages of this book, Philip Jones was instrumental in convincing us to continue the project. As our work developed, our close colleagues, Jonathan Baron, Colin Camerer, John Hershey, and James Laing, were important in providing detailed suggestions for structuring the ambitious enterprise we had in mind.

We also owe a great debt to many who have commented on various

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We are grateful for the assistance of these colleagues and many others unnamed who helped us in structuring our ideas in completing this task. While the traditional exemptions exonerating any of those named from blame apply, we hope this book will serve as a useful reflection and synthesis of the strands of decision science research represented by the work of these scholars.

We also acknowledge the institutional support provided by The Wharton School, the Wharton Center for Risk Management and Decision Processes, and the Graduate School of Business at the University of Chicago. Partial support from NSF Grant #5ES 8809299 is gratefully acknowledged. In particular, we thank Sylvia Dobray, Consuelo Prior, Linda Schaefer, and Marjorie Weiler, who provided invaluable administrative assistance. Judith Farnbach and Cambridge University Press are acknowledged for their helpful editorial advice.

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