

ASSOCIATESHIP AND FELLOWSHIP CATALOG



SPRING 1999

- ▶ GENERAL INFORMATION
- ▶ REQUIREMENTS FOR ADMISSION
- ▶ SCHEDULE OF EXAMINATIONS
- ▶ COURSE DESCRIPTIONS
- ▶ COURSE OF READING
- ▶ ORDER FORMS
- ▶ APPLICATION FOR EXAMS 100-585

EXAMINATION DEADLINES*

***Please note there is only one deadline for submitting an application. The deadlines to register for the upcoming examination sessions are as follows:**

FEBRUARY 1999 DEADLINE JANUARY 15, 1999

MAY 1999 DEADLINE APRIL 1, 1999

NOVEMBER 1999 DEADLINE OCTOBER 1, 1999

Society of Actuaries
475 North Martingale Road
Suite 800
Schaumburg, IL 60173-2226
847-706-3500

PRINTED IN THE U.S.A.

The Society of Actuaries publishes two catalogs each year. This *Spring 1999 Associateship and Fellowship Catalog* covers the examinations given in February 1999 and May 1999. The courses in this Catalog are valid through the Spring 1999 examination session.

The Fall 1999 Associateship and Fellowship Catalog, which covers the Associateship and Fellowship examinations given in November 1999, will be available after May 1, 1998 from the Society office.

NOTICE TO CANDIDATES:

Candidates should be aware of the following:

1. **One Deadline Per Session to Submit Exam Application**
 There is now only one deadline for submitting an application. The deadline to submit an application for the February 1999 exams is **January 15, 1999**. The deadline to submit an application for the May 1999 exams is **April 1, 1999**.
2. **Future Changes to E&E Syllabus**
 At its October 1996 meeting, the SoA Board of Governors approved the overall design of a new education system. Exams in the current system will be offered through the November 1999 examination session. The new system will begin in the year 2000. Courses will not be available concurrently for the two systems. See I.C. and Appendix I for further information.
3. **Commutation Functions**
 The course of reading for several courses may include **commutation functions which are not included in the Second Edition of *Actuarial Mathematics***. Candidates who want a **summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the Society of Actuaries.**
4. **Changes to I-440C**
 Material on variable life, critical illness and survivorship insurance has been added to the I-440C course of reading. Credit for the course has increased from 15 to 20, effective with the Fall of 1998 examinations.
5. **Candidates in the ILA Track**
 Candidates for Fellowship in the ILA Track are strongly encouraged to consider selected Finance and Investment courses as electives to gain a full understanding of the Asset/Liability Management process.
6. **Solar Calculator**
 The current official calculator is the Texas Instruments BA-35 Solar. While it is nearly identical to the BA-35 battery powered model, a few calculations are performed somewhat differently. Candidates may continue to use any previous model which bears the official SoA logo; however, any substitute calculator provided by the exam supervisor will be the BA-35 Solar.

7. Replacement of Course F-385 with P-363 as a required course for the Investment Track
Effective with the Spring 1997 session, P-363 replaced F-385 as a required course for the Investment Track. Through 1999, candidates specializing in the Investment Track may complete the track requirements by passing either P-363 or F-385. *Please note: while F-385 will no longer be required for the Investment Track, Course F-385 continues to be a required course for the Finance Track.* See Section II.F.8. for more details.
8. Consolidation of P-560, P-561C and P-562U into P-567
Courses P-560, P-561C and P-562U have been replaced with P-567, Retirement Income Security - A Worldwide Perspective. Candidates with credit for either P-561C or P-562U may write the P-567 examination. Candidates with credit for P-560 may **not** write the P-567 examination. See Section II.F.6.
9. Increase in Credits for Course V-480
Credits for Course V-480 have been increased from 15 to 20. For Investment Track candidates with credit for F-385, the excess five credits will be applied toward elective credits needed. See Section II.F.7.
10. "Hotline" Telephone Number
To reach the Interactive Voice Response (IVR) phone system at the SoA, call 847-706-3579. Pass-fail information is posted the day that grades are mailed from the SoA office. If grades are delayed, a message will be put onto the IVR. Once examination results are released, candidates are also able to access lists of passing candidate numbers via the Internet.
11. Restrictions on Registration for Series 200-500 Examinations
Candidates with fewer than 100 credits of SoA examination are not permitted to register for Series 200-500 examinations, except for Enrolled Actuaries examinations EA-1, B (P-360U) and EA-2 (P-365U). Credit attained by waiver is counted toward satisfying the requirement
12. Changes to this Spring 1999 Catalog
If the Course of Reading for an examination is changed after the publication of this Catalog, this change will be announced in the Introductory Study Notes for the affected examination. Notice of the change will be sent to those candidates ordering study notes.
13. Applications
Applications for examinations 120-585 and for examinations 100/110 are included in the back of this *Spring 1999 Catalog*.

TABLE OF CONTENTS

I. THE SOCIETY OF ACTUARIES (SoA)	1
A. Mission and Vision Statement of the Society of Actuaries	1
B. Principles Underlying the Education and Examination (E&E) System	3
C. E&E System Redesign Beginning in the Year 2000	4
D. Current Requirements for Admission to the SoA	4
1. Associateship	4
2. Fellowship	4
E. Catalog Lifetime	5
II. CURRENT MEMBERSHIP REQUIREMENTS	6
A. Course Listings	6
B. Current Requirements for Associateship	10
C. Current Associateship Requirements and Courses	11
D. Current Requirements for Fellowship	12
E. Current Fellowship Requirements and Courses	13
F. Transition Information	14
1. Educational Requirements for Series 200 Courses	14
2. Consolidation of G-520 with G-527	14
3. Changes to Courses G-421U and G-422	14
4. Consolidation of P-566U and P-362U	14
5. Consolidation of P-565C and P-361C	15
6. Consolidation of P-560, P-561C and P-562U	15
7. V-480 increased to 20 credits	15
8. Replacement of Course F-385 with P-363 as a required course for the Investment Track	15
9. I-440C increased to 20 credits	15
III. GENERAL INFORMATION REGARDING EDUCATION AND EXAMINATION	16
A. Examinations, Dates, and Times	16
B. Tentative Fall 1999 Examinations, Dates, and Times	18
C. Applications to Write Examinations and Deadlines for Submittal	19
D. Examination Fees	20
E. Refunds	21
F. Examination Locations	21
G. Special Arrangements for Candidates with Disabilities	21
H. Ticket of Admission/Instructions to Candidates	22
I. Requirements for Admission to Test Center	22
J. Signatures on Examination Answer Sheets and Envelopes	22
K. Bilingual Examinations in Canada	22
L. Study Notes (SNs)	23
M. Use of Calculators and Other Assistance in Writing Examinations	24
N. Examination Results	24
O. Lost Examinations	25
P. Defective Questions	25
Q. Publishing Examinations and Sample Examinations	25
R. Confidentiality of Examination Records	26
S. Disciplinary Action	26
T. Prize Awards for Course Examination 100	27
U. Notice to Candidates for Enrolled Actuaries' Designation	27
V. Credit for Casualty Actuarial Society (CAS) Examinations	28
W. Credit for Examinations Passed in Other Actuarial Organizations	28
X. Credit for Chartered Financial Analyst (CFA) Designation	29
Y. Credit for Research Papers	29
Z. Credit for Graduate Record Examination (GRE)	29
AA. Notice to Candidates Interested in Post Retirement Medical Benefits	29

BB.	FSA's Writing Examinations	29
CC.	Joint Sponsorship	30
DD.	Everett Curtis Huntington Prize	30
EE.	Correspondence	30
IV.	THE EDUCATION AND EXAMINATION COMMITTEE	31
A.	Organizational Structure of the Education and Examination Committee	31
B.	Review and Development of Course of Reading	31
C.	Development of Examinations	31
D.	Grading Process	32
E.	Determination of the Pass Mark	33
V.	SUGGESTIONS FOR CANDIDATES	34
A.	Order for Taking Examinations	34
B.	Study Methods	35
C.	Review Classes and Seminars	35
D.	Study Manuals	36
E.	Approaches to Writing Multiple-Choice Examinations	36
F.	Approaches to Writing Written-Answer Examinations	36
G.	Candidates' Mailing Lists	38
H.	Education and Examination Ombudsperson	38
VI.	COURSE OF READING	39
A.	Description of 1999 Courses	40
	Series 100 Courses	40
	Series 200 Courses	49
	Series 300 - 500 Courses	52
	Finance Courses	52
	Group And Health Benefits Courses	55
	Individual Life And Annuity Courses	62
	Pension Courses	71
	Investment Course	80
	Fellowship Admissions Course	81
B.	Description of Fall 1999 Courses	82
	APPENDIX I - Education System Redesign	92
	APPENDIX II - Credit for Research Papers	99
	APPENDIX III - Books Included in the Course of Reading	104
	APPENDIX IV - Publishers and Ordering Information	108
	APPENDIX V - Joint Sponsors of SoA Examinations	112

I. THE SOCIETY OF ACTUARIES (SoA)

A. Mission and Vision Statement of the Society of Actuaries

The Society of Actuaries (SoA) is an educational, research, and professional organization dedicated to serving the public and Society members. Its mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business, and societal problems involving uncertain future events. The vision of the Society of Actuaries is for actuaries to be recognized as the leading professionals in the modeling and management of financial risk and contingent events.

Terms and concepts used in the Mission and Vision Statement may be amplified as follows:

1. Education Organization

The SoA provides basic education in the fundamental principles of actuarial science, advanced education and professional development in areas requiring specific technical or regulatory knowledge, and continuing education for practicing actuaries.

2. Research Organization

The SoA conducts research to develop studies of historical experience and techniques for projections into the future, to analyze the actuarial aspects of public policy issues, and to provide the foundation for further expansion of the profession.

3. Professional Organization

The SoA promotes high standards of professional competence and conduct within the actuarial profession. The SoA has adopted a Code of Professional Conduct, and in matters of conduct and discipline, it cooperates with the Canadian Institute of Actuaries and with the American Academy of Actuaries, including the Actuarial Standards Board and the Actuarial Board for Counseling and Discipline.

4. Serving the Public

By developing and valuing financial programs, actuaries provide service to the public. In addition to looking after the interests of direct participants and beneficiaries of such public and private programs, actuaries also provide advice to shareholders, regulators, financial analysts and others. The SoA meets its responsibility to the various publics by recruiting and educating actuaries and by its role as a professional organization. Note that the SoA places serving the public ahead of serving its members.

5. Serving its Members

The SoA is committed to meeting the needs of its members. Members work in the traditional practice areas of life insurance, retirement systems, health benefit systems, financial and investment management, and emerging practice areas. In meeting the needs of its members, the SoA conducts meetings and seminars, publishes papers and studies, makes or sponsors investigations, promotes educational activities for students and members, utilizes technology to enhance communications, sponsors academics and supports universities with actuarial science programs, organizes special interest sections, and undertakes such other activities as appropriate. However, in accomplishing many of these tasks, the SoA relies on the generous support of its members in volunteer roles.

Although the majority of the SoA members reside in Canada or in the U.S., a significant number of members live or practice in other geographical areas. The SoA is committed to encouraging the development of actuarial science worldwide and to addressing the international needs of SoA members. The SoA is a member of the International Forum of Actuarial Associations and of the worldwide actuarial profession.

6. Advancing Actuarial Knowledge and Enhancing the Ability of Actuaries

Knowledge of actuarial science is the foundation of the actuarial profession. Actuaries often deal with problems relating to uncertain future events. With insurance based on scientific actuarial principles, financial aspects of uncertainties such as premature death, disability, need for medical care, etc., can be exchanged for the certainty of a premium payment. Pension and social security programs require actuarial analysis based on contingencies such as period of employment, covered earnings, and mortality. Investments and other financial transactions involving risk or uncertainty can also be modeled using actuarial techniques. In a dynamic and rapidly changing world, actuarial knowledge must be continuously expanded to meet increasingly complex problems and to enhance the value added by actuarial analysis.

7. Recognition as the Leading Professionals

The vision of the SoA is not only to have actuaries be the leading professionals in the modeling and management of financial risk and contingent events, but to have this expertise widely recognized and accepted outside the actuarial professional as well.

8. Critical Success Factors

Critical success factors for the profession and the SoA are:

For the Profession

- Be relevant to the needs of our customers. Provide value to a large enough constituency to sustain meaningful work for current and future members of the profession. This may mean expanding our horizons as a profession.
- Be recognized and credible with employers, clients, policymakers and the public by clearly defining who we are and how we differ from others.
- Expand the scope of the actuarial profession. Design a paradigm that expands the scope of meaningful applications of our science, while preserving its integrity and uniqueness.
- Have an effective influence on public policy.
- Focus on maintaining quality membership by recruiting, educating and retaining people who are a credit to the profession, the customers and the societies we serve.
- Be forward looking, flexible and adaptable. Where appropriate, motivate the need for actuarial services in the absence of government regulations. Focus our professional resources on outcomes most important to members and the public.

For the Society of Actuaries

- Provide a relevant education system to train new actuaries and provide continuing education for actuaries. Keep Education and Examination and Continuing Education systems in line with the profession's needs.
- Carry out research initiatives that maintain a current knowledge base and expand it so that we can add value to our customers; publications should support dissemination of the knowledge base; knowledge base needs to support both new and existing practice areas.
- Provide appropriate scope for actuarial practice, encompassing attention to new practice areas and appropriate geographical areas, and building and maintaining employment opportunities for actuaries. Focus should continue to be on customer needs.
- Provide and maintain strong and effective services for members. The key is helping members add value to their customers with emphasis on external focus.
- Maintain a strong volunteer system and effectively support it with staff.
- Provide support to help achieve the critical success factors for the profession.
- Prepare for the future, focusing on both the long and the short term.

The critical success factors should serve as a framework for testing priorities and allocating resources.

B. Principles Underlying the Education and Examination (E&E) System

The SoA administers a series of courses leading to Associateship and Fellowship. The principles underlying the SoA education and examination system are the following:

1. To provide the actuary with an understanding of fundamental mathematical concepts and how they are applied, with recognition of the dynamic nature of these fundamental concepts in that the actuary must remain up-to-date with developments in mathematics and statistics;
2. To provide the actuary with an accurate picture of the sociodemographic, political, legal, and economic environments within which financial arrangements operate, along with an understanding of the changing nature and potential future directions of these environments;
3. To expose the actuary to a broad range of techniques that the actuary can recognize and identify as to their application and as to their inherent limitations, with appropriate new techniques introduced into this range as they are developed;
4. To expose the actuary to a broad range of relevant actuarial practice, including current and potential application of mathematical concepts and techniques to the various and specialized areas of actuarial practice; and
5. To develop the actuary's sense of inquisitiveness so as to encourage exploration into areas where traditional methods and practice do not appear to work effectively.

C. E&E System Redesign Beginning in the Year 2000

At its October 1996 meeting, the SoA Board of Governors (BoG) approved the overall design of a new education system. Critical courses (specifically needed to attain credit for Courses 1-8) will be offered through the end of 1999. The new system will begin in the year 2000. Courses will not be available concurrently under the two systems. Please see Appendix I for course descriptions and conversion rules.

D. Current Requirements for Admission to the SoA

1. Associateship

a. Who may be admitted. Anyone pursuing actuarial studies may apply for admission to the SoA. If the Board of Governors (BoG) approves the Application for Admission as Associate, the candidate will be enrolled as an Associate of the SoA (ASA) after completing the Associateship education and examination requirements prescribed by the BoG, subject to any further requirements that the BoG may prescribe. Membership dues are not charged until the Application is accepted and all requirements prescribed by the BoG have been satisfied.

b. When and how to apply. A candidate planning to seek admission to the SoA should submit the Application for Admission as Associate *before* completing the education requirements for Associateship. The Application for Admission as Associate must be submitted by January 1 if these requirements will be completed in February, by April 1 if these requirements will be completed in May, or by October 1 if these requirements will be completed in November. The Application for Admission as Associate is separate from the candidate's examination registration application and will be sent to candidates who are close to having enough credits to become an Associate. Any questions regarding the application should be directed to the Membership Coordinator at 847-706-3532.

c. Associateship Requirements. To obtain Associateship, the candidate must acquire 300 Associateship credits, which must include all courses specified as required for Associateship, and must have the Application for Admission as an Associate approved by the SoA BoG. Please see Sections II.B.

2. Fellowship

a. Who may be admitted. An Associate will be admitted as a Fellow of the SoA (FSA) after completing the Fellowship education and examination requirements, the Fellowship Admissions Course (FAC), and any additional requirements prescribed by the BoG. The FAC is described in Section VI of this Catalog. No application is required for an Associate to be admitted as a Fellow.

b. Fellowship Examinations. The Fellowship examinations are currently structured into five specialty tracks, and the FAC, as outlined in Section II.E. **Candidates who attained Associateship by way of the requirements in effect prior to July 31, 1995 must also complete the Series 200 requirements.** This Catalog describes the Course of Reading for courses offered in the Spring of 1999. The Course of Reading for courses offered in the Fall of 1999 will be described in the *Fall 1999 Catalog*, available from the SoA office after May 1, 1999.

E. Catalog Lifetime

With the introduction of a substantially new education system in the year 2000 (see Section I.C.), this *Spring 1999 Associateship and Fellowship Catalog* is intended to be valid through the Fall 1999 examination session.

Candidates may complete the educational requirements for Associateship or Fellowship by fulfilling the requirements of any one catalog that is still valid. Where a course is required under a still valid catalog, that course or a substitute course will be provided for as long as that catalog is valid.

Course credit does not expire. If a course is no longer required under a valid catalog, credit for that course may be applied toward the elective credit needed for Associateship or Fellowship.

If significant changes are made to an existing course, the course will be given a new course number.

II. CURRENT MEMBERSHIP REQUIREMENTS

A. Course Listings

Series 100 Courses

Course	Description	Credits
100	Calculus and Linear Algebra	30
110	Probability and Statistics	30
120	Applied Statistical Methods	15
121	Intensive Seminar on Applied Statistical Methods	10
130	Operations Research	15
135	Numerical Methods	10
140	Mathematics of Compound Interest	10
141 [EA-1,A]	Mathematics of Compound Interest and Mathematics of Life Contingencies	10
150	Actuarial Mathematics	40
151	Risk Theory	15
152	Intensive Seminar on Risk Theory	10
160	Survival Models	15
161	Mathematics of Demography	10
165	Mathematics of Graduation	10

Series 200 Courses

Course	Title	Credits	Offered
200	Introduction to Financial Security Programs	30	Spring
210	Introduction to Actuarial Practice	25	Fall
220	Introduction to Asset Management and Corporate Finance	30	Fall
230	Principles of Asset/Liability Management	15	Spring

Finance Courses

Course	Title	Credits	Offered
F-385 ¹	Financial Management	20	Fall
F-580	Corporate Finance	15	Spring
F-585	Applied Corporate Finance	20	Spring
F-590	Corporate Strategy and Solvency Management	10	Fall

¹ **Beginning with the Spring 1997 Catalog, P-363 replaced F-385 as a requirement for the Investment Track. Students may continue to use F-385 to meet Investment Track requirements through the Fall 1999 examination session. See Section II, F.8.**

Group and Health Benefits Courses

Course	Title	Credits	Offered
G-320	Design and Distribution of Group and Individual Health Insurance Benefits	30	Fall
G-420C	Group Financial Management and Regulation - Canada	20	Spring
G-421U	Group and Individual Health Insurance Financial Management and Regulation - U.S.	25	Spring
G-422	Group and Individual Health Insurance Pricing	25	Spring
G-522	Senior Products	10	Fall
G-523	Non-Pension Postretirement and Postemployment Benefits	10	Fall
G-524C	Flexible Benefit Plans - Canada	10	Spring
G-525U	Flexible Benefit Plans - U.S.	10	Spring
G-528	Advanced Health Topics	15	Fall

Individual Life and Annuity Courses

Course	Title	Credits	Offered
I-340	Survey of Actuarial Practice - Individual Life Insurance and Annuities	30	Spring
I-342C	Life Insurance Law and Taxation - Canada	15	Fall
I-343U	Life Insurance Law and Taxation - U.S.	10	Fall
I-440C ¹	Advanced Design and Pricing - Canada	20	Fall
I-441U	Advanced Design and Pricing - U.S.	25	Fall
I-442C	Advanced Topics in Valuation and Financial Reporting - Canada	30	Spring
I-443U	Advanced Topics in Valuation and Financial Reporting - U.S.	25	Spring
I-540	Marketing Individual Life Insurance and Annuities	10	Spring
I-545	Disability Income	15	Fall
I-550	Reinsurance Topics	15	Spring

¹ In the Fall of 1998, I-440C was increased from 15 to 20 credits. See Section II.F.9.

Pension Courses

Course	Title	Credits	Offered
P-359C	Principles of Pension Valuation I - Canada	15	Spring
P-360U	Principles of Pension Valuation I - U.S. [EA-1,B]	15	Spring
P-361C ¹	Design of Retirement Programs - Canada	25	Fall
P-362U ²	Design of Retirement Programs - U.S.	20	Fall
P-363 ³	Pension Funding Vehicles	15	Spring
P-364C	Regulatory Requirements for Retirement Plans - Canada	20	Fall
P-365U	Regulatory Requirements for Pension Plans - U.S. [EA-2]	25	Fall

Course	Title	Credits	Offered
P-461U	Principles of Pension Valuation II, and Accounting Standards for Pension Plans - U.S.	20	Spring
P-462C	Principles of Pension Valuation II, and Accounting Standards for Pension Plans - Canada	20	Spring
P-564	The Actuary as Expert Witness	10	Spring
P-567 ⁴	Retirement Income Security - A Worldwide Perspective	25	Fall

¹ In the Fall of 1997, P-361C was increased from 20 to 25 credits. See Section II.F.5.

