

# Contents

<b>Preface</b> .....	v
<b>1 Simple Interest</b> .....	1
1.1 The Simple Interest Theorem .....	1
1.2 Ambiguities When Interest Period is Measured in Days .....	8
1.3 Problems .....	10
<b>2 Compound Interest</b> .....	13
2.1 The Compound Interest Theorem .....	13
2.2 Time Diagrams and Cash Flows .....	23
2.3 Internal Rate of Return .....	26
2.4 The Rule of 72 .....	36
2.5 Problems .....	37
<b>3 Inflation and Taxes</b> .....	45
3.1 Inflation .....	45
3.2 Consumer Price Index (CPI) .....	48
3.3 Personal Taxes .....	50
3.4 Problems .....	51
<b>4 Annuities</b> .....	55
4.1 An Ordinary Annuity .....	55
4.2 An Annuity Due .....	66
4.3 Perpetuities .....	70
4.4 Problems .....	71
<b>5 Loans and Risks</b> .....	75
5.1 Problems .....	79

<b>6</b>	<b>Amortization</b> .....	83
6.1	Amortization Tables .....	83
6.2	Periodic Payments .....	88
6.3	Linear Interpolation .....	94
6.4	Problems .....	97
<b>7</b>	<b>Credit Cards</b> .....	101
7.1	Credit Card Payments .....	101
7.2	Credit Card Numbers .....	108
7.3	Problems .....	110
<b>8</b>	<b>Bonds</b> .....	113
8.1	Noncallable Bonds .....	114
8.2	Duration .....	126
8.3	Modified Duration .....	129
8.4	Convexity .....	137
8.5	Treasury Bills .....	139
8.6	Portfolio of Bonds .....	141
8.7	Problems .....	144
<b>9</b>	<b>Stocks and Stock Markets</b> .....	149
9.1	Buying and Selling Stock .....	151
9.2	Reading The Wall Street Journal Stock Tables .....	160
9.3	Problems .....	161
<b>10</b>	<b>Stock Market Indexes, Pricing, and Risk</b> .....	165
10.1	Stock Market Indexes .....	165
10.2	Rates of Return for Stocks and Stock Indexes .....	172
10.3	Pricing and Risk .....	175
10.4	Portfolio of Stocks .....	186
10.5	Problems .....	188
<b>11</b>	<b>Options</b> .....	191
11.1	Put and Call Options .....	192
11.2	Adjusting for Stock Splits and Dividends .....	196
11.3	Option Strategies .....	198
11.4	Put-Call Parity Theorem .....	208
11.5	Hedging with Options .....	211
11.6	Modeling Stock Market Prices .....	215
11.7	Pricing of Options .....	220
11.8	The Black-Scholes Option Pricing Model .....	225
11.9	Problems .....	238

<b>A</b>	<b>Appendix: Induction, Recurrence Relations, Inequalities</b> . . .	245
	A.1 Mathematical Induction . . . . .	245
	A.2 Recurrence Relations . . . . .	247
	A.3 Inequalities . . . . .	249
	A.4 Problems . . . . .	252
<b>B</b>	<b>Appendix: Statistics</b> . . . . .	255
	B.1 Set Theory . . . . .	255
	B.2 Probability . . . . .	256
	B.3 Random Variables . . . . .	256
	B.4 Moments . . . . .	271
	B.5 Joint Distribution of Random Variables . . . . .	275
	B.6 Linear Regression . . . . .	277
	B.7 Estimates of Parameters of Random Variables . . . . .	280
	B.8 Problems . . . . .	281
	<b>Answers</b> . . . . .	283
	<b>References</b> . . . . .	287
	<b>Index</b> . . . . .	289