CONTENTS

Series Editor's Introduction 1		
Preface 2		
1.	Artificial Intelligence and Expert Systems 3 Introduction: What Are Expert Systems? 3 Kinds of Knowledge 7 Expert System Development Environments 9 Architecture of Expert Systems 10 Strengths and Weaknesses of Expert Systems 12 Representing and Reasoning About Knowledge 14	
2.	Applications of Expert Systems in the Social Sciences 23 Applications of Expert Systems to Theorizing 24 Modeling: Use of an AI Program as the Theory Itself 26 Simulating Actual Historical Events (Simulating a Theory with an Expert System) 27 Expert Systems for Designing and Conducting Research 27 Expert Systems and Data Collection 30 Data Analysis 31 Cognitive Modeling 32 Teaching 33 Applying and Disseminating Knowledge 33	
3. I.	Knowledge Acquisition 35 The Ethnoscience Approach 37 Knowledge Acquisition Methods 41 Applications — Classification 48 Applications — Taking Action 50 Pragmatic Strategies 52 Strategies for Summarizing and Editing the Knowledge Base 52	
	Reducing the Complexity of the Knowledge Base 56 Selecting a Method of Handling Uncertainty 58	

Deciding to Use an Inductive or Deductive Approach Choosing Representation and Inference Strategies The Expert System Development Process 61	59 60
5. Multiple Experts and Testing the Models 61 Knowledge that Adheres Among Multiple Experts Testing the Model 66 Validity 69	62
How Expert Systems Can Improve Social Science	78
Appendix: Expert System Shells, Artificial Intelligence Languages, and Sample Expert Systems 79)
Notes 83	
References 85	
About the Authors 92	