² In the Fall of 1997, P-362U was increased from 15 to 20 credits. See Section II.F.4.

³ Effective with the Spring 1997 catalog, P-363 was accepted as a requirement in the Investment Track, replacing F-385. See Section II.F.8.

⁴ P-567, a consolidation of P-560, P-561C and P-562U, was offered for the first time in the Fall of 1997. See Section II.F.6.

Investment Courses

Course	Title	Credits	Offered
V-480 ¹	Derivative Securities: Theory and Application	20	Spring
V-485	Advanced Portfolio Management	15	Fall
V-595	Applied Asset/Liability Management	20	Fall

¹ Effective with the Spring 1997 catalog, the course of reading for V-480 was substantially increased. As a result of this change, the credits for V-480 were increased from 15 to 20.

Fellowship Admissions Course (FAC)

The FAC is the final requirement for Fellowship and is required of all candidates for Fellowship. It is offered following both the Spring and Fall examinations.

B. Current Requirements for Associateship

These requirements became effective July 31, 1995. Any candidate who was not an Associate by July 31, 1995 is subject to these requirements.

The Series 100 and Series 200 requirements of the SoA for Spring 1999 are defined in this Catalog. In addition to the required courses from Series 100, the full set of Series 200 courses (Courses 200, 210, 220 and 230) are required for Associateship. The Series 200 courses provide a basic introduction to financial security programs, actuarial practice, and investments.

The courses eligible for elective credit toward Associateship include not only courses on mathematical topics but also a range of basic, practice-based courses. Specifically, Series 300 courses and the research paper are accepted for elective credit toward Associateship.

Credit for all courses must be obtained by examinations offered by the SoA or by an alternative method approved by the Board of Governors. Credit for Course 100 may be obtained by attaining an appropriate score on the Graduate Record Examination Mathematics Subject Test (See Section III.Z.). Credit for Course 141 is obtained by passing EA-1, Segment A of the Enrolled Actuaries' (EA) Examinations. Credit for Course 220 may be obtained by attaining the CFA designation (see Section III.X.). Also in certain circumstances, course credit may be obtained by waiver for a candidate who has examination credits in another actuarial organization (see Sections III.V. and W.).

C. Current Associateship Requirements and Courses

Required Courses ¹		ASA Only Electives ²		ASA or FSA Electives ³	
Courses	Credits	Courses	Credits	Courses	Credits
100	30	130 . .	15	121 ³	10
110	30	135 . .	10	152 ³	10
120	15			161 ³	10
140, 141 or CAS Part 4A	10			165 ³	10
150	40			F-385 ⁵	20
151	15			G-320 ⁵	30
160	15			I-340 ⁵	30
200	30			I-342C ⁵	15
210	25			I-343U ⁵	10
220	30			P-359C ⁵	15
230	15			P-360U ⁵	15
				P-361C ⁵	25
				P-362U ⁵	20
				P-363 ⁵	15
				P-364C ⁵	20
				P-365U ⁵	25
				CAS Part 3B . .	10
				CAS Part 4B ^{3,4} .	20
				CAS Part 6 . . .	20
				CAS Part 7 . . .	20
				CAS Part 10 . .	20
				Research Paper	30

- ¹ These required courses satisfy 255 of the 300 credits needed to become an Associate. Candidates must attain the remaining 45 credits from elective courses.
- ² These elective courses are eligible for elective credit toward Associateship only.
- ³ These elective courses are eligible for elective credit toward Associateship or Fellowship. **Note: Candidates who wish to use CAS Part 4B or any Series 100 courses to satisfy Fellowship elective requirements must pass Course 230.**
- ⁴ Required for candidates seeking Fellowship in the Canadian Institute of Actuaries. See Section III.V.
- ⁵ Where specialty courses (Series 300) needed to complete a Fellowship specialty track are used temporarily as elective credit toward Associateship, it is necessary for the Fellowship candidate to replace those elective credits through additional courses.

D. Current Requirements for Fellowship

Candidates cannot attain Fellowship without having satisfied requirements for Associateship. Requirements for Fellowship are structured in terms of credits to be earned. A candidate must satisfy all Series 100-500 Course requirements and the FAC to become a Fellow. All candidates must earn 450 credits in total.

The courses are divided into three series (Series 100, Series 200, and Series 300-500 courses) and the FAC. *All candidates for Fellowship must have completed the Series 200 requirements.*

Additionally, candidates must complete the following:

- the courses required in the candidate's specialty track; and
- sufficient additional credits (generally 55-60) from unrestricted courses to satisfy the 450-credit total.

Candidates may not attend the FAC until they have completed all other Fellowship course requirements. *The FAC is required of all candidates for Fellowship.*

Advanced actuarial practice is covered in the five specialty track courses: Finance (F), Group and Health Benefits (GHB), Individual Life and Annuity (ILA), Pension (P) and Investment (V). Candidates must select one specialty track.

Most specialty tracks contain courses identified with a national emphasis, either Canada (C) or U.S. (U). Candidates must take all required courses with the same national emphasis. Candidates may earn the remaining credits required for Fellowship by taking any Fellowship course from any specialty track, except where otherwise indicated in the Course of Reading. Certain Series 100 courses (specifically, 121, 152, 161 and 165), certain CAS examinations (Parts 3B, 4B, 6, 7 and 10) and the research paper may be used to satisfy Fellowship elective requirements, if not previously used to satisfy Associateship elective requirements.

Candidates who wish to use any Series 100 courses or CAS Part 4B to satisfy Fellowship elective requirements must pass Course 230.

This section contains detailed requirements for Fellowship by specialty track and national emphasis. Where there is substantial overlap between two courses, a candidate may not receive credit for both courses. These restrictions are specified in the Course of Reading for the examinations.

Candidates who desire Fellowship in the Canadian Institute of Actuaries must complete their Fellowship requirements in one of the Canadian specialty tracks, including completion of the FAC, and complete any other CIA requirements. Complete details are provided in the CIA Yearbook.

E. Current Fellowship Requirements and Courses

	FINANCE TRACK		GHB TRACK		ILA TRACK		PENSION TRACK		INVESTMENT TRACK	
Required Courses	F-385	20	G-320	30	I-340	30	P-359C	15	F-385 ²	20
	I-442C	30	I-342C	15	I-342C	15	P-361C	25	OR	
Canada	F-580	15	G-420C	20	I-440C	20	P-363	15	P-363	15
	F-585	20	G-422	25	I-442C	30	P-364C	20	V-480	20
	F-590	10					P-462C	20	V-485	15
									F-585	20
Total		<u>95¹</u>		<u>90</u>		<u>95¹</u>		<u>95¹</u>	V-595	20
										<u>90 or 95¹</u>

¹ Excess credits will be applied to elective credits needed.

² Beginning with the Spring 1997 Catalog, F-385 was replaced by P-363 as a requirement for the Investment Track. Students may continue to use F-385 to meet Investment Track requirements through the Fall 1999 examination session. See Section II, F.8.

Required Courses	F-385	20	G-320	30	I-340	30	P-360U	15	F-385 ²	20
	I-443U	25	I-343U	10	I-343U	10	P-362U	20	OR	
U.S.	F-580	15	G-421U	25	I-441U	25	P-363	15	P-363	15
	F-585	20	G-422	25	I-443U	25	P-365U	25	V-480	20
	F-590	10					P-461U	20	V-485	15
									F-585	20
Total		<u>90</u>		<u>90</u>		<u>90</u>		<u>95¹</u>	V-595	20
										<u>90 or 95¹</u>

¹ Excess credits will be applied to elective credits needed.

² Beginning with the Spring 1997 Catalog, F-385 was replaced by P-363 as a requirement for the Investment Track. Students may continue to use F-385 to meet Investment Track requirements through the Fall 1999 examination session. See Section II, F.8.

OTHER COURSES: In all specialty tracks, credits (generally 55-60) from any unrestricted course in any specialty track, specialty electives, approved Series 100 courses, the research paper or the CAS Parts 3B, 4B, 6, 7, or 10 examinations are needed to bring total credits to 450.

In addition, the Fellowship Admissions Course is required of all candidates.

F. Transition Information

1. Educational Requirements for Series 200 Courses

Passing V-380 prior to 1994 satisfies the Course 230 requirement. In all cases, candidates retain full credit for Series 200 examinations passed prior to the changes in the Series 200 requirements. Any Series 200 credits earned in excess of 100 will be applied to the Fellowship required elective credits. Similarly, if Series 200 requirements are satisfied but course credits earned are less than 100, then the deficit must be made up by earning additional elective credits. All candidates must complete a total of 450 valid credits to satisfy the requirements for Fellowship.

However, it is essential that candidates electing to specialize in the Finance Track or the Investment Track master the material covered in Course 230; such candidates should plan to demonstrate their mastery by passing the course.

Candidates who will complete all examination requirements for Fellowship by the end of 1998 may fulfill the Series 200 requirements by virtue of passing Courses 200, 210 and 220. However, candidates who did not complete requirements for Associateship prior to July 31, 1995, need to pass Course 230 as part of the Associateship requirements. Similarly, candidates who wish to use CAS Part 4B or any Series 100 courses to satisfy Fellowship elective requirements must pass Course 230.

2. Consolidation of G-520 with G-527

Beginning in the Fall of 1996, Courses G-520 (10 credits) and G-527 (10 credits) were replaced with Course G-528, Advanced Health Topics (15 credits). Candidates with credit for either G-520 or G-527 may not write the G-528 examination.

3. Changes to Courses G-421U and G-422

Effective in the Spring of 1996, Courses G-421U and G-422, required courses in the GHB Track, expanded to encompass individual health topics and were increased from 20 to 25 credits.

4. Consolidation of P-566U and P-362U

Beginning in the Fall of 1997, executive retirement plan material was added to required Course P-362U, making P-362U a 20-credit course. This change increases the total credits in the Pension Track with a U.S. specialty to 95. Excess credits will be applied to elective credits, as needed.

Candidates with credit for P-566U are permitted to write the augmented P-362U examination if they do not already have credit for this required course.

5. Consolidation of P-565C and P-361C

Beginning in the Fall of 1997, executive retirement plan material was added to required Course P-361C, making P-361C a 25-credit course. This change increases the total credits in the Pension Track with a Canadian specialty to 95. Excess credits will be applied to elective credits, as needed.

Candidates with credit for P-565C are permitted to write the augmented P-361C examination if they do not already have credit for this required course.

6. Consolidation of P-560, P-561C and P-562U

Beginning in the Fall of 1997, material from P-560 was combined with material from P-561C and P-562U to create P-567, Retirement Income Security-A Worldwide Perspective (25 credits).

Candidates with credit for either P-561C or P-562U may write the P-567 examination. Candidates with credit for P-560 may **not** write the P-567 examination.

7. V-480 increased to 20 credits

Effective with the Spring 1997 catalog, the course of reading for V-480 was substantially increased, and the credits for V-480 were increased from 15 to 20.

8. Replacement of Course F-385 with P-363 as a required course for the Investment Track

Effective with the Spring 1997 session, P-363, Pension Funding Vehicles, replaced F-385, Financial Management, as a required course for the Investment Track. Through 1999, candidates specializing in the Investment Track may satisfy the track requirements by passing either P-363 or F-385. Because Course P-363 is a 15-credit course (F-385 is 20 credits), Investment Track candidates with credit for V-480 attained prior to 1997 will need to earn an additional five elective credits. *Please note that while F-385 is no longer required for the Investment Track, Course F-385 is still a required course for the Finance Track.*

9. I-440C increased to 20 credits

Effective with the Fall 1998 catalog, the course of reading for I-440C was substantially increased, and the credits for I-440C were increased from 15 to 20.

III. GENERAL INFORMATION REGARDING EDUCATION AND EXAMINATION

A. Examinations, Dates, and Times

1. February 1999 Examination Dates and Times

Course Examination	Time Allowed	Days, Dates and Local Times
100	3 hours	Tu., Feb. 9 8:30am-11:30am
110	3 hours	Tu., Feb. 9 1:00pm-4:00pm

2. Spring 1999 Examination Dates and Times

Course Examination	Time Allowed	Days, Dates and Local Times
100	3 hours	Tu., May 11 . . . 8:30am-11:30am
110	3 hours	Tu., May 11 1:00pm-4:00pm
120	1½ hours	Tu., May 18 . . . 8:30am-10:00am
130	1½ hours	Tu., May 18 2:00pm-3:30pm
135	1½ hours	Tu., May 18 . . . 10:45am-12:15pm
140	1½ hours	Th., May 13 . . . 8:30am-10:00am
141[EA-1,A]	2½ hours	Mo., May 17 . . . 8:30am-11:00am
150	4 hours	Fr., May 14 . . . 8:30am - 12:30pm
151	1½ hours	Th., May 13 . . . 10:45am-12:15pm
160	1½ hours	We., May 19 . . . 8:30am-10:00am
161	1½ hours	We., May 19 . . . 10:45am-12:15pm
165	1½ hours	Th., May 13 2:00pm-3:30pm
200	3 hours	Mo., May 10 . . . 8:30am-11:30am
230	1½ hours	We., May 12 . . . 8:30am-10:00am
F-580 ²	1½ hours	Fr., May 7 2:00pm-3:30pm
F-585	2 hours	Th., May 6 8:30am-10:30am
G-420C	2 hours	Th., May 6 1:30pm-3:30pm
G-421U	2½ hours	Th., May 6 1:30pm-4:00pm
G-422	2½ hours	We., May 5 1:00pm-3:30pm

Course Examination	Time Allowed	Days, Dates and Local Times
G-524C/525U ²	1½ hours	Fr., May 7 2:00pm-3:30pm
I-340	3 hours	We., May 5 8:30am-11:30am
I-442C	3 hours	We., May 12 1:00pm-4:00pm
I-443U	2½ hours	We., May 12 1:00pm-3:30pm
I-540 ¹	1½ hours	Mo., May 10 1:00pm-2:30pm
I-550 ³	1½ hours	Fr., May 7 11:15am-12:45pm
P-359C	1½ hours	Th., May 6 11:15am-12:45pm
P-360U[EA-1,B]	2½ hours	Mo., May 17 1:00pm-3:30pm
P-363 ¹	1½ hours	Mo., May 10 1:00pm-2:30pm
P-461U/P-462C ⁴	2 hours	Fr., May 7 8:30am-10:30am
P-564 ³	1½ hours	Fr., May 7 11:15am-12:45pm
V-480 ⁴	2 hours	Fr., May 7 8:30am-10:30am
Fellowship Admissions Course	2½ days	Su., Aug. 29 5:00pm-9:00pm Tu., Aug. 31 McLean, VA (Location & dates subject to change.)
Fellowship Admissions Course	2½ days	We., Sept. 8 5:00pm-9:00pm Fr., Sept. 10 Montreal, QC (Location & dates subject to change.)

- ¹ Examinations I-540 and P-363 are administered at the same time. Candidates may not register for both of these examinations in the same session.
- ² Examinations G-524C/G-525U, and F-580 are administered at the same time. Candidates may not register for more than one of these examinations in the same session.
- ³ Examinations I-550 and P-564 are administered at the same time. Candidates may not register for both of these examinations in the same session.
- ⁴ Examinations P-461U, P-462C and V-480 are administered at the same time. Candidates may not register for more than one of these examinations in the same session.

B. Tentative Fall 1999 Examinations, Dates, and Times

The *Fall 1999 Catalog* will contain the final schedules.

Course Examination	Time Allowed	Days, Dates, and Local Times
100	3 hours	Tu., Nov. 9 8:30am-11:30am
110	3 hours	Tu., Nov. 9 1:00pm-4:00pm
120	1½ hours	Tu., Nov. 16 8:30am-10:00am
130	1½ hours	Tu., Nov. 16 2:00pm-3:30pm
135	1½ hours	Tu., Nov. 16 10:45am-12:15pm
140	1½ hours	We., Nov. 10 8:30am-10:00am
150	4 hours	Fr., Nov. 12 8:30am-12:30pm
151	1½ hours	We., Nov. 10 10:45am-12:15pm
160	1½ hours	We., Nov. 17 8:30am-10:00am
161	1½ hours	We., Nov. 17 10:45am-12:15pm
165	1½ hours	We., Nov. 10 2:00pm-3:30pm
210	2½ hours	Fr., Nov. 5 8:30am-11:00am
220	3 hours	Mo., Nov. 8 8:30am-11:30am
F-385	2 hours	Tu., Nov. 2 8:30am-10:30am
F-590 ¹	1½ hours	Th., Nov. 4 2:00pm-3:30pm
G-320	3 hours	We., Nov. 3 8:30am-11:30am
G-522	1½ hour	Tu., Nov. 2 2:00pm-3:30pm
G-523 ²	1½ hours	Th., Nov. 4 8:30am-10:00am
G-528 ¹	1½ hours	Th., Nov. 4 2:00pm-3:30pm
I-342C/I-343U	1½ hours	Tu., Nov. 2 11:15am-12:45pm
I-440C	2 hours	We., Nov. 3 1:00pm-3:00pm
I-441U	2½ hours	We., Nov. 3 1:00pm-3:30pm
I-545 ²	1½ hours	Th., Nov. 4 8:30am-10:00am
P-361C	2½ hours	Th., Nov. 4 10:45am-1:15pm
P-362U	2 hours	Th., Nov. 4 10:45am-12:45pm
P-364C ³	2 hours	Mo., Nov. 8 1:00pm-3:00pm
P-365U,EA-2	4 hours	Mo., Nov. 15 8:30am-12:30pm

Course Examination	Time Allowed	Days, Dates, and Local Times
P-567	2½ hours	Fr., Nov. 5 12:30pm-3:00pm
V-485 ²	1½ hours	Th., Nov. 4 8:30am-10:00am
V-595 ³	2 hours	Mo., Nov. 8 1:00pm-3:00pm
Fellowship Admissions Course	2½ days	TBD
Fellowship Admissions Course	2½ days	TBD

- ¹ Examinations F-590 and G-528 are administered at the same time. Candidates may not register for more than one of these examinations in the same session.
- ² Examinations G-523, I-545, and V-485 are administered at the same time. Candidates may not register for more than one of these examinations in the same session.
- ³ Examinations P-364C and V-595 are administered at the same time. Candidates may not register for more than one of these examinations in the same session.

C. Applications to Write Examinations and Deadlines for Submittal

Applications for all SoA examinations are available from the SoA office (847-706-3515) or may be downloaded from the SoA web page (www.soa.org). For courses 141 [EA-1, Segment A], P-360U [EA-1, Segment B], and P-365U [EA-2], applications are also available from the American Society of Pension Actuaries. Applications for the CAS examinations are available from the Casualty Actuarial Society.

A candidate may not write an examination for a course for which the candidate already has credit except as described in Section III.U.

Applications must be received on or before January 15 for the February session, on or before April 1 for the May session, and on or before October 1 for the November session. Applications received after the deadline will not be considered. Please note that the February examinations are administered only in Canada, the U.S. and Mexico.

A registered candidate who requests a change of examination center must pay a \$30 change-of-center fee. *No change of center may be made after January 15 for the February examinations, after April 1 for the May examinations, or after October 1 for the November examinations.*

If a candidate requests a change of center after January 15 for the February examinations, after April 1 for the May examinations, or after October 1 for the November examinations, the SoA will make every effort to have the candidate's records and supplies on hand at the appropriate center in time for the examination. However, the SoA and any jointly administering or sponsoring organizations cannot guarantee that this effort will be successful. If either the candidate's registration and fees or request for change of examination center is received so late that it is not feasible to arrange for the candidate to write the

examination, the fees will be refunded. The administering organizations are not responsible for difficulties caused by postal service delays or inadequate postage.

Candidates must sign the following statement that appears on the application:

"I have read the rules and regulations concerning the examination(s) for which I am applying, and agree to be bound by them. I also agree that the results of any examination(s) which I take, and any action taken as a result of my conduct (such as an irregularity, violation or cheating, and any hearings thereon) may, at the sole discretion of the Society of Actuaries, be disclosed to any other bonafide actuarial organization that has a legitimate interest in such results and/or action."

Candidates will not be considered registered for an examination unless and until the SoA has received an original, signed application for the examination session. Unsigned, photocopied or facsimile applications are not valid and will be returned to the candidate. **All applications require an original signature.**

D. Examination Fees

Fees listed in this Catalog are guaranteed through the May 1999 examination session only. Candidates will be notified of any changes in fees.

The **change-of-center fee is \$30.**

Fees should be remitted in U.S. funds by check, draft, or money order payable to the SoA, or charged to MasterCard/Visa. Fees may be remitted in Canadian funds equivalent to the prevailing rate of exchange. Please note that payment in Canadian currency may slightly delay the processing of the application.

The examination fee schedule for examinations 100 and 110 in May 1999 is (amounts in U.S. dollars):

Course Examination 100	\$50
Course Examination 110	\$50

For all course examinations other than 100 and 110, the fees consist of a \$60 base fee, plus whichever of the following fees apply. The \$60 base fee is charged only once per examination session (i.e., each May and each November) no matter how many examinations are taken.

