

Contents

<i>Preface</i>	xii
Chapter 1 Introduction	
1 The Anatomy of a Mortality Table	2
2 Types of Life Tables	7
Problems and Complements	8
Bibliographic Notes	10
Chapter 2 Mechanics of Life Table Construction	
1 The Complete Life Table	11
2 Abridged Life Tables	21
Problems and Complements	28
Bibliographic Notes	31
Chapter 3 The Mathematical Basis of the Life Table	
1 Mortality Patterns	33
2 The Abridged Life Table	36
3 Some Mathematical Relationships among the Life Table Functions	39
4 The Life Table from the Perspective of Markov Processes	41
5 Heterogeneity in Mortality Experiences of Individuals	47
Problems and Complements	49
Bibliographic Notes	50
Chapter 4 Life Tables Based on Survey or Observational Data	
1 Nature of Data	52
2 Mechanics	53

3	Different Ways of Handling Censoring Times	58
4	The Reduced Sample Method	60
5	Product-Limit Estimate of the Survival Function	60
6	An Example of Life Table Construction with Grouped Data	63
	Problems and Complements	66
	Bibliographic Notes	69

Chapter 5 Statistical Comparison of Life Tables

1	Some Data Features	72
2	Two-Sample Tests	74
3	<i>k</i> -Sample Tests	83
4	Post-stratification	85
	Problems and Complements	89
	Bibliographic Notes	91

Chapter 6 Multiple-Decrement Life Tables I

1	Computation of Cause-of-Death Life Tables	93
2	Cause Elimination	103
	Problems and Complements	105
	Bibliographic Notes	107

**Chapter 7 Multiple-Decrement Life Tables II:
Analysis of Follow-up Data**

1	Ungrouped Data: An Example	108
2	Grouped Data	110
3	Cumulative Probability of Failure	114
	Problems and Complements	117
	Bibliographic Notes	120

Chapter 8 Multiple-Decrement Life Tables III: General Theory

1	Some Basic Notions	121
2	Expected Proportion of Deaths from a Given Cause	123
3	The Distribution of Age at Death	124
4	The Probability of Eventually Dying from Cause C_α , at an Age $\geq x$	126
5	The Effect of a Particular Cause of Death on Mortality Pattern	127
6	Follow-Up Studies	130
	Problems and Complements	133
	Bibliographic Notes	136

Chapter 9 Multistate Life Tables

1	Theory	137
2	Applications	146

Problems and Complements	161
Bibliographic Notes	163
Chapter 10 Survival Distributions	
1 Basic Concepts of Survival Time Distributions	164
2 Some Survival Distributions	166
3 Maximum Likelihood Estimation and Likelihood Ratio Tests	171
4 Censoring	175
Problems and Complements	177
Bibliographic Notes	181
Chapter 11 Exponential, Piecewise Exponential, and General Linear Models	
1 Sampling from the Exponential Distribution	182
2 Piecewise Exponential	187
3 Application of the General Linear Model Approach	196
Problems and Complements	203
Bibliographic Notes	205
Chapter 12 Proportional Hazards and Related Models	
1 Basic ideas	207
2 Estimation and Testing Hypotheses	209
3 Estimation of the Survival Function	219
4 Data Analysis Using the Proportional Hazards Model	224
Problems and Complements	228
Bibliographic Notes	228
Chapter 13 Parametric Regression	
1 Exponential Distribution	231
2 Maximum Likelihood Methods	232
3 Weibull Regression Models	233
4 Log-Normal Regression Models	234
5 Log-Logistic Regression Models	236
6 Other Fully Parameterized Regression Models	238
7 A General Approach	239
8 Model Life Tables	241
Bibliographic Notes	241
<i>References</i>	243
<i>Author Index</i>	263
<i>Subject Index</i>	269