

# CONTENTS

<i>List of figures</i>	ix
<i>List of tables</i>	xiii
<i>Preface and Acknowledgements</i>	xv
<b>Part I Overview</b>	
<b>1 GEOMEDICAL SYSTEMS: A PERSPECTIVE</b>	<b>3</b>
<i>The systems viewpoint</i>	3
<i>Epidemic systems</i>	8
<i>Statistical systems</i>	17
<i>Health care delivery systems</i>	24
<i>Biomedical knowledge</i>	32
<i>Rationale</i>	34
<b>Part II Epidemic systems</b>	
<b>2 PRINCIPLES OF DETERMINISTIC MODELLING</b>	<b>39</b>
<i>Epidemic behaviour</i>	39
<i>Building a recurrent model</i>	42
<i>Some topics in calibration</i>	51
<i>Deterministic simulation</i>	55
<b>3 MODELLING ALTERNATIVE MODES OF TRANSMISSION</b>	<b>63</b>
<i>Some precedents</i>	63
<i>Carrier models</i>	64
<i>Host-vector models</i>	76
<i>AIDS modelling</i>	88
<i>Appendix: autocorrelation functions</i>	96
<b>4 SPACE-TIME MODELS</b>	<b>99</b>
<i>Spatial spread</i>	99
<i>Migration models</i>	102
<i>Spatial interaction models</i>	110

## CONTENTS

5	FORECASTING AND CONTROL	126
	<i>Some strategies</i>	126
	<i>Stochastic modelling</i>	128
	<i>Control systems</i>	145
<b>Part III Environmental systems</b>		
6	AGGREGATIVE ANALYSIS OF NON-INFECTIOUS DISEASE	159
	<i>Risks and relations</i>	159
	<i>Methods of map analysis</i>	163
	<i>Cancer mapping as hypothesis generation</i>	174
	<i>Patterns of mental illness</i>	187
	<i>Sources of inconsistency</i>	191
7	STATISTICAL MODELS FOR SPACE-TIME DATA	193
	<i>Individual designs</i>	193
	<i>Space-time clustering methods</i>	195
	<i>Childhood leukaemia clusters around nuclear installations</i>	216
8	MODELS FOR PLANNING HEALTH CARE DELIVERY	226
	<i>Delivery systems in disequilibrium</i>	226
	<i>Planning resource allocation</i>	229
	<i>Deterministic allocation models</i>	238
	<i>Microsimulation models</i>	258
<b>Part IV Retrospect</b>		
9	GEOMEDICAL SYSTEMS IN PERSPECTIVE	267
	<i>Reflections</i>	267
	<i>Analytical medical geography</i>	267
	<i>Explanation in medical geography</i>	269
	<i>Glossary</i>	274
	<i>Bibliography</i>	282
	<i>Index</i>	305