The fee schedule by examination for the Spring 1999 session is:

Series 100 Courses

Examination	Fee	Examination	Fee
120	\$ 53	150	\$140
130	\$ 53	151	\$ 53
135	\$ 35	160	\$ 53
140	\$ 35	161	\$ 35
141	\$ 65	165	\$ 35

Series 200-500 Courses

Examination	Fee	Examination	Fee
200	\$330	I-442C	\$330
230	\$165	I-443U	\$275
F-580	\$165	I-540	\$110
F-585	\$220	I-550	\$165
G-420C	\$220	P-359C	\$165
G-421U	\$275	P-360U	\$ 65
G-422	\$275	P-363	\$165
G-524C	\$110	P-461U	\$220
G-525U	\$110	P-462C	\$220
I-340	\$330	P-564	\$110
		V-480	\$220

E. Refunds

A candidate who submits an application for an examination but does not write that examination should submit a written request for an examination refund. **A \$50 administrative fee is assessed for all refunds.** The written request must be received at the SoA no later than June 30, 1999 for the May examinations. Later requests will not be considered. *Fees for Examinations 100 and 110, change-of-center fees, and fees for writing at specially arranged centers will not be refunded except as noted in Section III.C. Fees cannot be transferred from one session to another.*

F. Examination Locations

Regular examination centers are set up in many locations, with consideration given to the number of candidates in the vicinity and the availability of suitable supervision. Special examination centers may be arranged at the discretion of the SoA office. The additional fee for these special centers is \$50; *requests must be received by the **April 1 registration deadline** for the May examinations.*

Examination centers are listed on the examination application. A candidate's examination center will be indicated on the Ticket of Admission.

G. Special Arrangements for Candidates with Disabilities

A candidate with disabilities who needs special testing arrangements must submit a written request to the SoA office for each session the candidate intends to write. Documentation of the disability, (e.g. physician's statement, diagnostic test results) as well as the need for special arrangements are required of each candidate;

previous accommodations given to the candidate in an educational program or work setting are also considered. *Requests for special arrangements and supporting documentation must be submitted, at the applicant's expense, **no later than April 1** for the May examinations.*

H. Ticket of Admission/Instructions to Candidates

The SoA office will mail each candidate: 1) a Ticket of Admission which indicates the examination(s) for which the candidate is registered, and 2) the *Instructions to Candidates* which covers administrative details about the examination as well as exact examination center locations. Tickets of Admission will be mailed beginning January 2 for the February session, March 1 for the May session, and September 1 for the November session. The ticket indicates the examination center to which the candidate should report and also contains the candidate number. This candidate number is to be written by the candidate on the examination(s) for identification purposes. **This Ticket of Admission should be brought to the examination center.**

A candidate who has not received a Ticket of Admission two weeks prior to the examination, or whose ticket contains incorrect information, should call the SoA Examination Services Department at 847-706-3583.

The Ticket of Admission also serves as a receipt and should be retained if needed for tax purposes.

I. Requirements for Admission to Test Center

To be admitted into a test center, each candidate must present a valid Ticket of Admission as well as positive identification with a signature and a photograph (e.g., driver's license, passport, school or work I.D., etc.). If a photo I.D. is not available, the candidate must present *two* forms of identification with a signature, with at least one form containing a physical description (height, weight, hair color, eye color, etc.). Each candidate will be required to sign in at the test center. A candidate who does not present positive identification or who refuses or is unable to provide a matching signature will not be permitted to write the examination.

J. Signatures on Examination Answer Sheets and Envelopes

Candidates are **required** to sign their answer sheets and envelopes. Examinations without a signed statement on the multiple-choice answer sheet or written-answer envelope will not receive a grade for those examinations. The statement to be signed reads:

"I have neither given nor received assistance of any kind on this examination. I understand the examination is confidential and will not disclose its contents.

This examination is being written with the understanding that if the answer sheet/envelope is returned unsigned, it will not be graded."

Envelopes for written-answer examinations will be opened in the SoA office. Committee officers and graders will receive information identifying candidates only by candidate number.

K. Bilingual Examinations in Canada

For examination centers in Canada, examination booklets for all examinations are printed in both French and English, except for the examinations with emphasis on the U.S. (e.g., P-461U).

Outside of Canada, examination booklets are printed in both English and French *only* for Fellowship examinations with emphasis on Canada (e.g., I-442C). For bilingual examinations, responses to written-answer questions may be in either English or French.

L. Study Notes (SNs)

1. General Information

The E&E Committee publishes SNs to help candidates prepare for the examinations. In some instances, SNs are the principal references; in others, they are designed to coordinate the subject for the candidate or to complement other readings.

There are no SNs for Course Examinations 100 and 110. The *Preliminary Actuarial Examinations* booklet contains sample exams for Courses 100 and 110. This booklet is available at no charge from the Education Services Representative at 847-706-3515.

Sample questions, illustrative solutions, and answer keys for Course Examinations 120-595 are available as part of the set of SNs. Illustrative solutions are not available for multiple-choice questions on examinations 200, 210 and 220. In most cases, sample questions are questions that appeared on previously administered course examinations. When a course is substantially revised, sample questions that reflect the current focus of the course may be developed expressly for inclusion in the SNs.

Introductory Study Notes (ISNs) contain important information about the examinations, including any changes to the Course of Reading, changes in examination times or dates, errata and descriptions of examination formats. Candidates registered for Examinations 120-165 receive the relevant ISNs free of charge.

Occasionally, the Course of Reading for an examination may be changed after publication of the Catalog. Such a change will be announced in the ISN for the affected examination. *If any conflict exists between information contained in this Catalog and that contained in the ISNs, the ISN will govern.*

Candidates are urged to order SNs for any examination that they plan to take.

2. Ordering SNs

SNs for the May examinations may be ordered after December 1 for Series 200-500 examinations, and after January 1 for Series 100 examinations. SNs are available in two forms — Complete Sets (which contain all revisions) or Revisions Only. The Complete Set contains the ISN, two or three sample examinations for the course, and all SNs on the syllabus for the course. The Revisions Only package contains the ISN, one sample examination for the course, and those SNs that are new to the syllabus or that have been revised since the previous administration of the respective examination. Candidates who are writing the course examination for the first time should order a Complete Set of SNs rather than the Revisions Only.

Study Note fees are listed on the order form at the back of this catalog. The completed order form, together with the total payment (check or money order in U.S. funds, payable to the Society of Actuaries; or charged to MasterCard/Visa) should be

sent to the address on the order form. SN fees are not refunded.

Questions concerning SNs or SN orders should be directed to the Study Note Coordinator at 847-706-3525.

3. *Packaged References*

For those candidates who do not have access to *Transactions Society of Actuaries* (TSA), *TSA Reports*, *Record—Society of Actuaries* (RSA), or *North American Actuarial Journal* (NAAJ) published references, photocopied sets of the referenced articles are available for purchase. Consult the SN order form at the back of this catalog for the appropriate fees.

M. Use of Calculators and Other Assistance in Writing Examinations

A candidate may not communicate with or obtain assistance from any other candidate during the examination; nor may any books, papers, typewriters or computers be brought into the examination room. Only the calculators described in the following paragraphs may be brought into the examination room.

Calculators are allowed on all examinations. For all examinations except the Enrolled Actuaries (EA) examinations, the only calculator that may be used is the official SoA model with the SoA logo, which can be purchased only from the SoA for \$25 (U.S.). The current official calculator is the Texas Instruments Business Analyst, model BA-35 solar. Anyone wishing to use a prior SoA model which bears the official SoA logo may do so; however, questions will be set assuming access to the current official SoA calculator.

For the Enrolled Actuaries (EA) examinations, candidates may use any model that meets the specifications of the Joint Board for the Enrollment of Actuaries. Specifications are listed in the Joint Board's *Examination Program*. The official SoA model meets the specifications of the Joint Board.

Calculator orders should be placed at the same time that the examination application is submitted. No calculators will be shipped after January 15 for the February examinations, April 1 for the May examinations, or October 1 for the November examinations. Examination supervisors are authorized to provide a substitute **BA-35 solar calculator**, if available, only in the event that a candidate's calculator malfunctions during the examination. Supervisors will not provide a calculator for persons who fail to order the official SoA model or who fail to bring their calculators to the examination.

Candidates who use a calculator that is not allowed will have their examination(s) disqualified and will not receive a grade.

N. Examination Results

Candidates receive individual statements of their examination results, usually eight to ten weeks after the examination date. A few weeks later, a list of the names of passing candidates for the examination session is made available through the SoA web page (www.soa.org).

Grades are reported on a 0 to 10 scale. Passing grades range from 6 to 10; failing grades range from 0 to 5. On this scale, the interval is 10 percent of the score required to pass; for example, a grade of 5 means failing with a score of at least 90 percent but less than 100 percent of the score required to pass. A grade of 0 does not mean that the candidate received no points, but that the candidate's score was less than 50 percent of the score required to pass.

Upon request, a copy of the candidate's answer sheet for EA-1 or EA-2 is available from the Joint Board for the Enrollment of Actuaries. Examination answer sheets are not returned to candidates for any

other SoA examination. For certain examinations, an analysis of results is automatically sent to failing candidates.

An automated "hotline" service begins once all grades have been mailed. A candidate may call the hotline at 847-706-3579. This automated "hotline" is an Interactive Voice Response (IVR) system that, with the use of the confidential candidate number and touch-tone phone, allows access to examination results, 24 hours a day, 7 days a week. This IVR system is designed only to give pass/fail results; no other information will be available. The hotline operates for a limited time each examination session after grades are mailed. Once examination results are released, candidates are also able to access lists of passing candidate numbers via the Internet. **Note: to preserve candidate confidentiality, in the event of a lost or misplaced candidate number, phone and facsimile requests to obtain the candidate number will not be honored from the SoA. Only requests in writing will be honored, and they will be answered in writing.**

O. Lost Examinations

If a completed examination answer sheet or the written-answers for an examination are inadvertently lost or destroyed, the examination fee will be refunded. The SoA and any jointly administering or sponsoring organizations assume no other obligation, and candidates must take all examinations subject to this understanding. The one exception to this policy is noted in the following paragraph.

In the case of a multiple-choice examination, whenever reasonably possible, the SoA will make use of a candidate's examination book to reconstruct the answers selected by the candidate. Where a candidate has clearly indicated the response selected for each question, the E&E Steering and Coordinating Committee can determine when the candidate demonstrates a passing performance and give that candidate a passing grade. Therefore, candidates may want to circle or otherwise clearly indicate their answer choices in the examination books. However, additional time in the examination period will not be given for candidates to do this. If a candidate receives a passing grade as a result of the review of the examination book, the examination fee will not be refunded.

P. Defective Questions

Occasionally, through an inadvertent error or a difference in interpretation, an examination question is found to be defective. Examples of defects might include typographical errors, ambiguities, or questions which test material no longer covered in the Course of Reading. Candidates who believe that a question is defective should write to the E&E Ombudsperson at the SoA within two weeks of the date the examination was administered. This letter should explain in detail why the question seems to be defective. The SoA E&E Committee will investigate all questions brought to its attention in this way, and may make allowances in the grading process, if appropriate. The E&E Committee may make use of candidates' examination books to determine whether their scores should be adjusted. Correspondence which does not reach the SoA office within two weeks after the examination administration cannot be considered by the committee.

Q. Publishing Examinations and Sample Examinations

Examinations are copyrighted.

Sample questions and illustrative solutions from Course Examinations 120-595 are available as part of the set of SNs. The multiple-choice sections of examinations 200, 210 and 220 do not contain illustrative solutions. A pamphlet, *Preliminary Actuarial Examinations*, contains information and sample examinations for Courses 100 and 110 and may be obtained from the Education Services Representative at 847-706-3515.

In referring to the sample questions, candidates should keep in mind that the questions are intended to serve as a study aid, and that the actual examinations may vary somewhat as to the proportion of question styles and subjects. New forms of questions may appear, and certain forms may not be used in the future.

R. Confidentiality of Examination Records

The fact that a candidate has passed an examination for credit with the SoA is considered public knowledge. Any further information about the examinations taken or grades received by a candidate is available only to that candidate and to E&E Committee Officers as required for Committee purposes. However, a candidate may request in writing to the SoA office that a designated person should receive such information.

S. Disciplinary Action

Candidates must not give or receive assistance of any kind during the examination. Any cheating, any attempt to cheat, assisting others to cheat, or participating therein, or engaging in such improper conduct as listed below is a serious violation and will generally result in the SoA disqualifying the candidate's paper, and such other disciplinary action as may be deemed appropriate. Candidates have agreed in their applications for examination to be bound by the rules and regulations governing the examinations.

Examples of improper conduct:

1. Gaining access to examination questions before the examination.
2. Using an unauthorized calculator or other mechanical aid which is not permitted.
3. Looking in the examination book before the signal to begin is given.
4. Marking or otherwise writing on the examination book or answer sheet before the signal to begin is given.
5. Making any changes, additions, deletions, or otherwise marking, erasing or writing on the examination book or answer sheet after the time for the examination has expired.
6. Having access to or consulting notes or books during the examination.
7. Looking at or copying from another candidate's paper.
8. Enabling another candidate to copy from one's paper.
9. Talking or otherwise communicating with another candidate during the examination.
10. Disturbing other candidates during the examination.
11. Consulting other persons outside the examination room during the examination.
12. Copying questions, answers, or answer choices to take from the examination room.
13. Taking an examination book from the examination room.

14. Taking an examination for another candidate.
15. Arranging to have another person take an examination for the candidate.
16. Threatening or verbally abusing a supervisor or proctor responsible for curbing or reporting improper conduct
17. Disclosing the contents of an examination to any other person.
18. Presenting false information on an examination application.
19. Failing to remain in the examination room for a minimum of two hours or the duration of the examination.
20. Failing to follow other examination instructions.

The E&E Committee of the SoA will pursue any evidence that a candidate has cheated or failed to follow examination rules, either in letter or spirit. Any irregularity or suspected violation will be investigated. When a violation is confirmed, disciplinary actions may include, but are not limited to, disqualification of the candidate's examination paper and a prohibition against writing SoA examinations for a specified period.

The SoA rules and regulations concerning examination administration, including disciplinary action, are comprised of the information in this Catalog, including the Appendices, as well as the information in the *Instructions to Candidates* mailed with the Tickets of Admission, the information on the covers of examination booklets, and the material read by the supervisors during each examination administration. All candidates, on their applications for examinations, are required to read and sign the following statement:

"I have read the rules and regulations concerning the examination(s) for which I am applying, and agree to be bound by them. I also agree that the results of any examination(s) which I take, and any action taken as a result of my conduct (such as an irregularity, violation or cheating, and any hearings thereon) may, at the sole discretion of the Society of Actuaries, be disclosed to any other bonafide actuarial organization that has a legitimate interest in such results and/or action."

These standards may seem stricter than those to which candidates are accustomed in other examination environments. The SoA maintains these strict standards because the examinations are such a significant part of a candidate's career. Therefore, equitable administration of the examinations and enforcement of the highest standards of conduct cannot be emphasized too strongly. The conduct of the majority of candidates for the SoA examinations is of the highest quality.

Candidates who desire a copy of the full procedures followed in disciplinary cases should send a written request to the Education & Examination Ombudsperson at the SoA office address.

T. Prize Awards for Course Examination 100

Each session, the SoA and the Casualty Actuarial Society jointly award one \$200 and four \$100 prizes to the five undergraduate or high school students who rank the highest on Course Examination 100, Calculus and Linear Algebra.

U. Notice to Candidates for Enrolled Actuaries' Designation

In order to reflect changing circumstances, revision of EA-1 or EA-2

may be necessary from time to time. An individual who has passed either examination but has not yet completed requirements for enrollment may be required by the Joint Board for the Enrollment of Actuaries to pass the examination again if substantial changes have occurred. Under current guidelines, credit toward enrollment for passing these examinations will be valid for a period of at least 36 months from the date of notice of having passed. This limitation does not affect credit toward SoA education requirements which is subject to the rules described in Section I.E.

V. Credit for Casualty Actuarial Society (CAS) Examinations

Application to take any of the referenced CAS examinations must be made through the CAS office. To receive credit with the SoA, candidates must arrange for the CAS to provide the SoA with official confirmation that they passed the examination.

1. *Part 4A*

The CAS Part 4A examination covers the topics of Interest Theory and Life Contingencies and may be used in lieu of the SoA Course 140 examination required for Associateship, if passed in May 1992 or later. Candidates will not receive credit from the SoA for both examinations.

2. *Part 4B*

The CAS Part 4B examination covers the topics of Credibility Theory and Loss Distributions. Candidate's passing the examination in May 1992 or later can receive 20 elective credits from the SoA.

Credit for passing Part 4B may be applied toward the elective credits needed for FSA or ASA (or split between the two). To receive elective Fellowship credit for CAS Part 4B, candidates must also pass Course 230.

The Canadian Institute of Actuaries (CIA) has determined that persons who wish to achieve Fellowship with the CIA by virtue of having passed SoA examinations will be required to pass Part 4B of the CAS syllabus. This requirement took effect on September 1, 1993. Persons who, as of September 1, 1993, needed 15 or more elective credits to complete their Associateship requirements must pass Part 4B (CAS) in order to qualify for Fellowship with the CIA.

3. *Parts 3B, 6, 7 and 10*

Candidates may receive elective Associateship or Fellowship credit for the CAS Parts 3B, 6, 7 and 10 examinations. The CAS Part 3B examination covers the topic of Introduction to Property and Casualty Insurance; candidates passing the examination in November 1990 or later can receive 10 elective credits from the SoA. The CAS Part 6 examination covers Principles of Ratemaking and Data for Ratemaking; candidates passing the examination after September 1986 can receive 20 elective credits from the SoA. The CAS Part 7 examination covers the topics of Premium, Loss, and Expense Reserves; Insurance Accounting, Expense Analysis, and Published Financial Information. Candidates passing the examination after September 1986 can receive 20 elective credits from the SoA. The CAS Part 10 examination covers the topics of Financial Operations of Insurance Companies; Reinsurance; Assets' Valuation; Solvency; and Capital; candidates passing the examination after September 1995 can receive 20 elective credits from the SoA.

W. Credit for Examinations Passed in Other Actuarial Organizations

The Board of Governors may waive certain requirements for passing some examinations of the SoA if the applicant has passed substantially equivalent examinations which are required by another recognized actuarial organization. Requests for these waivers should be sent to the Education Department at the SoA office.

X. Credit for Chartered Financial Analyst (CFA) Designation

Candidates may receive credit for Course 220, which is required for Associateship, by having attained the CFA designation. *Completing all requirements for the designation is necessary; no credit will be given for having passed one or more of the CFA examinations.*

Requests for such credit should be sent to the Education Department at the SoA office.

Y. Credit for Research Papers

Candidates may receive 30 elective Associateship or Fellowship credits by successfully completing a research paper. Appendix II outlines the procedures to be followed by candidates who wish to write a research paper for elective credit. Credit will be granted for only one paper. Requests for an application to submit a research paper should be sent to the Education Department at the SoA office.

Z. Credit for Graduate Record Examination (GRE)

Candidates who take the GRE Mathematics Subject Test may apply for credit for Course 100. Credit will be granted if the candidate's score on the GRE Mathematics Subject Test is equivalent, as determined by the SoA, to a passing score on Course 100.

An application to the SoA for credit may be submitted either before or after taking the GRE Mathematics Subject Test. Applications submitted more than five years after taking the test will not be accepted. The required application can be obtained from the SoA office. The fee required to secure a transcript of the candidate's score on the test is explained on the required application.

Credit for Course 100 attained by virtue of the GRE Mathematics Subject Test will be recognized as equivalent to passing Course 100 for purposes of conversion. The GRE Mathematics Subject Test will not be accepted to gain credit for Course 1 in the new education system taking effect in 2000. Therefore, candidates must have completed the application process for credit with the SoA by December 31, 1999.

The SoA does not offer credit for Course 100 on the basis of scores achieved on the GRE General Aptitude Test.

AA. Notice to Candidates Interested in Post Retirement Medical Benefits

Candidates with a particular interest in the valuation of Post Retirement Medical Benefits and Statement of Financial Accounting Standard 106 are advised to include the following courses along with their other requirements:

1. G-422, Group and Individual Health Insurance Pricing
2. G-523, Non-Pension Postretirement and Postemployment Benefits
3. P-359C/P-360U, Principles of Pension Valuation I
4. P-462C/P-461U, Principles of Pension Valuation II and Accounting Standards for Pension Plans

BB. FSA's Writing Examinations

FSA's have expressed a desire to write SoA examinations to satisfy a professional continuing education provision, or to acquire new knowledge. The SoA supports enabling FSA's with a legitimate purpose to write SoA examinations, subject to limited restrictions.

As is the case for all candidates, FSA's cannot write examinations

they have previously passed unless such demonstration is required to satisfy licensing/certification continuing education requirements (e.g., Enrolled Actuaries in the U.S.).

A concern about FSA's taking SoA examinations relates to a perception of inside knowledge or conflict of interest. FSA's serving on an education or examination committee may need to separate themselves from that committee involvement for a period of time before taking an examination. FSA's who are interested in writing an SoA examination but have questions about any relevant restrictions should contact the E&E Ombudsperson at 847-706-3527.

CC. Joint Sponsorship

The Associateship and Fellowship examinations administered by the SoA are jointly sponsored by the American Academy of Actuaries (AAA), the Canadian Institute of Actuaries (CIA), the Conference of Consulting Actuaries (CCA), and the SoA. The Casualty Actuarial Society (CAS) also jointly sponsors and jointly administers Course Examinations 100, 110, 120 and 135. In addition, the American Society of Pension Actuaries (ASPA) and the Joint Board for the Enrollment of Actuaries jointly sponsor and jointly administer Courses 141 [EA-1, Segment A], P-360U [EA-1, Segment B] and P-365U [EA-2]. The addresses of the above-mentioned organizations are given in Appendix V.

DD. Everett Curtis Huntington Prize

The Everett Curtis Huntington Prize is awarded periodically to the best research paper that receives credit under the Society's educational program for research papers. The prize, which consists of a cash award of \$1,000 and a plaque, is awarded under the administration of the directors of the Actuarial Education and Research Fund (AERF). See the *SoA Yearbook* for a more complete description of the prize and its purpose.

