Preface

The preface of the text gives an overview of the text and its adaptability for use in college classes on any of three levels. Some would argue that our target audience is too large and that the advanced level students would find the basic level material too easy. Our response would be to have you consider an analogy. The most successful and enduring college athletic programs have been under coaches who emphasized the fundamentals of the game and drilled those fundamentals into the players before ever introducing a complex set of plays. If your advanced students spend time laying down a good foundation of concepts in interest and finance, they will find greater success and gain a better grasp of the more theoretical ideas. They will also more readily transition into other more complex forms of notation without difficulty.

Basic Level

Target Audience

This level is directed at the student who is not looking toward graduate school but who may be majoring or minoring in accounting, business, finance, or management. This level is also adequate for others majoring or minoring in related fields that require insight into business or money matters such as insurance sales, real estate, banking, interior design, financial planning, and brokerage or for those who want superior insight into their personal finances.

Course Description

The basic student needs to understand those applications inherent in all mathematics of interest processes as well as the elementary math underlying those techniques. Hence it is assumed that the basic student meets a two-year high school algebra prerequisite and understands simple algebraic solutions, exponents and logs, and the concept of a root, and has the ability to comprehend geometric series. A financial calculator similar to the TI BA II Plus or the Sharp EL 733 is absolutely necessary for this student. Students who try to get by with a scientific calculator become frustrated by Chapter 4.

Content

Cover Chapters 1 through 8, but omit sections 1.10, 2.6, 3.3, 3.8, 3.9, and 5.7. This level should concentrate on both the Concept and Calculation sections of the exercises.

Intermediate Level

Target Audience

The intermediate level student may be looking toward graduate school or doing technical undergraduate work in a field such as accounting, finance, operation research or actuarial science. Some may require certification in a technical field similar to the CPA or CFP.

Course Description

For the intermediate student the emphasis on "just solve the exercise" is extended to the understanding of the mathematics underlying those processes. Hence it is assumed that the intermediate student can handle arithmetic and geometric series, Calculus concepts of differentiation and integration, summation, and limits. These expectations would require that they meet a prerequisite of Elementary Stats and Calculus I. A programmable financial calculator similar to the TI 83 Plus or the TI 89 is absolutely necessary for this student. The solver routines will be used as a standard solving technique for the intermediate student.

Content

Cover the basic material in Chapters 1 and 2 briefly, all of Chapters 3 through 8, and the first four sections of Chapter 9. Emphasize the theory sections 1.10, 2.6, 3.3, 3.8, 3.9, 5.7, 9.1 – 9.4. Cover a representative number of the Concept and Calculation exercises and do all of the Theory and Extension exercises.

Advanced Level

Target Audience

This level is for the student looking toward graduate school in technical areas that require a strong mathematical background with an understanding of theory of interest and related financial applications. These fields might include operations research or insurance development and actuarial science; many of these students plan to take the SOA/CAS Course 2 Exam and beyond.

Course Description

The advanced student must be able to design financial processes that extend the usual processes. Hence, they ultimately must handle situations that include the concepts of continuous payments, block payments, and stochastic interest, so those new or off-the-wall situations can be met with a reasoned attack. Therefore, the approximation techniques inherent in Taylor's expansion with remainder and the stochastic processes of a mathematical statistics course are assumed for the advanced student as well as the prerequisites of Calculus I and II (through Taylor's expansion), and Linear Algebra. A programmable financial calculator similar the TI 89 or constant access to programs similar to Maple or Mathematica is absolutely necessary for this student. The solver routines on the TI 89 or Maple or Mathematica will be used as a standard solving technique for the advanced student

Content

Cover the same material as the intermediate level with only minimal time on the basic material of Chapters 1 and 2, but cover all of Chapter 9. This level should do a limited number of the Concept and Calculation exercises, all of the Theory and Extension exercises, and all of the exercises in Chapter 9.

The Society of Actuaries has graciously given permission for us to reprint some of their test questions from the May and November Course 2 exams, Copyrighted 2001 by the Society of Actuaries. These questions can be identified by the ◆ mark. We have made a few variations from the actual exam questions.

We have made every effort to insure the accuracy of this manual, but a number of the sample test questions are newly written and there will undoubtedly be some mistakes that have inadvertently slipped in. We would appreciate these errors being called to our attention.

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Serial Table — The Number of Each Day of the Year

Days	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.	Days
1	1	32	60	91	121	152	182	213	244	274	305	335	1
2	2	33	61	92	122	153	183	214	245	275	306	336	2
3	3	34	62	93	123	154	184	215	246	276	307	337	3
4	4	35	63	94	124	155	185	216	247	277	308	338	4
5	5	36	64	95	125	156	186	217	248	278	309	339	5
6	6	37	65	96	126	157	187	218	249	279	310	340	6
7	7	38	66	97	127	158	188	219	250	280	311	341	7
8	8	39	67	98	128	159	189	220	251	281	312	342	8
9	9	40	68	99	129	160	190	221	252	282	313	343	9
10	10	41	69	100	130	161	191	222	253	283	314	344	10
11	11	42	70	101	131	162	192	223	254	284	315	345	11
12	12	43	71	102	132	163	193	224	255	285	316	346	12
13	13	44	72	103	133	164	194	225	256	286	317	347	13
14	14	45	73	104	134	165	195	226	257	287	318	348	14
15	15	46	74	105	135	166	196	227	258	288	319	349	15
16	16	47	75	106	136	167	197	228	259	289	320	350	16
17	17	48	76	107	137	168	198	229	260	290	321	351	17
18	18	49	77	108	138	169	199	230	261	291	322	352	18
19	19	50	78	109	139	170	200	231	262	292	323	353	19
20	20	51	79	110	140	171	201	232	263	293	324	354	20
21	21	52	80	111	141	172	202	233	264	294	325	355	21
22	22	53	81	112	142	173	203	234	265	295	326	356	22
23	23	54	82	113	143	174	204	235	266	296	327	357	23
24	24	55	83	114	144	175	205	236	267	297	328	358	24
25	25	56	84	115	145	176	206	237	268	298	329	359	25
26	26	57	85	116	146	177	207	238	269	299	330	360	26
27	27	58	86	117	147	178	208	239	270	300	331	361	27
28	28	59	87	118	148	179	209	240	271	301	332	362	28
29	29	*	88	119	149	180	210	241	272	302	333	363	29
30	30		89	120	150	181	211	242	273	303	334	364	30
31	31		90		151		212	243		304		365	31

*For leap years the number of any day after February 28 is 1 greater than the value given in the Serial Table.