EE. Correspondence

Requests for application forms or correspondence regarding examinations, SNs, classes, or other matters should be mailed to:

Society of Actuaries
Education Department
475 North Martingale Road
Suite 800
Schaumburg, Illinois 60173-2226
U.S.A.

Application forms and order forms for study notes and classes are available also on the SoA Website (www.soa.org).

IV. THE EDUCATION AND EXAMINATION COMMITTEE

A. Organizational Structure of the Education and Examination Committee

The education program of the SoA is administered by its Education and Examination (E&E) Steering and Coordinating Committee. Within this overall committee, two separate committees operate. The Education Committee is responsible for the selection and development of the study material for the SoA basic educational programs. The Examination Committee is responsible for the development and grading of the examinations. Both of these committees report to the General Chairperson. Each of these committees has its own Chairperson and several General Officers. The E&E Committee operates under guidelines set by the SoA E&E Management Committee.

The Education Committee is responsible for determining the content of the Course of Reading. Input and suggestions for improvements may come from many sources, including the SoA Staff Fellows, the individual examination committees, Education Committee members, members of the Education Objectives Committees, Sections, the general SoA membership, academics, and candidates.

The Examination Committee consists of several individual examination committees, each responsible for specified examinations. Each examination committee develops and is responsible for the initial review of all of the questions to be included in its examinations. The committee recommends the pass marks for its examinations.

In addition there is a Research Paper Committee (RPC) that evaluates proposals and research papers submitted for credit. See Appendix II for a full description of the research paper process.

B. Review and Development of Course of Reading

The Course of Reading is reviewed regularly by members of the Education Committee. Both short-term and long-term goals for improvement are developed. Textbooks and articles may be selected or SNs developed to be included in the Course of Reading. From time to time, new textbooks are written for the specific purpose of inclusion in the Course of Reading.

If new study material needs to be developed, or existing material needs to be revised, authors and reviewers who are experts in the area are recruited. Every effort is made to develop material that is appropriate, relevant, up-to-date, concise and well-written. Suggestions for improvement are always welcome and should be sent to the Education Department of the SoA office.

Every effort is made to present educational material clearly and unambiguously. Occasionally, however, errors do occur. Candidates who believe that they have found an error in any study material should write to the Education Department at the SoA office so that any necessary corrective action may be taken.

C. Development of Examinations

Each examination is developed by the appropriate committee to test candidates' knowledge of the subject matter as defined in the Course of Reading in this Catalog. The officers of the individual examination committee, one or more General Officers, and where applicable, representatives of jointly administering organizations, review each examination to assure its quality.

Every effort is made to ensure that the questions fall within the scope of the Course of Reading, and that each question can be answered in the allocated time. Complete coverage of all parts of the Course of Reading is not practical for every examination every year, but the goal is to develop well-rounded examinations containing representative, high-quality questions that test the candidates' knowledge and ability to make use of material from many parts of the Course of Reading. Trick questions are avoided, and the wording of each question is carefully considered to eliminate possible ambiguities. Preliminary versions of each examination are thoroughly reviewed in relation to all of these factors before the final examination is set.

D. Grading Process

Multiple-choice questions are scored by optical-scanning equipment. As a check, several papers for each examination are scored by hand. Only the answer sheet determines the score. No credit, partial or full, is given for anything written in the multiple-choice examination book, except as indicated in the next paragraph and as described in Section III.O.

A multiple-choice question found to be defective may be discarded, leaving scores and rankings as they would have been if the defective question had not been asked. In this situation, the individual examination chairperson may examine the examination books of candidates with the highest failing scores to see if credit should be granted for work on the defective question. See Section III.P. for information on defective questions.

For all multiple-choice examinations, no guessing adjustment is made to candidates' scores. Therefore, candidates will maximize their scores by answering every question, even if some of those answers are pure guesses. When there is no guessing adjustment, there is never an advantage to be gained by omitting a question.

For written-answer questions, every effort is made to grade the answers according to completely objective standards. The anonymity of the candidates is fully preserved; committee members see only a candidate number when grading an examination. Each examination committee has a grading process to fit its own needs. A committee with a relatively small number of papers to grade might work as follows.

A single committee member is assigned to grade each written-answer question. The grader starts with a grading outline that lists possible items that are directly relevant to the question with numerical values set according to each item's importance. All answers are measured against the same grading outline to ensure that the same standards are applied to all candidates.

Written-answer scores are next combined with multiple-choice scores, if any, and candidates are ranked in score order. Approximately one-third to one-half of the candidates — those with scores fairly near the expected pass mark — will have their written-answer papers regraded at a central grading session of the committee. The papers of the other candidates will not be regraded, since their scores would not change sufficiently to move from pass to fail or vice versa.

At the central grading session, each paper is independently graded by a different committee member using the same grading outline. If the second grader's score on a question varies from the first grader's

score by more than a small allowed tolerance, the two graders discuss the paper in detail and settle upon a score.

For an examination with a relatively large number of candidates, two or more graders will be assigned to each question at the beginning and procedures modified accordingly.

Papers are retained for six months in case questions or problems arise that would warrant special action. After this, the papers are destroyed.

E. Determination of the Pass Mark

The objective of the examinations is to identify those candidates who, as a prerequisite for qualifying for Associateship and/or Fellowship, demonstrate adequate knowledge of the Course of Reading based on standards that are formulated and applied consistently from year to year.

After the examination has been graded, the candidates are listed in score order. The next step is to determine where to draw the line between passing and failing scores. If grading were done on a "curve," this step would be easy. But rather than being in competition with the other candidates, each candidate is evaluated against a standard of adequate knowledge of the Course of Reading. A candidate who demonstrates adequate knowledge should pass regardless of how the total candidate group performed.

To maintain consistency in passing standards, the E&E Committee reviews extensive data to ascertain the level of difficulty of each examination relative to prior examinations, and the level of preparedness of the current candidates relative to candidates who took the examination for the same course in other years.

After these determinations have been made by analyzing all relevant available data, the pass mark is set to achieve the desired consistency with prior standards. The final decision is reached by consultation among the Chairperson and Vice-Chairpersons of the individual examination committee and Officers of the E&E Committee. These procedures are somewhat different, however, for Course 141 [EA-1, Segment A], Course P-360U [EA-1, Segment B] and Course P-365U [EA-2] which are jointly administered by the American Society of Pension Actuaries, the Joint Board for the Enrollment of Actuaries, and the SoA. For the purposes of EA credit, the Joint Board sets the pass mark. Each of the sponsoring organizations has the right to set its own pass mark for credit towards its own educational requirements. While a common pass mark is anticipated, it is possible for the SoA pass mark to differ from the pass marks of the other sponsoring organizations.

V. SUGGESTIONS FOR CANDIDATES

A. Order for Taking Examinations

1. Series 100 Examinations

The Series 100 courses in general do not have specific prerequisites. However, when developing questions for the Series 100 course examination, candidates are generally assumed to be familiar with the material on lower numbered required courses covering related topics.

While prior or concurrent study of these courses will give a candidate sufficient background material to pass the course examinations, there may be some questions which the candidate will not be able to answer, given only the background supplied by the courses in this list. The following table may help candidates to determine an order for taking the Series 100 course examinations:

Course Examinations	Course(s) Suggested for Prior or Concurrent Study
100	----
110	100
120	110
121 (Intensive Seminar)	120 (Required Prerequisite)
130	110
135	100
140	100
141 (EA-1, Segment A)	100
150	110, 140/141
151	110
152 (Intensive Seminar)	151 (Required Prerequisite)
160	150
161	160
165	150

2. Series 200 and Series 300-500 Examinations

All examinations beyond the Series 100 courses are constructed assuming that candidates are familiar with the material in the required Series 100 courses. Generally, examinations in higher numbered courses are constructed assuming that candidates are familiar with the material in lower numbered courses.

Series 200 courses provide a basic foundation upon which each of the specialty tracks is built. While not required, an understanding of investments and/or the material on Course 220 is highly recommended as preparation for Course 230. Series 300 and 400 courses provide comprehensive coverage of design, pricing, valuation and regulatory issues. Series 500 courses cover specialized topics and issues.

The Fellowship Admissions Course may not be taken until all other Fellowship course requirements have been met.

3. Restrictions on registration for Series 200-500 Examinations

Candidates with fewer than 100 credits of SoA examination are not permitted to register for Series 200-500 examinations, with the exception of EA-1, B and EA-2. Credit attained by waiver is counted toward satisfying the requirement.

B. Study Methods

For mathematical examinations, candidates should acquire proficiency with techniques and formulas by working a large number of problems similar to those you expect to find on the examinations.

For any examination, schedule study time so that each subject is covered adequately. Try to approach each subject from more than one perspective. Do not limit yourself to the approach taken in daily work. Maintain an interest in current developments. Knowledge of actual practice is helpful. The discussions of papers, unless excluded, are an essential part of the reading and should be studied as carefully as the papers themselves.

Integrate the material studied. Compare programs, methods and so on. The more connections developed in the studied material, the deeper the understanding, and the better the use made of the acquired information.

Maintain contact with other candidates and take advantage of the opportunities to discuss difficult topics. Do not hesitate to consult established members of the profession in your own organization or elsewhere.

Do not rely solely on commercial outlines of study material. Rather, strive to summarize knowledge of the material by adequate review prior to the examination. For written-answer examinations, try constructing "trial" examinations. These trial examinations will test not only knowledge and understanding of the Course of Reading, but they may also improve speed and confidence.

Case studies may be included with the SNs for certain courses. In this case, candidates should become familiar with the case study before reading the other study materials. The case study can help to provide a context for the readings. Examination questions may be based on the case study, and in that event, should be answered from the perspective of the case study and not in generalities.

C. Review Classes and Seminars

Most candidates use the self-study technique or informal study groups to prepare for examinations, but a few additional options are available. In certain areas, universities or actuarial clubs offer classes to assist candidates. These classes usually meet in the late afternoon, starting four months or so prior to the examinations. Check with your employer or with local clubs about class availability in your area, or complete the review classes form in this Catalog and send it to the Education Department at the SoA office.

Review seminars and workshops are held at several universities and in various cities. Order forms for these seminars and workshops are included in the SoA SNs for the appropriate courses. Order forms can be requested from the SoA office or downloaded from the SoA web page (www.soa.org).

In addition, the CIA sponsors correspondence classes for many of the Series 100 examinations. Please contact the CIA directly for more information.

D. Study Manuals

Study manuals for examinations administered by the SoA are available from various sources. These contain material such as summary outlines of Course of Reading material, various types of practice problems and, in some cases, solutions to recent sample examination problems.

These study materials are neither a part of the Course of Reading nor a substitute for the SoA SNs; nor do they reflect any official interpretation, opinion or endorsement of the SoA or its E&E Committee.

Some book distributors carry study manuals, as shown on their order forms. Order forms for study manuals are included with the SoA SNs. Order forms are also available from the SoA Office on request.

The required SoA SNs are not contained in any of these study manuals. SNs are available only from the SoA, and are obtained by completing the order form from the back of this Catalog, along with the appropriate payment, to the address indicated on the order form.

E. Approaches to Writing Multiple-Choice Examinations

A key to writing multiple-choice examinations is to make steady progress through the questions. Do not spend a disproportionate amount of time on a single question with which you are having trouble. Move on, and come back to it if time is left at the end. Chances of correctly completing the greatest number of questions are increased if each question is attempted seriously at least once. It may help to determine the proportionate number of questions to answer in the first half hour of the examination, check how much ground was actually covered in that time and adjust the pace accordingly.

When pressed for time, a good strategy is to omit questions that are expected to require more than average time to use the time to complete a larger number of more quickly answered questions. For example, if a cluster of questions with a common introduction is not readily grasped, skip the entire cluster on the first attempt. Look for questions which deal with more familiar subject matter.

When answering a question, look for the quickest way possible to arrive at the correct choice and mark it on your answer sheet.

If a question is encountered for which all choices appear to be incorrect, simply move on. It later may be determined that one of the answers is correct. Also, develop shortcuts for eliminating impossible answers by checking out boundary conditions, inspecting other aspects of certain suggested solutions, or substituting numerical values.

Because there is **no** guessing adjustment, mark an answer choice on the answer sheet for every examination question.

F. Approaches to Writing Written-Answer Examinations

Written-answer questions are intended to elicit answers in essay and/or outline form. Numerical written-answer questions require extended numerical or formula solutions; credit given is based not only on the correct results, but also on the steps used to derive these results.

Paper is provided at the examination room for your answers. Take time to write legibly, since examiners can only give credit for what they can read.

Each written-answer question is assigned a specified number of

points. The number of points indicates the relative weighting each question bears to the total examination and to other questions, and suggests the relative time that should be spent on that question. Try to distribute the examination time over all questions and limit consideration of any question to the time proportionately allotted to it. Generally, it will be more profitable to write at least a brief answer to a question for which you are relatively unprepared than to spend time refining an answer to a question on which you are well informed. No extra points are given for padding an answer.

Read each question thoroughly. Before starting to write, determine what is being asked and try to organize the intended answer. It is most important to answer the question that is asked. Points are not awarded for providing a good answer to a question not asked. It may be helpful to write a brief outline before beginning the actual answer. Answer the questions in any order. Some candidates prefer to answer the questions in the order given, while others read over the entire paper, warm up with an answer that comes easily, and gradually work into the more challenging questions.

It may be helpful to jot down on scratch paper ideas that come to mind concerning both answered and unanswered questions. (Hand in the scratch paper with the rest of your papers.) Questions may be answered in outline form, provided the meaning is clear and the question is fully answered. Another acceptable technique is to use one sheet of paper for "advantages" and another for "disadvantages," and similarly for other contrasts. This method allows going back and forth from one page to the other and putting down items as they occur. Use as much paper as needed. An uncrowded and orderly presentation can do no harm, and the use of additional pages may result in putting down further facts and considerations which earn additional credit.

If you believe that there is a better answer or approach than what is indicated in the Course of Reading (e.g., because of recent changes in regulations), it is acceptable to provide this answer, although state at the outset that this answer differs from the Course of Reading. If possible, also indicate the answer or approach given by the Course of Reading, thus demonstrating to the individual examination committee that the assigned material was read and mastered. However, there is no advantage to adding to an answer that is already complete.

Obscure interpretations should not be read into a question; each question is designed to be straightforward. Try to cover all aspects of the question in the answer, and include pertinent facts and details even if, based on practical experience, they seem obvious. However, including facts and details not pertinent to the question will waste examination time and will not earn any additional credit. Do not expand upon one or two points to the exclusion of others of equal importance. Try to state both sides of a question where called for in an answer. Do not, however, try to hedge an issue if a definitive statement is called for; no credit will be earned through that approach. If the question involves calculations, show all formulas and work involved in arriving at the answer. If time permits, review your answers.

In most written-answer examinations, there is an average of three minutes for every examination point. However, it may be helpful to adjust the time per question to leave some time for the initial reading of the entire paper and for a final review. Then allocate the net remaining time in proportion to the points for each question. It is well worth attempting every question; generally some credit will be earned,

even if a question is only partially answered. However, when no more can be done on a question (even though some time remains for it), move on to another.

Questions may cross subject lines. Prepare for this by thoroughly understanding the interrelationship of the various subjects within each course.

Case studies may be used as the basis for questions on an examination. In that situation, be sure to answer the question asked by referring to the case study. For example, when asked for the advantages of a particular plan design to the company referenced in the case study, limit the response to that company. Do not list other advantages as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

Since each question is graded separately, each of the answers must be self-contained. An answer must not say, for example, "Part of the answer to question 1 is found in the answer to question 3." Also, each answer must be started on a new sheet of paper.

Candidates may wish to consult RSA, Volume 19, No. 3, pp. 1515-1545 (Quebec Meeting, June 14-15, 1993), the record of the session covering "Fellowship Exams from a Grader's Point of View" for a discussion of how to answer questions on a written-answer exam. Candidates who do not have access to the RSA may receive a copy of this discussion by contacting the Education Services Representative at 847-706-3515.

G. Candidates' Mailing Lists

Many providers of study manuals and review seminars wish to send information directly to candidates. This information can be helpful in explaining the manuals and seminars in more detail than the information contained in this Catalog.

If you do not want your name to appear on any listing provided by the SoA, please check the appropriate box on the examination registration form, or write to the SoA Examination Department with this request.

Please note that some mailing lists may be distributed to providers before candidates' requests are received.

H. Education and Examination Ombudsperson

In an effort to remain responsive to the individual concerns of candidates, the SoA has an E&E Ombudsperson. The Ombudsperson is available to respond to non-routine education and examination inquiries from candidates, and to direct candidate inquiries to the appropriate staff member or department. Candidates may contact the Ombudsperson at 847-706-3527 (phone); 847-706-3599 (fax); or pholmberg@soa.org (E-Mail).

VI. COURSE OF READING

The following Course of Reading is a guide to those preparing for the examinations. The objective of the examinations is to test the candidates' ability to grasp the underlying principles and apply them in the solution of problems.

Every effort is made to keep the Course of Reading current. However, legislative or regulatory changes which would affect the answers to examination questions sometimes occur after the setting of the final Course of Reading. In multiple-choice examinations, answers should be based on the legislative or regulatory provisions as set out in the Course of Reading. Answers to written-answer questions may be based on the new regulations, but it should be clearly stated that the answer differs from the Course of Reading. If time permits, it would be useful to state also how the answer differs from the Course of Reading.

If a paper or article from an actuarial or insurance publication is recommended for study, candidates should study any discussions of the papers or articles published in the same volume, unless the Course of Reading or SNs indicate otherwise. All appendices should be included as reading material unless it is stated in the syllabus that they are excluded,.

Candidates are expected to obtain their own copies of papers or articles referenced in the Course of Reading which are not SNs. Actuarial Standards of Practice can be ordered directly from the American Academy of Actuaries. CIA publications may be ordered directly from the Canadian Institute of Actuaries. TSA, RSA and NAAJ published references are now available for purchase in the SN form at the back of this Catalog.

References to publications of the SoA, the Conference of Consulting Actuaries, the Canadian Institute of Actuaries, American Academy of Actuaries and the Actuarial Standards Board are abbreviated in the Course of Reading as follows:

TSA	<i>Transactions, Society of Actuaries</i>
TSA Reports	<i>Transactions, Society of Actuaries, Reports of Mortality and Morbidity Experience</i>
RSA	<i>Record—Society of Actuaries</i>
PCCA	<i>Proceedings, Conference of Consulting Actuaries</i>
PCIA	<i>Proceedings, Canadian Institute of Actuaries</i>
AAA	<i>American Academy of Actuaries</i>
ASB	<i>Actuarial Standards Board</i>
CIA	<i>Canadian Institute of Actuaries</i>
FASB	<i>Financial Accounting Standards Board</i>
NAAJ	<i>North American Actuarial Journal</i>

Roman numerals indicate the volume and Arabic numbers indicate the pages of the reference, except in the case of RSA, in which Arabic numbers are used throughout.

Books may be purchased as indicated in Appendices III and IV. SNs are available as indicated in Section III.L.

Occasionally, it may be necessary to change the Course of Reading for an examination after the publication of this Catalog. Such a change will be announced in the ISN for the affected examination. ***If there is any conflict between information contained in this Catalog and that contained in the ISN, the ISN will govern.***

A "#" indicates a change in the Course of Reading from a previous syllabus (new or revised study material, shift of study material from one examination to another, different chapter references from a previously used textbook, etc.).

A "†" indicates a new edition or the first time use of a new textbook.

A. Description of 1999 Courses

SERIES 100 COURSES

Course 100 - Calculus and Linear Algebra (30 Credits) Required

The examination for this course is a three-hour multiple-choice examination, based on material traditionally covered in undergraduate mathematics courses through differential and integral calculus and a first course in linear algebra.

The general scope of the course content is indicated by the following topics:

- Functions, equations and inequalities
- Analytic geometry of two and three dimensions
- Standard algebraic and transcendental functions, including polynomial, rational, trigonometric, logarithmic and exponential functions
- Limits, continuity, differentiability and integrability
- Derivatives, integrals and their applications
- The fundamental theorem of calculus
- Partial derivatives, multiple integrals and their applications
- Sequences and series, including the Taylor series expansion
- Linear equations, vector spaces, bases (spanning sets), dimension and subspaces
- Scalar products, linear transformations and kernel and image space
- Matrices, determinants, eigenvectors and eigenvalues.
- Polar coordinates and parametric equations

A short table of integrals will be provided. Copies of that table are available along with sample sets of questions in the *Preliminary Actuarial Exams* booklet.

Candidates may be helped by either of the texts covering calculus and analytic geometry and either of the texts covering linear algebra listed below. These are considered representative of the many texts used in colleges and universities in Canada and the U.S. to cover the material on which the candidate may be examined. Earlier or later editions of the texts listed below contain essentially the same material and should be adequate for review purposes.

- *Calculus and Analytic Geometry* (Ninth Edition), 1996, by G.B. Thomas, Jr. and R.L. Finney.
- *Calculus with Analytic Geometry* (Sixth Edition), 1992, by E.J. Purcell and D. Varberg.
- *Introductory Linear Algebra with Applications* (Sixth Edition), 1997, by B. Kolman.
- *Elementary Linear Algebra* (Seventh Edition), 1994, by H. Anton.

For candidates who would like an additional reference and practice problems, a number of study manuals are available for this course. Please refer to Section V.D. of this Catalog. Order forms are available from the SoA office on request.

Course 110 - Probability and Statistics (30 Credits) Required

The examination for this course is a three-hour multiple-choice examination, based on material usually covered in undergraduate courses in mathematical probability and statistics. It can be taken by candidates who have had thorough college courses in these subjects or by persons who have done concentrated reading in these fields. The general scope of the course content is indicated by the topics listed on the following page, which are among those proposed for a one-year college course in probability and statistics by the Committee on the Undergraduate Program in Mathematics (CUPM) of the Mathematical Association of America:

- Sample spaces
- Axioms and elementary theorems of probability
- Independence, conditional probability and Bayes' theorem
- Permutations and combinations
- Random variables
- Binomial, Poisson, normal, chi-square, t, F and other probability distributions
- Expectation, mean, variance and moment generating functions of probability distributions
- Multivariate distributions
- Transformations of random variables
- Conditional and marginal distributions
- Central limit theorem
- Point estimation, including maximum likelihood estimation, method of moments, and the application of criteria such as consistency, unbiasedness and minimum variance
- Tests of statistical hypotheses, including power functions, Type I and Type II errors, Neyman-Pearson lemma and likelihood ratio tests
- Applications of sampling distributions to confidence intervals and to tests for means and variances
- Regression and correlation
- Method of least squares
- Interpretation of experimental results
- Bayesian estimation

The CUPM has reported that statistics courses can be implemented in a variety of ways, and can include different topics with different emphases on these topics. That widely divergent approaches are acceptable is illustrated by the many texts appropriate for a one-year college course. Among such texts, the following are representative of those covering most of the above topics and providing the mathematical background required for this examination.

- *Introduction to Mathematical Statistics* (Fifth Edition), 1995, by R.V. Hogg and A.T. Craig.
- *Introduction to Probability Theory*, 1971, and *Introduction to Statistical Theory*, 1971, by P.G. Hoel, S.C. Port and C.J. Stone.
[Note: out of print]
- *Introduction to the Theory of Statistics* (Third Edition), 1974, by A.M. Mood, F.A. Graybill and D.C. Boes.
- *Probability and Statistical Inference* (Fifth Edition), 1997, by R.V. Hogg and E.A. Tanis.

Candidates who have mastered the text material and can work the problems in any one of these references should be adequately prepared to handle the mathematical material in this examination.

For candidates who would like an additional reference and practice problems, a number of study manuals are available for this course. Please refer to Section V.D. of this Catalog. Order forms are available from the SoA office on request.

For candidates who wish to acquire further insight into the underlying nature of statistics and exposure to statistical applications, the book *Statistics: A Guide to the Unknown* (Third Edition), 1989, by J. M. Tanur, et al. is suggested.

Candidates are assumed to be familiar with the ordinary deck of fifty-two playing cards and the ordinary six-faced die.

Course 120 - Applied Statistical Methods (15 Credits) Required

The examination for this course is a one and one-half hour, multiple-choice examination. The general scope of the course content is indicated by the following topics:

- Regression Analysis
- Time Series Analysis
- Forecasting

Candidates are encouraged to review the regression material in any of the texts used for Course 110 for additional background.

Published Reference (must be secured by candidate):

- *Econometric Models and Economic Forecasts* (Fourth Edition), 1998 by R. Pindyck and D. Rubinfeld, Chapters 1, 3-7, and 15-19.

Course 121 - Intensive Seminar on Applied Statistical Methods (10 Credits) Elective

This is a five-day intensive course that uses a hands-on approach to teach participants how to apply the Course 120 methods. Candidates are exposed to uses of applied statistics in actuarial areas through lectures, group interaction, case studies and projects. Candidates will be working in groups using computer software.

Advance reading, as described below, will be required. Background readings will be distributed in advance of the seminar.

The examination for this course is a one and one-half hour written-answer examination. Participants will also be evaluated on a large-scale project, completed during the seminar, including a formal report.

Eligibility for participation in the Intensive Seminar on Applied Statistical Methods is limited to candidates who pass Course 120 within the previous two years. Candidates who passed Course 120 in or after November 1997 and candidates who are registered for Course 120 in May 1999 are therefore eligible to apply for Course 121 in 1999. Eligible candidates will receive an application in April from the SoA office detailing seminar dates, locations and registration procedures. The seminar is held in August. The fee for the Intensive Seminar does not include textbooks, meals or lodging.

The Intensive Seminars rely on the use of university and college facilities. While every effort will be made to accommodate all interested students, available resources may force a limit on enrollments.

Published Reference (must be secured by candidate):

- *Data Analysis for Managers with MINITAB* (Second Edition), 1991, by H.V. Roberts, Chapters 1 (background only), 2-6, 8-10, Appendix C (background only).

**Course 130 - Operations Research
(15 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. The general scope of the course content is indicated by the following:

Published Reference (must be secured by candidate):

- *Introduction to Operations Research* (Sixth Edition), 1995, by F. Hillier and G. Lieberman.

Topic	Chapter(s)
Introduction	1
Linear Programming	3, 4*, 5, 6.1-6.4
Project Scheduling	9.8
Dynamic Programming	10
Integer Programming	12.4
Queueing Theory	15.1-15.6**
Stochastic Simulation	21.1-21.3

* Sections 4.9 and 4.10 will not be tested.

** Up to but not including The Finite Queue Variation of the M/M/s model.

Study Note:

Code	Title
130-32-84	Decision Analysis (Chapter 4 of <i>A Study Manual for Operations Research</i> , by E.A. Narragon)

**Course 135 - Numerical Methods
(10 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. This course covers various techniques for handling numerical data. Although many of the principles lend themselves readily to computer procedures and methods, knowledge of such procedures or methods beyond what appears in the textbook is neither presupposed nor required for the examination. The general scope of the course content is indicated by the following:

Published Reference (must be secured by candidate):

- *Numerical Analysis* (Sixth Edition), 1997, by R.L. Burden and J.D. Faires.

Topic	Chapter(s)
General	1.1, 1.2, 1.3
Iteration	2.1, 2.2, 2.3, 2.4, 2.5
Interpolation	3.1, 3.2, 3.4
Numerical Integration	4.3, 4.4, 4.5, 4.6
Linear Systems	6.1, 6.2, 6.3, 6.4, 6.5, 6.6

**Course 140 - Mathematics of Compound Interest
(10 Credits) Required***

- * **Candidates must receive credit for either Course 140, Course 141 or CAS Part 4A but will not receive credit for more than one.**

The examination for this course is a one and one-half hour multiple-choice examination. Key topics include: measurement of interest, including accumulated and present value factors; annuities certain; yield rates; amortization schedules and sinking funds; and bonds and related securities.

Published Reference (must be secured by candidate):

- *The Theory of Interest* (Second Edition), 1991, by S.G. Kellison, Chapters 1-8 (excluding Sections 3.10, 5.9 and 6.8).

Study Note:

Code	Title
140-21-91	Interest Rate Disclosure and Regulation in Canada

**COURSE 141 - [EA-1, SEGMENT A] - MATHEMATICS OF COMPOUND INTEREST AND MATHEMATICS OF LIFE CONTINGENCIES
(10 credits) Required***

- * **Candidates must receive credit for either Course 140, Course 141 or CAS Part 4A but will not receive credit for more than one.**

Course 141 consists of Segment A of the basic examination [EA-1] of the Joint Board for the Enrollment of Actuaries. Segment A of EA-1 is two and one-half hour in length and consists of multi-choice questions covering the mathematics of compound interest and the mathematics of life contingencies.

This examination is co-administered by the Society of Actuaries, the American Society of Pension Actuaries, and the Joint Board for the Enrollment of Actuaries.

The official description of the Enrolled Actuary (EA) examinations is contained in the *July 1998 Examination Program* announcement, available from the Joint Board for the Enrollment of Actuaries. A copy of this announcement will be sent to each candidate who registers for the examination at the same time as the candidate's Ticket of Admission.

Candidates should note that the EA-1 examination questions do not require the mastery of specified study materials or specified chapters of any particular textbooks. Moreover, a specified topic may not be fully covered in every suggested reference. Examination questions may even deal with practical situations not necessarily covered in any published material. Therefore, there is no official all-inclusive Course of Reading for the topics covered on the examination.

The study material below was listed in the *July 1998 Examination Program*. The Advisory Committee on Actuarial Examinations believes that most (if not all) of the topics in the syllabus are treated in one or more of these references. The *July 1998 Examination Program* is the official description of the Enrollment examinations.

The Society of Actuaries provides some study material for EA candidates. While the E&E Committee believes that these references are useful to EA candidates, the materials were not necessarily written with the particular nature of the Joint Board examinations in mind. The Society SNs are listed separately from the Joint Board's suggested readings.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

The following list of topics and suggested readings for EA-1, Segment A is from the Joint Board's *July 1998 Examination Program* booklet.

- a. **Mathematics of Compound Interest** (approximately 25-50% of the Segment):
 1. Nominal and effective rates of interest and discount, force of interest, accumulated value factors, and present value factors.
 2. Annuities certain, including continuous annuities, increasing and decreasing annuities, annuities in which the payment frequency is not the same as the frequency at which interest is compounded, and perpetuities.
 3. Amortization schedules and sinking funds, including the determination of outstanding principal, the split of payments into principal and interest, and the determination of required periodic payments.
 4. Bonds and related securities, including bond price formulas, bond accounting, and the split of periodic payments into amortization and interest.
 5. Determination of fund yield rates and effective rates of return using time-weighted and dollar-weighted methods.
 6. Duration and immunization of cash flows.

- b. **Mathematics of Life Contingencies** (approximately 50-75% of the Segment)
 1. Measurements of mortality, including the definition and application of standard mortality probability symbols, approximations for the evaluation of mortality and survival probabilities for fractional periods, fundamental elements of a mortality table, and select, ultimate and aggregate mortality.
 2. Commutation functions.
 3. Life annuities, including basic forms, continuous annuities and periodic premiums.

4. Special annuities, including cash refund annuities, life annuities with a term certain, and retirement income annuities.
5. Life insurance, including basic forms, single and annual premiums, variations in timing of the payment of premiums and benefits, varying insurances, and insurance and annuity relationships.
6. Reserves for life insurance and annuities.
7. Expense loading and cash surrender values.
8. Population theory, including complete and curtate expectation of life, central death rates, stationary population, and average ages in a stationary population.
9. Multiple-life functions, joint-life probabilities, laws of uniform seniority, last survivor and compound status functions, and reversionary annuities.
10. Multiple-decrement functions, including associated single-decrement tables, probabilities of decrement, central rates of decrement, the construction of multiple-decrement tables from associated single-decrement tables, and secondary decrements.

Suggested Readings (selected by the Joint Board):

- *Life Contingencies - A Guide for the Actuarial Student*, 1997, by R.W. Batten.
- *Actuarial Mathematics* (Second Edition), 1997, by N.L. Bowers, Jr., et al.
- *Mathematics of Investment and Credit*, (Second Edition), 1996, by S.A. Broverman
- *Mathematics of Compound Interest*, 1971, by M.V. Butcher and C.J. Nesbitt. [Note: Out of print]
- *Life Contingencies* (Second Edition), 1967, by C.W. Jordan. [Note: Out of print]
- *The Theory of Interest* (Second Edition), 1991, by S.G. Kellison.
- *The Theory of Interest and Life Contingencies with Pension Applications: A Problem-Solving Approach*, 1988, by M.M. Parmenter.

Study Note (selected by the Society of Actuaries):

Code	Title
141-61-91	Measurement of Investment Return

**Course 150 - Actuarial Mathematics
(40 Credits) Required**

The examination for this course is a four-hour multiple-choice examination. The course covers the theory and applications of contingency mathematics from both probabilistic and deterministic approaches. The general scope of the course content is indicated below:

Published Reference (must be secured by candidate):

- *Actuarial Mathematics* (Second Edition), 1997, by N.L. Bowers, Jr., et al.

Topic	Chapter/Appendix
Survival Distributions and Life Tables	3
Life Insurance	4
Life Annuities	5
Benefit Premiums	6
Benefit Reserves	7
Analysis of Benefit Reserves	8
Multiple Life Functions	9
Multiple Decrement Functions	10
Applications of Multiple Decrement Theory	11
Insurance Models Including Expenses	15
Business and Regulatory Considerations	16
Normal Distribution Table	Appendix 1
Illustrative Life Table	Appendix 2A
Illustrative Service Table	Appendix 2B
General Rules for Symbols of Actuarial Functions	Appendix 4
Some Mathematical Formulas Useful in Actuarial Mathematics	Appendix 5

Chapters 1 and 2 should be read for background. Some of the material covered in Chapters 1 and 2 may be helpful in understanding material in later chapters.

Course 151 - Risk Theory (15 Credits) Required

The examination for this course is a one and one-half hour multiple-choice examination. The course covers risk theory as it is applied, under specified assumptions, to insurance. The general scope of the course content is indicated by the following:

Published Reference (must be secured by candidate):

- *Actuarial Mathematics* (Second Edition), 1997,
by N.L. Bowers, Jr., et al.

Topic	Chapter/Appendix
The Economics of Insurance	1
Individual Risk Models for a Short Term	2
Collective Risk Models for a Single Period	12 (include Appendix)
Collective Risk Models Over an Extended Period	13
Applications of Risk Theory	14

Candidates are encouraged to read the Appendices to Chapters 1, 13, 14 and Appendix 5, although they are not required reading. The appendix to Chapter 12 is required reading.

**Course 152 - Intensive Seminar in Risk Theory
(10 Credits) Elective**

This is a five-day intensive course that uses a hands-on approach to teach participants how to apply risk theory methods. Candidates are exposed to uses of risk theory in actuarial areas through lectures, group interaction, case studies and projects. Candidates will be working in groups using computer software.

Advance reading will be distributed in advance of the seminar.

The examination for this course is a three-hour written-answer examination. Participants will also be evaluated on a large-scale project, completed during the seminar, including a formal report.

Eligibility for participation in the Intensive Seminar on Risk Theory is limited to candidates who pass Course 151 within the previous two years. Candidates who passed Course 151 in or after November 1997 and candidates who are registered for Course 151 in May 1999 are therefore eligible to apply for Course 152 in 1999. Eligible candidates will receive an application in April from the SoA office detailing seminar dates, locations and registration procedures. The seminar is held in August. The fee for the Intensive Seminar does not include meals or lodging.

The Intensive Seminars rely on the use of university and college facilities. While every effort will be made to accommodate all interested eligible students, available resources may force a limit on enrollments.

**Course 160 - Survival Models
(15 Credits) Required**

The examination for this course is a one and one-half hour multiple-choice examination. Topics covered are: the nature and properties of survival models, including both parametric and tabular models; methods of estimating tabular models from both complete and incomplete data samples, including the actuarial, moment, and maximum likelihood estimation techniques; methods of estimating parametric models from both complete and incomplete data samples, including parametric models with concomitant variables; and applications and extensions of survival models.

Published Reference (must be secured by candidate):

- *Survival Models and Their Estimation* (Third Edition), 1997, by D. London, Chapters 1-12, Appendix A (background only).

**Course 161 - Mathematics of Demography
(10 credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. Topics covered are: collection of demographic statistics, sources of errors and their corrections, measures of mortality and fertility, construction of life tables from census data, stationary and stable population theory, population projections and uses of census data.

Published Reference (must be secured by candidate):

- *Introduction to Mathematics of Demography* (Third Edition), 1997, by R.L. Brown, Chapters 1, 2, 4-8, plus Appendices A, B, C and D.

**Course 165 - Mathematics of Graduation
(10 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. Topics covered are: the problems involved in making and testing the graduations of mortality tables or other series that are likely to be encountered in the course of an actuary's work; graduation by the moving-weighted average, graphic, Whittaker, Bayesian, parametric and smooth-junction interpolation methods; statistical considerations; two-dimensional graduation; and analysis and critique of the various methods.

Published Reference (must be secured by candidate):

- *Graduation: The Revision of Estimates*, 1985, by D. London.
(For candidates who wish to review finite differences, Appendices C and D should be read first.)

SERIES 200 COURSES

**Course 200 - Introduction to Financial Security Programs in Canada and the U.S.
(30 Credits) Required**

The examination for this course is a three-hour multiple-choice and written-answer examination. The course covers design, regulation and taxation of the major voluntary financial security programs involving life insurance, health insurance, and employee benefit and pension programs; characteristics of major social insurance programs; descriptions of the providers of financial security programs; and an introduction to taxation of insurance companies.

A course overview study note (200-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

a) Social Insurance Programs in Canada and the U.S.

The readings in this section outline the various approaches taken in Canada and the U.S. to provide economic security when faced with problems such as old age, poor health, and unemployment.

Published References (must be secured by candidate):

- *Mercer Handbook of Canadian Pension and Benefit Plans* (Eleventh Edition), 1996, by G.M. Hall, Chapters 3, 12-14.
- † *Social Insurance and Economic Security*, (Sixth Edition), 1999, by G.E. Rejda, Chapters 1, 2 (pp. 30-37), 7 (pp. 155-165), 8 (pp. 167-185), 10 (pp. 224-237), 12 (pp. 257-268), 14 (pp. 300-304 and pp. 313-318), and 16. **Note:** for this exam only the Fifth Edition, 1994, may be used: Chapters 1, 2 (36-47), 7 (pp. 179-185), 8 (pp. 187-211), 10 (pp. 261-281), 12 (pp. 304-319), 14 (pp. 365-371 and 380-386) and 16.

Study Notes:

Code	Title
#200-21-99	Social Security Programs of the U.S. (pp. 4-10 are background only)
200-24-90	Canada's Health Care System: Lessons for the United States?
200-26-91	The Direction of Changes in the U.S. Medicare Program
200-28-97	CIA Report of the Task Force on the Future of Canada/Quebec Pension Plans (include appendices)
#200-63-99	Benefits Legislation in Canada

b) Design, Administration, Marketing, and Underwriting of Private Individual Financial Security Programs

The readings in this section outline the characteristics of the major life and health insurance products available to the individual consumer in Canada and the U.S. The readings include discussions on the design, underwriting, administration and marketing of these individual insurance products.

Published References (must be secured by candidate):

- *Life Insurance* (Twelfth Edition), 1994, by K. Black, Jr., and H.D. Skipper, Jr., Chapters 4-7, 11, 12 (pp. 350-373), 16, 17 (excluding tax section on pp. 511), 23, 24, 29, and 33.
- † *Social Insurance and Economic Security*, (Sixth Edition), 1999, Chapters 3 and 4. **Note:** for this exam only the Fifth Edition, 1994, may be used, Chapters 3 and 4.

c) Design and Underwriting of Employee Benefit Plans

The readings in this section outline the characteristics of the major employee benefit programs available in Canada and the U.S. The readings include discussions on the design and underwriting of these programs.

Published References (must be secured by candidate):

- *Life Insurance* (Twelfth Edition), 1994, by K. Black, Jr., and H.D. Skipper, Jr., Chapters 26 (exclude material on "Taxation," pp. 733-735) and 27 (exclude material on "Taxation," pp. 784-785.).
- *Mercer Handbook of Canadian Pension and Benefit Plans* (Eleventh Edition), 1996 by G.M. Hall, Chapters 15-17, 21 and 22.

Study Notes:

Code	Title
200-27-92	Health Care Cost Containment: Rhetoric or Reality?
200-41-97	Introduction to Retirement Plan Design

d) Regulation and Taxation of Financial Security Programs and Insurance Companies

The readings in this section discuss the regulatory environment in Canada and the U.S. in which the major insurance products and employee benefit programs operate. The readings also describe how these products and programs are taxed. As well, there is an

introduction to how Canada and the U.S. tax insurance companies.

Published Reference (must be secured by candidate):

- *Life Insurance* (Twelfth Edition), 1994, by K. Black, Jr., and H.D. Skipper, Jr., Chapters 8, 9, and 34 (pp. 975-1019, excluding "Taxation of Life and Health Insurance Insurers").

Study Notes:

Code	Title
200-52-95	Current Issues in the Regulation of Financial Security Programs in the U.S.
200-53-96	U.S. Gender Discrimination Regulations as They Affect Financial Security Programs
200-54-96	Consumerist Issues in the Canadian Life Insurance Industry
200-55-95	Principles of Taxation
200-56-92	Life Insurance Regulation in Canada

**Course 230 - Principles of Asset/liability Management
(15 Credits) Required**

The examination for this course consists of one and one-half hour of written-answer questions. While not required, an understanding of investments and/or the material on Course 220 is highly recommended as preparation for this course. Topics covered include option pricing and contingent claims valuation, interest rate risk management, and investment policy and strategy.

A course overview study note (230-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

a) Option Pricing and Contingent Claims Valuation

The readings for this section cover derivatives, options, effective duration, and futures.

Published References (must be secured by candidate):

- † *Financial Economics*, 1998, by H. Panjer, Editor, Chapter 2, Sections 1, 3, 4, 5 and 6.
- *The Handbook of Fixed Income Securities* (Fifth Edition), 1996, by F.J. Fabozzi, et al., Chapters 36 and 40.
- † *Valuation of Interest-Sensitive Financial Instruments*, 1996, by D. Babbel and C. Merrill, Chapters 1, 2, 3 and 4.

b) Interest Rate Risk Management

The readings in this section cover interest rate risk, immunization, and interest rate generators.

Published References (must be secured by candidate):

- † *Financial Economics*, 1998, by H. Panjer, Editor, Chapter 3.
- † *Bond Portfolio Management*, 1996, by F. Fabozzi, Chapter 15,

- pp. 377-382 and 397-401.
- "A Practical Guide to Interest Rate Generators for C-3 Risk Analysis," by S.L. Christiansen, TSA XLIV, pp. 101-134.

Study Note:

Code	Title
230-22-91	Finding the Immunizing Investment for Insurance Liabilities: The Case of the SPDA

c) Investment Policy and Strategy

The readings in this section cover different strategies for managing bond portfolios.

Published References (must be secured by candidate):

- #*Handbook of Fixed Income Securities* (Fifth Edition), 1996, by Fabozzi et al., Chapters 46, 49 and 50.
- †*Bond Portfolio Management*, 1996, by F. Fabozzi, Chapters 2, 13, and 14.

Study Note:

Code	Title
230-30-97	CIA Guidance Note: An Overview of an Investment Policy Statement in an Asset/Liability Management Context

SERIES 300 - 500 COURSES

FINANCE COURSES*

- * See the ILA Courses for a full description of I-442C/I-443U, required courses in the Finance Track.

**Course F-580 - Corporate Finance
(15 Credits) Required**

Examinations F-580 and G-524C/G-525U are administered simultaneously. See restrictions on page 17.

The examination for this course consists of one and one-half hour of written-answer questions. The course builds on material covered in Course 220 (Introduction to Asset Management and Corporate Finance). The course covers advanced readings in capital structure, agency theory, cost of capital, risk adjusted surplus, mergers and acquisitions, and corporate structure.

A course overview study note (580-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Course F-580 also includes a case study. The case study will be distributed as Study Note 580-13-97. It may also be included in the examination booklet. Candidates may not bring their Study Note copy of the case study into the examination room.

a) Corporate Finance

Published References (must be secured by candidate):

- *Principles of Corporate Finance* (Fifth Edition), 1996, by R. Brealey and S.C. Myers, Chapters 1, 6, 9 (Include Appendix), 10-14, 15 (Include Appendix), 16, 17 (Exclude Appendix), 18 (Exclude Appendix), 19, 21, 26, 28 (Include Appendix), 33 (Include Appendix), and 34.
- † *The New Corporate Finance: Where Theory Meets Practice* (Second Edition), 1999, by D. Chew, Jr., Chapters I.5 and V.39.

Study Notes:

Code	Title
580-13-97	Nortex Case Study
580-21-93	A Shortfall Approach to the Creditor's Decision: How Much Leverage Can a Firm Support?
580-35-96	Financial Decision-Making in Markets and Firms: A Behavioral Perspective

b) Corporate Accounting Applications

Published References (must be secured by candidate):

- *Life Insurance Accounting*, H.F. Brenner et al., 1994, Insurance Accounting and Systems Associations, Chapters 20 and 21.
- Actuarial Standard of Practice No. 21, (The Actuary's Responsibility to the Auditor), ASB.
- Actuarial Standard of Practice No. 19, (Actuarial Appraisals), ASB.
- "Pension Accounting Standards in North America," RSA, Vol. 14, No. 1, pp. 19-35.

Study Notes:

Code	Title
580-31-95	A Guide to FASB Statement Number 106: Employers' Accounting for Postretirement Benefits Other Than Pensions
580-34-95	CICA Handbook - Section 3460 (Accounting for Pensions)
580-36-97	Controlling the FAS 87 Balance Sheet Impact by Integrating Funding, Expensing, and Asset Policy

Course F-585 - Applied Corporate Finance (20 Credits) Required

The examination for this course consists of two hours of written-answer questions. The course builds on material covered in Course 220 (Introduction to Asset Management and Corporate Finance). This course covers banks and investment banking, financial management and ALM for other financial institutions.

A course overview study note (585-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Course F-585 also includes a case study. The case study will be distributed as Study Note 585-26-96. It may also be included in the examination booklet. Candidates may not bring their Study Note copy of the case study into the examination room.

a) Investment Banking and Financial Innovation

The readings in this section cover the activities of investment bankers such as identifying and structuring financing needs with institutional clients, arranging mergers and acquisitions, financial innovations, and participating in the new issue process.

Published Reference (must be secured by candidate):

- † *The New Corporate Finance: Where Theory Meets Practice*, (Second Edition), 1999, by D. Chew, Jr., Chapters I.6, IV.22, IV.23, IV.24, IV.25, IV.29, IV.30, IV.31, V.33, V.34, VI.44, VI.49, VI.53, and VI.54.

Study Note:

Code	Title
585-26-96	HBR Case Study - Enron Gas Service

b) Financial Intermediation, Risk Management and ALM

The readings in this section provide an overview of banks and financial intermediation, bank products and risks, and financial risk management (ALM) in the banking industry.

Published References (must be secured by candidate):

- *Contemporary Financial Intermediation*, 1995, by S. Greenbaum and A.Thakor, Ch. 1 (background only), Ch. 2 (background only), 3, 5 (include case study and Appendix), 7 (Include Case Study and Appendix), 8 (Include Case Study), and 12 (Include Case Study).
- *Financial Risk Management in Banking*, 1993, by D. Uyemura and D. Van Deventer, Ch. 1(background only), 2 (background only), 3, 4, 5, 7, 9 (Exclude Appendix A), 10, and 11.

Study Notes:

Code	Title
585-25-95	One System of Financial Intermediation: A New Paradigm
585-27-98	Risk ² : Measuring the Risk in Value at Risk
585-28-98	VAR: Seductive but Dangerous

GROUP AND HEALTH BENEFITS COURSES

Course G-420C - Group Financial Management and Regulation - Canada (20 Credits) Required*

* Credit may not be received for both G-420C and G-421U.

The examination for this course consists of two hours of written-answer questions. The course covers group financial management, as well as the principles and practices of the determination of actuarial reserves, the regulation of group insurance in Canada, and life insurance statutory reporting in Canada.

a) Financial Management

The readings in this section cover such aspects of a group insurance operation as the measurement of profitability, financial management and control, and overall management of an insurance company's surplus.

Published References (must be secured by candidate):

- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Editor, Chapters 32, 34, and 37.
- "Gain and Loss Analysis and Related Concepts for Group Insurance," by B.N. Pike, TSA XIII, pp. 412-424.
- "Required Surplus for the Insurance Risk for Certain Lines of Group Insurance," by A. Brender, TSA XXXVI, pp. 9-47 (includes discussion).
- "Managing the Group Health Line: Technical Approaches to Analyzing, Monitoring, and Projecting Group Health Experience," by R.H. Dobson and P.A. Doran, RSA 8, No. 4, pp. 1717-1760.
- "Cash Flow Testing as a Management Tool," RSA 19, No. 3, pp. 1711-1724.

Study Note:

Code	Title
420-26-95	Reinsurance

b) Actuarial Reserves

The readings in this section cover the determination of actuarial reserve liabilities for group benefits, including incurred but not reported claims and fluctuation reserves.

Published References (must be secured by candidate):

- "Group Long-Term Disability Valuation Tables," TSA XXXIX, pp. 393-458.
- "A Modified Development Method for Deriving Health Claim Reserves," TSA XLI, pp. 89-146.
- "Reserves for Lives Disabled Under Group Insurance Extended Death Benefit Provisions of the Premium Waiver Type," TSA XXIII, pp. 419-437.
- Valuation Technique Paper #7 Discussion Draft - Valuation of Group Insurance Policy Liabilities, CIA.

- Valuation Technique Paper #13 Discussion Draft - Accident and Sickness Insurance Expected Experience, CIA.

Study Notes:

Code	Title
420-24-89	Overview of Reserve Practices in Group Insurance
420-63-84	CIA/CICA Report on Financial Reporting for Life Companies (pp. 1-5, 18-34, 44-47)
420-65-89	CIA Recommendations for Actuarial Advice Given with Respect to Self-Insured Employee Benefit Plans

c) Regulation and Statutory Reporting

The readings in this section cover Canadian regulation of insurance, the principles of statutory accounting, and Canadian regulations for life insurance company accounting.

Published References (must be secured by candidate):

- Dynamic Capital Adequacy Testing Educational Note, CIA.
- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Chapter 12.

Study Notes:

Code	Title
420-25-97	Introduction to Life Insurance Company Financial Statements
420-61-81	Revenue Canada - Interpretation Bulletins IT-227R and IT-428
420-64-87	Revenue Canada - Interpretation Bulletin IT-85R2
420-66-89	Superintendents Guideline (with CLHIA Interpretation)
420-67-90	CIA Recommendations for Life Insurance Company Financial Reporting
420-68-94	The Evolution of Solvency Standards for Life Insurance Companies in Canada
420-69-95	Sample Statement Blank for Students
420-70-95	Financial Reporting in Canada: An Overview
420-71-95	CIA: The Appointed Actuary's Report for Insurance Company Published Financial Statements
420-72-95	CIA Standards of Practice for the Appointed Actuary of an Insurance Company
420-73-95	Canadian Life and Accident and Health Sickness Statement (Form INS-54)
420-74-95	CIA: A Primer on Dynamic Solvency Testing

Course G-421U - Group and Individual Health Insurance Financial Management and Regulation - U.S. (25 Credits) Required*

* Credit may not be received for both G-420C and G-421U.

The examination for this course consists of two and one-half hour of written-answer questions. The course covers financial management, as well as the principles and practices of the determination of actuarial reserves, the regulation of group and individual health insurance in the

U.S., and U.S. life insurance company statutory reporting.

A Course Overview study note (421-20-98) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the material interrelate.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Financial Management

The readings in this section cover such aspects of an operation as the measurement of profitability, financial management and control, and overall management of surplus.

Published References (must be secured by candidate):

- *The Managed Health Care Handbook* (Third Edition), 1996, by P.R. Kongstvedt, Editor, Chapter 40.
- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Editor, Chapters 32, 34, and 37.
- "Gain and Loss Analysis and Related Concepts for Group Insurance," by B.N. Pike, TSA XIII, pp. 412-424.
- "Required Surplus for the Insurance Risk for Certain Lines of Group Insurance," by A. Brender, TSA XXXVI, pp. 9-47 (includes discussion).
- "Managing the Group Health Line: Technical Approaches to Analyzing, Monitoring, and Projecting Group Health Experience," by R.H. Dobson and P.A. Doran, RSA 8, No. 4, pp. 1717-1760.
- Actuarial Standard of Practice No. 14 (When to do Cash Flow Testing for Life and Health Insurance Companies), ASB.
- "Cash Flow Testing as a Management Tool," RSA 19, No. 3, pp. 1711-1724.

Study Note:

Code	Title
421-26-95	Reinsurance

b) Actuarial Reserves

The readings in this section cover the determination of actuarial reserve liabilities for group and individual health benefits, including incurred but not reported claims, fluctuation reserves, and active life reserves.

Published References (must be secured by candidate):

- *Individual Health Insurance*, 1988, by F.T. O'Grady, Editor, Chapter 5.
- "Group Long-Term Disability Valuation Tables," TSA XXXIX, pp. 393-458.
- "A Modified Development Method for Deriving Health Claim Reserves," TSA XLI, pp. 89-146.
- "Reserves for Lives Disabled Under Group Insurance Extended Death Benefit Provisions of the Premium-Waiver Type," TSA XXIII,

- pp. 419-437.
- "Financial Reporting Issues Related to Health Insurance," RSA 11, No 1, pp. 441-455.
- Actuarial Standard of Practice No. 5 (Incurred Health Claim Liabilities), ASB.
- "Health Valuation Actuary," RSA 17, No. 3B, pp. 1359-1375.
- Actuarial Standard of Practice No. 16 (Actuarial Practice Concerning Health Maintenance Organizations and Other Managed Care Health Plans), ASB.
- "Reserve Principles for Individual Health Insurance," TSA XXXVII, pp. 201-240.

Study Notes:

Code	Title
421-24-89	Overview of Reserve Practices in Group Insurance
421-98-96	Minimum Reserve Standards for Individual Group Health Insurance Contracts - NAIC Model Law
421-99-96	The New A&H Reserving Standards for the 1990s and the 21st Century

c) Regulation and Statutory Reporting

The readings in this section cover regulation of group and individual health insurance in the U.S., the principles of statutory accounting, and U.S. regulations for life insurance company accounting. The recent modifications to the Medicare program, and the effect of U.S. policy on health insurance, are also covered.

Published References (must be secured by candidate):

- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Editor, Chapter 11 (exclude pp. 165-168 and bottom half of p.182).
- *The Managed Health Care Handbook* (Third Edition), 1996, by P.R. Kongstvedt, Chapter 53.
- "Code of Professional Conduct," and "Qualification Standards for Public Statements of Actuarial Opinion," ASB Handbook, Volume II, Section VIII, AAA Professional Standards.
- Actuarial Standard of Practice No. 22 (Statutory Statements of Opinion Based on Asset Adequacy Analysis by Appointed Actuaries of Life and Health Insurers), ASB.
- "The Appointed Actuary - What Does It Mean?," RSA 20, No. 3A, pp. 197-212.
- Actuarial Standard of Practice No. 28 (Compliance with Statutory Statement of Actuarial Opinion Requirements for Hospital, Medical, and Dental Service or Indemnity Corporations, and for Health Maintenance Organizations), ASB.

Study Notes:

Code	Title
421-25-97	Introduction to Life Insurance Company Financial Statements
421-40-96	AICPA Financial Accounting and Reporting by Providers of Health Care Services
421-41-96	Financial Reporting Issues for Alternative Health Delivery Systems

421-87-93	AAA Financial Reporting Recommendations and Interpretations
421-91-97	Risk Based Capital Reports
421-92-98	Sample Statement Blank for Students
421-93-95	NAIC Instructions to Exhibits 9 & 11, Schedule H
421-94-95	Model Regulations for Actuarial Opinions
421-95-96	AAA Health Practice Notes (95-1, 95-2, 95-3, 95-4 and 95-6)
421-96-96	AAA Life and Health Valuation Practice Notes (94-1, 94-2, 94-3 and 94-12)

**Course G-422 - Group and Individual Health Insurance Pricing
(25 Credits) Required**

The examination for this course consists of two and one-half hour of written-answer questions. The course covers principles and techniques of health pricing, including the development of manual premiums, prospective rating techniques and experience rating. The candidate is also expected to understand methods of collecting and using data, utilization studies, loss ratio analysis, time series projection, expense analysis, sources of data, significance of underwriting, pricing deductibles and coinsurance, the impact of marketplace considerations, and alternate methods of funding including ASO and self-insurance.

A Course Overview study note (422-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the material interrelate.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Benefit Specific Pricing

Published References (must be secured by candidate):

- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Editor, Chapters 19, 20, 22 (pp. 450-456 only), 23 and 28.
- *Individual Health Insurance*, 1988, by F.T. O'Grady, Chapter 4.
- *Actuarial Issues in the Fee-for-Service/Prepaid Medical Group* (Second Edition), 1993, by H.L. Sutton and A.J. Sorbo, Chapters 1-11.
- "Group Long-Term Disability Insurance," TSA 1984 Reports, pp. 243-300.
- "The Practical Application of Risk Analysis Techniques in Health Insurance," RSA 9, No. 4, pp. 1861-1900.
- "Pricing and Underwriting Group Disability Income Coverages," by R. Goldman, TSA XLII, pp. 171-215 (plus Section A. 2, pp. 228-229).

Study Notes:

Code	Title
422-40-95	Expense Analysis
422-44-96	Health Claims Information and Coding
422-45-96	Pricing Long-Term Care (exclude Model Act, pp. 21 +)

- 422-48-97 Designing a Managed Care Dental Plan
- 422-49-97 Stop Loss 101: Self Insurance for Employee Benefits (pp. 4-22 for background only)
- 422-50-97 Group Medical Insurance Large Claims Database Collection and Analysis

b) Portfolio and Application Issues

Published References (must be secured by candidate):

- *Group Insurance* (Second Edition), 1996, by W.F. Bluhm, Editor, Chapters 14, 15, 18, and 24.
- "Cumulative Anti-selection Theory," TSA XXXIV, pp. 215-246.

Study Notes:

Code	Title
422-24-88	Actuarial Aspects of Taft-Hartley Welfare Plans: Reserves, Claim Forecasts, and Setting Contribution Levels
422-34-89	An Examination of Credibility Concepts
422-39-94	Variation by Duration in Small Group Medical Insurance Claims
422-51-97	NAIC Small Group Health Model Law: Premium Rates and Renewability of Coverage for Health Insurance Sold to Small Groups

c) Pricing in a Changing Environment

Published Reference (must be secured by candidate):

- "AIDS Update and Reserving," RSA 18, No. 1B, pp. 673-698.

Study Notes:

Code	Title
422-30-89	Impact of AIDS on Group Insurance
422-46-96	Monitoring and Projecting Pricing Trends in a Managed Care Environment
422-52-97	Calculated Risk - A Provider's Guide to Assessing and Controlling the Financial Risk of Managed Care, Chapters 2 and 4.

d) Practice Standards and Regulation

Published References (must be secured by candidate):

- "Regulatory Monitoring of Individual Health Insurance Policy Experience" (omit discussion), TSA XXXIV, pp. 617-634.
- Actuarial Standard of Practice No. 8 (Regulatory Filings for Rates and Financial Projections for Health Plans), ASB.
- Actuarial Standard of Practice No. 16 (Actuarial Practice Concerning Health Maintenance Organizations and Other Managed-Care Health Plans), ASB.
- Actuarial Standard of Practice No. 23 (Data Quality), ASB.

- Actuarial Standard of Practice No. 25 (Credibility Procedures Applicable to Accident and Health, Group Term Life, and Property/Casualty Coverages), ASB.
- Actuarial Standard of Practice No. 26 (Compliance with Statutory and Regulatory Requirements for the Actuarial Certification of Small Employer Health Benefit Plans), ASB.
- #Actuarial Standard of Practice No. 31 (Documentation in Health Benefit Plan Ratemaking), ASB.

Study Note:

Code	Title
422-47-96	NAIC Guidelines for Filing of Rates for Individual Health Insurance Forms

**Course G-524C - Flexible Benefit Plans - Canada
(10 Credits) Elective***

* Credit may not be received for both G-524C and G-525U.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers the design of flexible benefit plans, option selection considerations, regulation, implementation, and experience of existing plans.

Examinations G-524C/525U and F-580 are administered simultaneously. See restrictions on page 17.

Published Reference (must be secured by candidate):

- *Canadian Handbook of Flexible Benefits* (Second Edition), 1996, edited by R.J. McKay, Chapters 1-15 and 21.

**Course G-525U - Flexible Benefit Plans - U.S.
(10 Credits) Elective***

* Credit may not be received for both G-524C and G-525U.

Examinations G-524C/525U and F-580 are administered simultaneously. See restrictions on page 17.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers the design of flexible benefit plans, option selection considerations, regulation, implementation, and experience of existing plans.

Published Reference (must be secured by candidate):

- *Fundamentals of Flexible Compensation* (Second Edition), 1992, by K.L. Frost, D.L. Gifford, C.A. Seltz, and K.L. Sperling, Chapters 1-4 (exclude Chapter 4 Appendix), 6-14 and 20. [**Note:** Out of Print. Available in complete set of study notes.]

Study Note:

Code	Title
525-21-98	Flexible Compensation: Past, Present and Future

INDIVIDUAL LIFE AND ANNUITY COURSES

Course I-340 - Survey of Actuarial Practice - Individual Life Insurance and Annuities (30 Credits) Required

Note: Candidates for Fellowship in the ILA Track are strongly encouraged to consider selected Finance and Investment courses as electives to gain a full understanding of the Asset/Liability Management process.

The examination for this course consists of three hours of written-answer questions. The course covers the design, marketing, pricing, valuation and financial reporting aspects of individual life insurance and annuity lines of business.

A course overview study note (340-20-98) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Product Design

The readings in this section cover various aspects of current practice in product design. Specific topics include the design of a universal life policy, an introduction to reinsurance and life insurance practices in some countries other than Canada and the U.S.

Study Notes:

Code	Title
340-26-84	Introduction to Reinsurance
340-29-94	Individual Product Innovations in Canada (omit section on Cross Selling, pp. 20 and 2)
340-40-82	The Product Development Process for Insurance Companies
340-41-91	Universal Life: A Product Overview
340-43-92	Standard Nonforfeiture Law (Second Printing)
340-47-94	The Problem with Sales Illustrations: Why It Exists and How It Should be Addressed

b) Marketing

The readings in this section cover principles of agency management and operation, compensation methods for sales forces, and other distribution methods.

Published Reference (must be secured by candidate):

- #Marketing for Actuaries, 1993, LIMRA, P. LaPorte, editor, Chapters I-II, VIII, and X-XIV.

c) Pricing

The readings in this section cover primary models used to

determine gross premiums and dividends for individual life contracts, selection of pricing assumptions, the effect of assumptions on results, and the typical range of assumptions currently in use.

Published Reference (must be secured by candidate):

- "Report of the Special Committee to Recommend New Mortality Tables for Valuation," TSA XXXIII pp. 621-624.

Study Notes:

Code	Title
340-30-91	Expense Analysis (Include Appendices)
340-32-89	Pricing Individual Life Insurance
#340-33-89	Individual Life Insurance Dividends (Fourth Printing)
340-34-89	Ordinary Life Insurance Experience--Mortality, Disability, and Persistency Tables (Fourth Printing)
340-39-90	Industry Overhead Expense Levels
340-46-94	Actuarial Pricing Assumptions in a Volatile Environment
340-53-95	Introduction to Deferred Annuities, and the Standard Nonforfeiture Law for Deferred Annuities
340-54-96	Pricing Niche Market Individual Life Insurance and Annuity Products

d) Valuation and Financial Statements

The readings in this section cover the determination of actuarial reserves for both individual life insurance and annuities (including the different purposes of valuation), the relationship of valuation to company solvency, the role of the valuation actuary in both Canada and the U.S., and financial reporting.

Published Reference (must be secured by candidate):

- "Report of the Committee to Recommend a New Mortality Basis for Individual Annuity Valuation (Derivation of the 1983 Table a)," TSA XXXIII, pp. 675-735 (omit discussion).

Study Notes:

Code	Title
340-31-93	CIA, Recommendations for Insurance Company Financial Reporting (Parts 1-4 of Section I only)
340-36-93	Changes to the Standard Valuation Law, 1980 and Later
340-38-89	Valuation of Assets and Liabilities in a Volatile Interest World
340-42-97	Introduction to Life Insurance Company Financial Statements
340-44-97	The Evolution of Solvency Standards for Life Insurance Companies in Canada (Appendices for background only)
340-49-94	Financial Reporting in Canada: An Overview
340-50-94	Risk-Based Capital: Is Your Company Ready?
340-51-94	GAAP Reserves
340-55-96	Amendments to the Recommendations and Explanatory Notes for Life Insurance Company Financial Reporting

**Course I-442C - Advanced Topics in Valuation and Financial Reporting -
Canada
(30 Credits) Required***

* **Credit may not be received for both I-442C and I-443U.**

The examination for this course consists of three hours of written-answer questions. The course covers advanced aspects of the determination of actuarial reserves, external financial reporting, management reporting, and determination of a life insurance company's financial condition.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Actuarial Reserve Determination

The readings in this section cover various aspects of actuarial reserve determination in Canada including regulatory requirements and professional standards. In addition, techniques of auditing actuarial reserves that have already been determined are described.

A Course Overview study note (442-20-97) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Published References (must be secured by candidate):

- CIA Valuation Technique Paper Number 1, The Valuation of Lapse-Supported Products plus Memorandum Della Penna, September 14, 1995 and Memorandum Brierly, January 6, 1995, Part A.
- CIA Valuation Technique Paper Number 2, The Valuation of Individual Renewable Term Insurance.
- CIA Valuation Technique Paper Number 3, Future Cash Flow Investment Assumption for Ordinary Life Insurance Valuation.
- CIA Valuation Technique Paper Number 4, The Valuation of Reinsured Policies (Exclude Memorandum Von Schilling, November 27, 1990).
- CIA Valuation Technique Paper Number 5, The Valuation of Adjustable Products (Exclude addendum, September 1994).
- CIA Valuation Technique Paper Number 6, Expected Mortality Experience for Individual Insurance.
- CIA Valuation Technique Paper Number 8, Reserving for AIDS.
- CIA Valuation Technique Paper Number 9, Valuation of Single Premium Annuities, plus Memorandum Brierly, January 6, 1995, Part B.
- CIA Valuation Technique Paper Number 10, Valuation of Participating Policy Liabilities.
- CIA Valuation Technique Paper Number 11, Discussion Draft - Valuation of Universal Life Insurance.
- AIDS, 1992 Guidance Notes for Valuation Actuaries (including tables), CIA.
- Consolidated Standards of Practice (Exposure Draft), June 1995, CIA, Sections 1-4 (omit 4.15 and 4.16), 19, 21 (21.01& 21.02 only).

Study Notes:

Code	Title
442-21-89	Actuarial Review of Reserves and Other Annual Statement Liabilities (exclude appendices A-E)
442-81-93	Insurance Companies Act - Provisions Relating to Actuaries

b) Statutory and GAAP Reporting

The readings in this section cover the requirements for financial reporting as defined by regulation and by guidelines established by the industry.

Published References (must be secured by candidate):

- "Valuation of Policy Liabilities Under GAAP," by D.M. Keith, PCIA XIV, No. 3, pp. 377-400 and Discussion, pp. 161-181.
- Consolidated Standards of Practice (Exposure Draft), CIA, Sections 4.11 and 4.12.

Study Notes:

Code	Title
442-71-91	Provision for Adverse Deviations, CIA
442-90-95	CLHIA Accounting and Financial Reporting for Life Insurance Enterprises (including appendices)
442-91-95	CICA Handbook - Section 4210 - Life Insurance Enterprises

c) Management Reporting

The readings in this section cover the reporting of financial information and the role of the Appointed Actuary.

Published References (must be secured by candidate):

- *Measuring Financial Performance in the Life Insurance Industry*, LOMA, Executive Summary, Chapters 1-8 and Appendix A (Exclude Appendix B).
- Consolidated Standards of Practice (Exposure Draft), June 1995, CIA, Sections 17 and 18.

Study Note:

Code	Title
442-23-89	Value-Based Financial Measurement

d) Solvency

The readings in this section cover the management of surplus, including discussions on the appropriate surplus levels and solvency testing.

Published References (must be secured by candidate):

- "Strategic Management of Life Insurance Company Surplus," TSA

- XXXVIII, by R.K. Kischuk, pp. 105-116 (Exclude Appendix and Discussion).
- "Determination of Appropriate Surplus Levels," RSA 12, No. 2, pp. 983-1027.
 - Consolidated Standards of Practice (Exposure Draft), June 1995, CIA, Section 23 (omit 23.02).
 - Dynamic Capital Adequacy Testing, (Discussion Draft), May 1997, CIA.
 - Dynamic Capital Adequacy Testing Educational Note, July 1997, CIA.

Study Notes:

Code	Title
442-86-94	An Analysis of CompCorp - The Canadian Life Insurance Industry's Deposit Insurance Plan
442-92-95	OSFI Guidelines for Life Insurance Companies and Fraternal Benefit Societies (MCCSR)
442-93-96	Chapter 9 of <i>Capital Management in the Life Insurance Industry</i> , LOMA

Course I-443U - Advanced Topics in Valuation and Financial Reporting - U.S. (25 Credits) Required*

* **Credit may not be received for both I-442C and I-443U.**

The examination for this course consists of two and one-half hour of written-answer questions. The course covers advanced aspects of the determination of actuarial reserves, statutory reporting, GAAP reporting, Valuation Actuary responsibilities, management reporting, and determination of a life insurance company's financial condition.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Statutory Reporting

The readings in this section cover various aspects of actuarial reserve determination on a statutory basis in the U.S. In addition, techniques of auditing actuarial reserves that have already been determined are described.

Published References (must be secured by candidate):

- *Life Insurance Accounting*, (Third Edition), 1994, by H.F. Brenner et al., Insurance Accounting and Systems Associations, Chapters 2-5, 7, 8, 10 and 11.
- *Valuation of Life Insurance Liabilities*, (Third Edition), 1996, by M.A. Tullis and P.K. Polkinghorn, ACTEX Publications, Chapters 4-6.

Study Notes:

Code	Title
443-21-89	Actuarial Review of Reserves and Other Annual Statement Liabilities (exclude appendices A-E)

- 443-51-96 Valuation of Life Insurance Policies Model Regulation (Regulation XXX) (Text of regulation is for background only)
- 443-53-96 An Overview of New Actuarial Guideline 33 (text of Guideline is required reading)
- 443-55-97 AAA June 1996 Report on Reserving for Minimum Guaranteed Death Benefits for Variable Annuities
- 443-56-98 NAIC Actuarial Guideline MMM, Variable Annuity Minimum Death Benefit Reserves
- 443-92-95 NAIC Actuarial Guideline IX-A (including summary)
- 443-98-93 NAIC Actuarial Guideline IX-B

b) GAAP Reporting

The readings in this section cover the development of GAAP reserves, GAAP reporting and professional standards in the U.S.

Published References (must be secured by candidate):

- "Additional Source-of-Earnings Analysis Under FAS 97," TSA XLII, pp. 59-81 (omit discussion).
- Actuarial Standard of Practice No. 10 (Methods and Assumptions for Use in Stock Life Insurance Company Financial Statements Prepared in Accordance with GAAP), ASB, (October 1992).
- Actuarial Standard of Practice No. 21 (The Actuary's Responsibility to the Auditor), ASB, (April 1993).

Study Notes:

Code	Title
443-50-95	SFAS 60, Accounting and Reporting by Insurance Enterprises (appendices for background only)
443-54-96	Overview of the SOP GAAP for Mutuals and Accounting for Certain Insurance Activities of Mutual Life Insurance Enterprises, Statement of Position 95-1, AICPA
443-72-94	Unlocking FAS 97's Management Potential
443-81-95	GAAP Reserves, Second Printing (includes Sections 4, 6, 7, 8 and Appendices 1 and 2 only)
443-88-89	SFAS 97: Revised GAAP Accounting for Universal Life, Limited Payment, and Investment Contracts (Exhibits are for background only)

c) Valuation Actuary

The readings in this section cover the financial management of insurance companies from the perspective of the Valuation Actuary. The readings include discussions of professional conduct, solvency testing and appropriate surplus levels, and the role of the Valuation Actuary.

Published References (must be secured by candidate):

- Code of Professional Conduct, SoA Yearbook (effective May 1993).
- Qualification Standards for Public Statements of Actuarial Opinion, (January 19, 1993), American Academy of Actuaries (Doc. #043).
- Actuarial Standard of Practice No. 7 (Performing Cash Flow Testing for Life and Health Insurance Companies), ASB, (July 1991).

- Actuarial Standard of Practice No. 14 (When to do Cash Flow Testing for Life and Health Insurance Companies), ASB, (July 1990).
- Actuarial Standard of Practice No. 22 (Statutory Statements of Opinion Based on Asset Adequacy Analysis by Appointed Actuaries for Life or Health Insurers), ASB, (April 1993).
- Actuarial Standard of Practice No. 23, (Data Quality), ASB, (July 1993).
- Actuarial Compliance Guideline #4: Statutory Statements of Opinion Not Including an Asset Adequacy Analysis by Appointed Actuaries for Life or Health Insurers, ASB, (October 1993).

Study Notes:

Code	Title
443-24-89	Life Insurance Company Statutory Valuation (Sections 1-4 only)
443-25-89	Cash Flow Analysis Techniques
443-71-96	AAA 1995 Practice Notes for Life and Health Insurance Appointed Actuaries (1, 4, 5, 9, 11, 13, 14 and L1)
443-83-88	Regulators' Perspective on Actuarial Opinions and Valuations
443-87-89	AIDS: Management Strategies and the Role of the Valuation Actuary
443-96-95	NAIC Actuarial Opinion and Memorandum Regulation

d) Miscellaneous Management Reporting

The readings in this section cover various topics and issues in management reporting.

Published References (must be secured by candidate):

- "Strategic Management of Life Insurance Company Surplus," by R.K. Kischuk, TSA XXXVIII, pp. 105-116 (Exclude Appendix and Discussion).
- *Life Insurance Accounting*, (Third Edition), 1994, by H.F. Brenner et al, Insurance Accounting and Systems Associations, Chapter 19.
- *Measuring Financial Performance in the Life Insurance Industry*, LOMA, pp. 9-101 (Exclude Appendix B).

Study Note:

Code	Title
443-23-89	Value-Based Financial Measurement

Course I-540 - Marketing Individual Life Insurance And Annuities (10 Credits) Elective

Examinations P-363 and I-540 are administered simultaneously. See restrictions on page 17.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers marketing as taught and practiced in North America, with specific references related to life insurance and annuity marketing. Specific marketing topics covered are the marketing process, market research, product selection, target marketing, and managing the marketing effort.

A course overview study note (540-20-97) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

a) Understanding the Marketing Process

The readings in this section cover material on the marketing environment, consumer buying processes and influences, including those in both the general and financial services arena, and competitive analysis.

Published Reference (must be secured by candidate):

- *Marketing Management* (Ninth Edition), by P. Kotler, Chapters 5, 6, 8.

Study Notes:

Code	Title
540-25-89	Marketing to the New Demographics
540-26-94	Loyalty-Based Management

b) Developing and Evaluating a Marketing Strategy

The readings in this section cover the elements of a marketing strategy including issues around market choice, size, management, and information. It also includes material on the use of life insurance for business, estate, and retirement planning.

Published References (must be secured by candidate):

- *Marketing Management* (Ninth Edition), by P. Kotler, Chapters 4, 9, and 13.
- *Life Insurance* (Twelfth Edition), 1994, by K. Black, Jr., and H. Skipper, Jr., Chapters 14 and 15.
- *Marketing for Actuaries*, 1993, by P. LaPorte, Editor, Chapter III.

Study Notes:

Code	Title
540-27-94	Debunking Myths About Starting a Research Department
540-28-94	Beat the Law of Large Numbers Through Target Marketing
540-29-94	A Target Marketing Primer
540-30-94	Plan the Flight and Fly the Plan
540-31-94	The Manager as Target Marketing Consultant
540-32-94	The New Product Revolution: Marketing to the Consumer of the 90's

c) Managing the Marketing Effort

The readings in this section cover important parts of managing a marketing effort. It includes topics on designing and managing the sales force as well as the principles of personal selling. Material discussing the organization of the marketing process within the company and information concerning performance measurement and marketing costs is also included.

Published References (must be secured by candidate):

- *Marketing Management* (Ninth Edition), by P. Kotler, Chapters 22, 24,

and Appendices 1 and 2.

- *Marketing for Actuaries*, 1993, by P. LaPorte, Editor, Chapters VI and IX.

Study Note:

Code	Title
540-33-94	The Recruiting Downslide: Temporary or Permanent?

**Course I-550 - Reinsurance Topics
(15 Credits) Elective**

Examinations P-564 and I-550 are administered simultaneously. See restrictions on page 17.

The examination for this course consists of one and a half hour of written-answer questions. The course covers reinsurance coverages and pricing, valuation and financial reporting for reinsurance, regulation of reinsurance, and reinsurance administration.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

Published References (must be secured by candidate):

- *Life, Health and Annuity Reinsurance* (Second Edition), 1995, by J.E. Tiller and D. Fagerberg, Chapters 1-15, 17-18.
- Actuarial Standard of Practice, No. 11 (The Treatment of Reinsurance Transactions in Life and Health Insurance Company Financial Statements), ASB, (July 1989).

Study Notes:

Code	Title
550-24-94	NAIC Model Law on Credit for Reinsurance
550-26-96	NAIC Life and Health Reinsurance Agreements Model Regulation

PENSION COURSES

Course P-359C - Principles of Pension Valuation I - Canada (15 Credits) Required*

- * Credit may not be received for both P-359C and P-460C or for both P-359C and P-360U.

The examination for this course consists of one and one-half hours of written-answer questions. The course consists of a detailed theoretical and practical presentation of the mathematics behind pension plan valuation. The readings include the calculation of normal cost, accrued liability, actuarial equivalence and analysis of experience gains and losses by source.

A course overview study note (359-20-94) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

Published Reference (must be secured by candidate):

- *Pension Mathematics for Actuaries* (Second Edition), 1990, by A.W. Anderson, Chapters 1-4, 6, 7.

Study Notes:

Code	Title
359-19-92**	Pension Funding Exercises (background only)
359-18-93**	Addendum to 359-19-92 (background only)
359-26-90	Actuarially Equivalent Benefits

- ** Study notes 359-19-92 and 359-18-93 are listed as background reading. However, careful review of these notes should enhance the candidate's understanding of the material as they contain concrete examples of the pension funding theory provided in *Pension Mathematics for Actuaries*.

Course P-360U - Principles of Pension Valuation I - U.S. [EA-1, Segment B] (15 Credits) Required*

- * Credit may not be received for both P-360U and P-460C or for both P-360U and P-359C.

Course P-360U consists of Segment B of the basic examination [EA-1] of the Joint Board for the Enrollment of Actuaries. Segment B of EA-1 is two and one-half hours in length and consists of multiple-choice questions covering the basic mathematics used in pension actuarial work without regard to pension law.

This examination is co-administered by the Society of Actuaries, the American Society of Pension Actuaries, and the Joint Board for the Enrollment of Actuaries.

The official description of the EA examinations is contained in the *July 1998 Examination Program* announcement, available from the Joint Board for the Enrollment of Actuaries. A copy of this announcement will be sent to each candidate who registers for the examination at the same time as the candidate's Ticket of Admission.

Candidates should note that the EA examination questions do not require the mastery of specified SNs or specified chapters of any particular textbooks. Moreover, a specified topic may not be fully covered in every suggested reference. Examination questions may even deal with practical situations not necessarily covered in any published material. Therefore, there is no official all-inclusive Course of Reading for the topics covered on the examination.

The following list of topics and suggested readings for EA-1, Segment B is from the Joint Board's *July 1998 Examination Program* booklet. The Joint Board's Advisory Committee on Actuarial Examinations believes that most (if not all) of the topics in the syllabus are treated in one or more of these references. The *July 1998 Examination Program* is the official description of the Enrollment examinations.

The Society of Actuaries provides some study material for EA candidates. While the E&E Committee believes that these references are useful to EA candidates, the materials were not necessarily written with the particular nature of the Joint Board examinations in mind. The Society SNs are listed separately from the Joint Board's suggested readings.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, *Commutation Functions*, from the SoA.

The following list of topics and suggested readings for EA-1, Segment B is from the Joint Board's *July 1998 Examination Program* booklet.

1. Actuarial cost methods, including unit credit, projected unit credit, entry age normal, individual level premium, aggregate, attained age normal, frozen initial liability, and variations thereof.
2. Determination of normal cost and accrued liability.
3. Determination of experience gains and losses and analysis by source.
4. Effect on valuation results of various patterns of experience, including experience with respect to investment earnings, changes in asset value, mortality, disability, employee turnover, changes in compensation, retirement, choice of retirement options, and Social Security.
5. Effect on valuation results of changes in plan provisions, actuarial cost methods, asset valuation methods, and actuarial assumptions.
6. Characteristics of mortality tables commonly used in pension plan valuations, including projections and age set forwards and set backs.
7. Valuation of ancillary benefits.
8. Characteristics of commonly encountered types of pension plans, including benefit formulas and funding vehicles.
9. Determination of actuarially equivalent benefits at early or postponed retirement and actuarially equivalent optional forms of payment.
10. Valuation techniques for handling employee contributions and split-funded arrangements.

Suggested Readings (selected by the Joint Board):

- *Pension Funding and Valuation* (Second Edition), 1996, by W.H. Aitken.
- *Pension Mathematics For Actuaries* (Second Edition), 1990, by A.W. Anderson.
- *The Fundamentals of Pension Mathematics*, 1989, by B.N. Berin.
- *Actuarial Cost Methods, A Review* (Second Edition), 1994, by W. Farrimond and D. Mayer.

Study Notes (selected by the Society of Actuaries):

Code	Title
360-19-92	Pension Funding Exercises
360-18-93	Addendum to 360-19-92
360-24-91	Actuarially Equivalent Benefits
360-27-96	Mortality Tables for Pension Plans
360-28-95	Variations on Entry Age Normal Cost Methods

In addition, it is suggested that candidates contact the American Society of Pension Actuaries for their recommended readings and any study materials they may be offering.

**Course P-363 - Pension Funding Vehicles*
(15 Credits) Required**

Examinations P-363 and I-540 are administered simultaneously. See restrictions on page 17.

- * **Effective with the Spring 1997 catalog, P-363 replaced F-385 as a required course in the Investment Track.**

The examination for this course consists of one and one-half hour of written-answer questions. The readings describe various pension funding vehicles including special insurance company products, funding strategies and techniques, setting investment objectives, performance measurement and selection of investment managers.

A course overview study note (363-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Published References (must be secured by candidate):

- *Pension Planning* (Eighth Edition), 1997, by E.T. Allen, J.J. Melone, J.S. Rosenbloom, and J.L. VanDerhei, Chapters 22 and 23.
- *Return Targets and Shortfall Risks: Studies in Strategic Asset Allocation*, 1996, by Leibowitz, Bader and Kogelman, Chapters 2-4, 7, 10, and 11.
- † *Handbook of Fixed Income Securities* (Fifth Edition), 1996, by Fabozzi et al., Chapter 19.
- "Terminal Funding," by V.J. Modugno, TSA XXXVIII, pp. 169-203.

Study Notes:

Code	Title
363-22-91	GIC Portfolio Design
363-23-89	Managing Pension Trust Funds
363-24-89	Defined Contribution Considerations of Various Funding

- Instruments
- 363-26-89 Matched-Funding Techniques
- 363-28-94 Addendum to Study Note 363-24-89
- 363-30-91 Addendum to *Managing Pension Assets*
- 363-31-91 Managing Pension Fund Investments, Chapters 10, 11 (omit paragraph 11.08), 13, 14 (paragraphs 14.01-14.05 for background only), 15 (omit paragraphs 15.08-15.10).
- 363-33-93 Setting Standards for the Selection and Monitoring of Insurance Companies for Retirement Plans
- 363-34-98 Fiduciary Liability Issues for Selection of Investments
- 363-36-93 *Managing Pension Assets*, 1990, by W.R. Good and D.A. Love: Introduction, Chapters 1, 3 (exclude Appendix), 4 and 5.
- 363-37-94 The Duty of Care of a Pension Fund Trustee
- 363-38-96 Investment Management of Retirement Plans in Canada
- 363-40-98 Department of Labor Interpretative Bulletin No. 95-1
- 363-50-95 Sample Plan Termination RFP (for background only)
- 363-51-95 Sample Trust Agreement (for background only)
- #363-52-99 PWBA Advisory Council Working Group Reports for 1997 (Excerpts) (Section 2 for background only)

Course P-461U - Principles of Pension Valuation II, and Accounting Standards for Pension Plans - U.S. (20 Credits) Required*

Examinations P-461U, P-462C, and V-480 are administered simultaneously. See restrictions on page 17.

- * **Credit may not be received for both P-461U and P-460C or for both P-461U and P-462C.**

The examination for this course consists of two hours of written-answer questions. The course consists of a detailed presentation of the practical considerations involved in the valuation of and accounting for retirement plans. Plans funded through any medium and provided by private employers or by governments are included.

A course overview study note (461-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Course P-461U also includes a case study that may be referred to in the examination questions. The case study will be distributed as Study Note 461-13-96. It will also be included in the examination booklet. Candidates will not be allowed to bring their Study Note copy of the case study into the examination room.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, *Commutation Functions*, from the SoA.

a) Pension Valuation Principles

The readings in this section discuss the selection of actuarial assumptions for pension valuations, valuation of assets, and methods for determining projected pension costs and liabilities.

Published References (must be secured by candidate):

- *Pension Mathematics for Actuaries* (Second Edition), 1990, by A.W. Anderson, Chapters 5 and 7.
- "Asset Allocation and Funding Policy Projection Studies," PCCA XLIII, pp. 319-332.

Study Notes:

Code	Title
461-22-96	Mortality Tables For Pension Plans
461-23-91	Selection of Interest Assumptions for Pension Plan Valuation
461-24-98	Pension Topics (exclude Section III.F)
461-25-91	Improvements in Annuitant Mortality - Canada
461-28-93	Pension Projections
461-29-94	An Introduction to Duration for Pension Actuaries
#461-55-99	Low Interest Rate Environment Impacts Defined Benefit Pension Plans
461-61-96	New Rules for Underfunded Plans: The Retirement Protection Act of 1994
461-62-96	Controlling the FAS 87 Balance Sheet Impact by Integrating Funding, Expensing, and Asset Policy
461-63-97	Symposium on Pension Funding Adequacy
461-64-98	Valuation of Pension Benefits for Disabled Participants
461-66-98	Selection of Actuarial Assumptions (pp. 1-26 only)

b) Accounting For Pension Costs and Obligations

The readings in this section discuss FASB Statements 87 and 88 for determining pension costs and obligations of U.S. employers; FASB Statement 35 for accounting and reporting by U.S. defined benefit plans; GASB Statements 25, 26, and 27 relating to pension plans of public employers; and cost accounting standards for pension plans whose sponsors have government contracts. The readings also include an outline of Canadian accounting standards.

Published References (must be secured by candidate):

- "Pension Accounting Standards in North America," RSA 14, No. 1, pp.19-35.
- #Actuarial Standard of Practice No. 2, (Recommendations for Actuarial Communications Related to Statements of Financial Accounting Standards Numbers 87 and 88), ASB.
- Actuarial Compliance Guideline No. 1 (An Actuary's Guide to Compliance with Statement of Financial Accounting Standards No. 87), ASB.
- Actuarial Compliance Guideline No. 2 (For Statement of Financial Accounting Standards No. 88), ASB.

Study Notes:

Code	Title
461-31-89	Accounting for Pension Costs and Obligations
461-32-87	Interpretation of Pension Statements
461-34-89	Accounting and Reporting by Defined Benefit Pension Plans (FAS 35), (pp. 23-51 for background only).
461-38-93	Addendum to Study Note 461-34-89
461-37-90	Selected Questions and Answers from Guide to Implementation of Statement 87 on Employers' Accounting for Pensions
461-39-95	SEC on Discount Rates
461-40-96	GASB Pension Statements 25, 26 and 27

- 461-65-98 Cost Accounting Standards for Pension Plans
- #461-67-99 A New Pension Accounting Standard for Multinational Companies
- #461-68-99 Understanding the FASB's New Pension and Postretirement Benefit Disclosures

c) Professional Considerations in Valuing Pension Obligations

The readings in this section describe the impact of regulatory considerations and professional standards and principles on the actuary performing pension costings and valuations.

Published References (must be secured by candidate):

- Actuarial Standard of Practice No. 4 (Recommendations for Measuring Pension Obligations), ASB.
- Actuarial Standard of Practice No. 23 (Data Quality), ASB.
- Actuarial Standard of Practice No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations), ASB.

Study Notes:

Code	Title
461-46-93	Pension Actuarial Valuation Reports
461-47-97	Exposure Draft - Actuarial Standards of Practice No. 4 Amendment

Course P-462C - Principles of Pension Valuation II and Accounting Standards for Pension Plans - Canada (20 Credits) required*

Examinations P-461U, P-462C, and V-480 are administered simultaneously. See restrictions on page 17.

- * **Credit may not be received for both P-462C and P-460C or for both P-462C and P-461U.**

The examination for this course consists of two hours of written-answer questions. The course consists of a detailed presentation of the practical considerations involved in the valuation of, and accounting for retirement plans. These plans include plans funded through any medium and provided by private employers or by governments.

A course overview study note (462-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Course P-462C also includes a case study that may be referred to in the examination questions. The case study will be distributed as Study Note 462-13-96. It will also be included in the examination booklet. Candidates will not be allowed to bring their Study Note copy of the case study into the examination room.

Note: The course of reading for this course may include commutation functions that are not included in the Second Edition of *Actuarial Mathematics*. Candidates who want a summary of commutation functions and their use can order Study Note 600-99-99, Commutation Functions, from the SoA.

a) Pension Valuation Principles

The readings in this section include discussions on the selection of actuarial assumptions for pension valuations, valuation of assets, and methods for determining projected pension costs and liabilities.

Published References (must be secured by candidate):

- *Pension Mathematics for Actuaries* (Second Edition), 1990, by A.W. Anderson, Chapter 5.
- *Mercer Handbook of Canadian Pension and Benefit Plans* (Eleventh Edition), 1996, by G.M. Hall, Chapter 5.
- "Dynamic Models for Pension Plans," Panel Discussion #11, PCIA XVII, No. 2, pp. 147-174.
- "Asset Allocations and Funding Policy Projection Studies," PCCA XLIII, pp. 319-332. [**Note:** this paper is also available from the Conference of Consulting Actuaries at 847-419-9090.]

Study Notes:

Code	Title
462-22-96	Mortality Tables for Pension Plans
462-23-91	Selection of Interest Assumptions for Pension Plan Valuation
462-24-98	Pension Topics (Omit Sections I-III)
462-27-91	Improvements in Annuitant Mortality - Canada
462-28-93	Pension Projections
462-29-94	An Introduction to Duration for Pension Actuaries
462-30-95	CIA Memorandum: Report of the Task Force on Application of Cash Flow Techniques to Pension Plans
462-71-95	Back to the Future
462-72-96	Controlling the FAS 87 Balance Sheet Impact by Integrating Funding, Expensing and Asset Policies
462-73-97	Symposium on Pension Funding Adequacy
462-74-98	Valuation of Pension Benefits for Disabled Participants
462-75-98	Selection of Actuarial Assumptions (pp. 1-26 only)

b) Accounting for Pension Costs and Obligations

The readings in this section discuss the CICA Handbook Section 3460 and 4100 guidelines for determining pension costs and obligations for pension plans in Canada. The readings also contain an overview of FASB Statements 87 and 88 applicable to U.S. pension plans.

Published Reference (must be secured by candidate):

- "Pension Accounting Standards in North America," RSA 14, No. 1, pp.19-35.

Study Notes:

Code	Title
462-31-89	Accounting for Pension Costs and Obligations
462-32-88	CICA Handbook, Section 3460
462-33-94	CICA Emerging Issues Committee: Special Termination Benefits

- 462-35-92 Pension Plan Financial Statement: Commentary on CICA Handbook Section 4100
- 462-36-92 CICA Handbook Section 4100
- 462-37-93 CIA and CICA Joint Policy Statement
- 462-38-94 CICA Emerging Issues Committee: Pension Surplus Recognition
- #462-39-99 Interpretation of Pension Statements
- #462-67-99 A New Pension Accounting Standard for Multinational Companies
- #462-68-99 Understanding the FASB's New Pension and Postretirement Benefit Disclosures

c) Regulatory and Professional Considerations in Valuing Pension Obligations

The readings in this section describe the impact of regulatory considerations and professional standards and principles on the actuary performing pension costings and valuations.

Published References (must be secured by candidate):

- CIA Standard of Practice for Valuation of Pension Plans (January 1994), CIA.
- CIA Standard of Practice for Valuation of Pension Plans - Miscellaneous Questions, July 27, 1995, CIA.
- CIA Recommendations for the Computation of Transfer Values from Registered Pension Plans, CIA.

Study Notes:

Code	Title
462-46-90	Pension Issues in Corporate Sales, Mergers and Acquisitions
462-47-90	New Guidelines Lead to Critical Examination of Pension Assets in Mergers and Acquisitions
462-49-92	CIA Paper on Pension Plan Surplus
#462-61-99	CIA Valuation Technique Paper on Wind-Up and Solvency Valuations of Registered Pension Plans
462-62-98	CIA Memorandum on Pension Standards and Mortality Tables

d) Miscellaneous Issues

The readings in this section include discussion on the valuation of multi-employer plans and other issues such as pension indexing, shifts in interest rates, and surplus.

Study Notes:

Code	Title
462-50-90	Task Force on Inflation Protection for Employee Pension Plans: "Pension Funding Assumptions," "Financial Accounting Standards," and "Development of Funding Surpluses."
462-55-95	Low Interest Rate Environment Impacts Defined Benefit Pension Plans
462-56-97	Pension Surplus and Deficit Funding: The Trials and

Tribulations of Funding Multi-Employer Plans

**Course P-564 - The Actuary as Expert Witness
(10 Credits) Elective**

Examinations I-550 and P-564 are administered simultaneously. See restrictions on page 17.

The examination for this course consists of one and one-half hour of written-answer questions. The readings contain a description of the role of the actuary in litigation situations in his function as an expert witness. Topics covered include: valuation of lost wages/benefits in accidental injury and wrongful dismissal cases; valuation of future loss in wrongful death cases; valuation of pension benefits in marital dissolution cases; preparation of actuarial reports; actuarial testimony; role of cases and precedents; and structured settlements.

Candidates who want additional background may read *Actuarial Evidence* (Second Edition), by D.R. Anderson, 1986, published by Carswell.

A course overview study note (564-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

Published References (must be secured by candidate):

- *Litigation Accounting*, 1997, by M.L. Berenblut and H.N. Rosen, Chapters 1 (Exclude 1A), 2-4, 5 (Exclude 5A&5B), 6 (Exclude Appendices), 7, 8, 9 (Exclude Appendices), 11 (pp. 11-22), 12 (Exclude Appendices), and 13 (Exclude Appendices).
- "Actuarial Testimony," RSA 14, No. 1, pp. 593-614.
- "Actuarial Involvement in Divorce Litigation," by M. Projector, PCCA XXXIII, pp. 494-544.

Study Notes:

Code	Title
564-21-89	CIA Recommendations for the Preparation of Actuarial Reports and the Presentation of Evidence Before the Courts and Other Tribunals
564-22-92	Actuarial Standard of Practice No. 17, (Expert Testimony by Actuaries)
564-42-89	Division of Pension Rights Upon Marriage Breakdown
564-44-92	Distribution of Pension Benefits on Divorce: Some Unresolved Actuarial Issues
564-45-92	QDRO's: The Defined Benefit Dilemma
564-46-94	CIA Standard of Practice for the Computation of the Capitalized Value of Pension Entitlements on Marriage Breakdown for Purposes of Lump Sum Equalization Payments
564-47-95	Matrimonial Mathematics
564-48-95	IRC Sections 414(p) and 401(a)(13)
#564-49-99	Exposure Draft - Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions

INVESTMENT COURSE*

- * See P-363 under the Pension Courses and F-585 under the Finance Courses for a full description of this required course for the Investment Track.

Course V-480 - Derivative Securities: Theory and Application (20 Credits) Required

Examinations P-461U, P-462C, and V-480 are administered simultaneously. See restrictions on page 17.

The examination for this course consists of two hours of written-answer questions. The course builds on the material covered in Course 220, Introduction to Asset Management and Corporate Finance and Course 230, Principles of Asset/Liability Management. The course covers advanced readings in option theory, introduces the student to stochastic calculus and its use in investment and finance, and covers practical applications of theory.

A course overview study note (480-20-99) has been prepared for this course. It is intended to give candidates additional insights into the course of reading and how the materials interrelate.

a) Option Theory and Stochastic Calculus

The readings in this section cover forward and futures contracts, Black-Scholes analysis, stock options, pricing derivatives securities, hedging, and the mathematics of stochastic calculus.

Recommended for candidate use (but not required) is *The Black-Scholes and Beyond Interactive Toolkit*, 1997, by N.A. Chriss. This software toolkit is a learning aid to help understand the theories taught in the Chriss published reference below. Candidates will not be tested on the toolkit; it is only recommended.

Published References (must be secured by candidate):

- *Options, Futures and Other Derivative Securities* (Third Edition), 1997, by J.C. Hull, Chapters 1, 2, 3 (Include Appendix A), 4, 5, 7, 10 (Include Appendix A), 11 (Include Appendices A and B), 13 (Include Appendix A), 14 (Exclude 14.6-14.10 and Appendix), 15 (Include Appendix A), 16, 17, 19 (Include Appendix A) and 21.
- *Black-Scholes and Beyond: Option Pricing Models*, 1997, by N.A. Chriss, Chapters 3 (background only), 8 (background only), and 9. Candidates may also wish to purchase the interactive toolkit as recommended in the above paragraph.

b) Applications

The readings in this section cover various applications of derivatives in ALM, including accounting and regulatory issues.

Published References (must be secured by candidate):

- † *New Corporate Finance: Where Theory Meets Practice*, (Second Edition), 1999, by D. Chew, Jr., Chapter V.42.
- CIA Educational Note, "Management, Risks, Regulation and Accounting of Derivatives, Ch. 1 (background only), 2, and 3.

Study Notes:

Code	Title
480-31-94	Derivatives: Practices and Principles (pp. 25-64 only)
480-33-97	Corporate Risk Management
480-34-97	Toward Improved Accounting for Derivative Financial Instruments and Hedging Activities

FELLOWSHIP ADMISSIONS COURSE

The Fellowship Admissions Course (FAC) is the final requirement for Fellowship. The FAC may not be taken until all of the other course requirements for Fellowship have been met. Once these course requirements have been met, you may enroll in the next FAC. The FAC will be offered in February/March 1999 for those who completed all other course requirements in November 1998 or earlier, or in August/September 1999 for those who complete all other course requirements in May 1999 or earlier. If you are unable to attend the FAC immediately following completion of Fellowship course requirements, you may attend any future FAC. You will not receive the FSA designation, or be entitled to use such designation, until you have completed the FAC.

The FAC is two and one-half days in length. The subjects covered are Professional Ethics and Business Cases. For those completing all Course requirements by May 1999 or earlier, the FAC will be offered twice in Fall of 1999. The first session will be offered in August 1999, starting Sunday afternoon, August 29 at 5 p.m. and ending with a banquet on Tuesday evening. The second session will be offered in September 1999, starting Wednesday afternoon, September 8 at 5 p.m. and ending with a banquet on Friday evening. Those completing Fellowship course requirements by writing a research paper may attend any FAC course that begins at least one month after the paper has been accepted for credit.

Notice of the Fall 1999 FAC sessions will be sent to persons close to Fellowship in May 1999. All potentially eligible candidates should register immediately upon receiving the notice. Anyone who could complete requirements with the May examinations who does not receive information about the FAC by June 1, 1999, should contact the Education and Examination Ombudsperson at 847-706-3527.

The attendance at each Course will be limited. Those who register for one location relatively late may be asked to switch to the other location if the limit is exceeded.

Candidates who attend the program and participate in it fully will pass the course and receive their Fellowship diploma at the banquet given the last evening of the program.

B. Description of Fall 1999 Courses***SERIES 100 COURSES*****Course 100 - Calculus and Linear Algebra
(30 Credits) Required**

The examination for this course is a three-hour multiple-choice examination, based on material traditionally covered in undergraduate mathematics courses through differential and integral calculus and a first course in linear algebra.

**Course 110 - Probability and Statistics
(30 Credits) Required**

The examination for this course is a three-hour multiple-choice examination, based on material usually covered in undergraduate courses in mathematical probability and statistics. It can be taken by candidates who have had thorough college courses in these subjects or by persons who have done concentrated reading in these fields.

**Course 120 - Applied Statistical Methods
(15 Credits) Required**

The examination for this course is a one and one-half hour multiple-choice examination. The general scope of the course content is indicated by the following topics:

- Regression Analysis
- Forecasting
- Time Series Analysis

**Course 130 - Operations Research
(15 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination covering various techniques of Operations Research. Topics covered include:

- Linear Programming
- Queuing Theory
- Project Scheduling
- Simulation
- Dynamic Programming

**Course 135 - Numerical Methods
(10 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. This course covers various techniques for handling numerical data including interpolation, iteration, numerical integration and linear systems.

**Course 140 - Mathematics of Compound Interest
(10 Credits) Required***

- * Candidates must receive credit for either Course 140, Course 141 or CAS part 4A but will not receive credit for more than one.

The examination for this course is a one and one-half hour multiple-choice examination. Key topics include: measurement of interest, including accumulated and present value factors; annuities certain; yield rates; amortization schedules and sinking funds; and bonds and related securities.

**Course 141- [EA-1, Segment A] - Mathematics of Compound Interest and Mathematics of Life Contingencies
(10 Credits) Required* - Note: given in Spring only**

- * Candidates must receive credit for either Course 140, Course 141 or CAS part 4A but will not receive credit for more than one.

This course is Segment A of the Pension Examination [EA-1] of the Joint Board for the Enrollment of Actuaries. The examination for this course consists of two and one-half hour of multiple-choice questions.

**Course 150 - Actuarial Mathematics
(40 Credits) Required**

The examination for this course is a four-hour multiple-choice examination. The course covers the theory and applications of contingency mathematics from both the probabilistic and deterministic approaches.

**Course 151 - Risk Theory
(15 Credits) Required**

The examination for this course is a one and one-half hour multiple-choice examination. The course covers risk theory as it is applied, under specified assumptions, to insurance.

**Course 160 - Survival Models
(15 Credits) Required**

The examination for this course is a one and one-half hour multiple-choice examination. Topics covered are: the nature and properties of survival models, including both parametric and tabular models; methods of estimating tabular models from both complete and incomplete data samples, including the actuarial, moment, and maximum likelihood estimation techniques; methods of estimating parametric models from both complete and incomplete data samples, including parametric models with concomitant variables; and applications and extensions of survival models.

**Course 161 - Mathematics of Demography
(10 credits) Elective**

The examination for this course is a one and one-half hour multiple-

choice examination. Topics covered are: collection of demographic statistics, sources of errors and their corrections, measures of mortality and fertility, construction of life tables from census data, stationary and stable population theory, population projections and uses of census data.

**Course 165 - Mathematics of Graduation
(10 Credits) Elective**

The examination for this course is a one and one-half hour multiple-choice examination. Topics covered are: the problems involved in making and testing the graduations of mortality tables or other series that are likely to be encountered in the course of an actuary's work; graduation by the moving-weighted average, graphic, Whittaker, Bayesian, parametric and smooth-junction interpolation methods; statistical considerations; two-dimensional graduation; and analysis and critique of the various methods.

SERIES 200 COURSES

**Course 210 - Introduction to Actuarial Practice
(25 Credits) Required**

The examination for this course is a two and one-half hour multiple-choice and written-answer examination. The course covers costing and pricing techniques for financial security programs, valuation of liabilities for financial security programs and financial reporting for life insurance companies.

a) Pricing of Insurances and Annuities

The readings in this section describe the principles and practices of determining premium rates and dividends for life and health insurance and for annuities.

b) Valuation of Liabilities and Financial Reporting for Life Insurance Companies

The readings in this section describe two areas. First are the reserve and liability items that should be established for life and health insurance and for annuities. Topics covered include the methods used to determine reserves in statutory statements and the role of reserving methods in the determination of statement earnings.

The second area is an introduction to financial reporting for life insurance companies. Topics covered include differences between general accounting and accounting for insurance companies, how various types of financial reports are interrelated and the annual statement forms prescribed for life and health insurance.

c) Introduction to Pension Funding

The readings in this section describe the principles and practices of valuation and funding of employee pensions. Topics covered include actuarial cost methods, actuarial assumptions, and gain and loss analysis.

**Course 220 - Introduction to Asset Management and Corporate Finance
(30 Credits) Required**

The examination for this course is a three hour multiple-choice and written-answer examination. The course covers macroeconomics, characteristics of the various types of investments used to fund financial security programs, traditional techniques of financial analysis used in selecting and managing investment portfolios and an introduction to corporate finance.

a) Macroeconomics

The readings cover macroeconomic measurement, macroeconomics models, inflation, money and monetary policy, fiscal policy and deficits, and long run growth and productivity. The readings assume students have had a college level economics course as background. Students without such background may wish to review a college level economics text.

b) Financial Markets and Asset Definition

The readings in this section discuss the types of financial instruments available, financial innovation, and how financial markets operate both here and abroad.

c) Portfolio Management and Investment Strategy

The readings in this section provide an introduction to security analysis, capital market theory, risk/return decisions, setting portfolio objectives, term structure of interest rates, price volatility, stochastic interest rates, immunization, and asset allocation.

d) Corporate Finance

The readings provide an introduction to corporate finance. Topics covered include: financial statements, financial ratios, pro formas, breakeven analysis, cost of capital, mergers and acquisitions.

SERIES 300 - 500 COURSES

FINANCE COURSES

**Course F-385 - Financial Management*
(20 Credits) Required**

- * Effective with the Spring 1997 session, P-363 replaced F-385 as a requirement for the Investment Track. Students may continue to use F-385 as a requirement in the Investment Track through the Fall 1999 examination session.

Note: F385 may not be taken for elective credit by candidates in the ILA Track.

The examination for this course consists of two hours of written-answer questions. This course covers broad topics in the valuation of liabilities and financial management.

**Course F-590 - Corporate Strategy and Solvency Management
(10 credits) Required**

Examinations F-590 and G-528 are administered simultaneously. See restrictions on page 19.

The examination for this course consists of one and one-half hour of written-answer questions. The course builds on the material covered in Course 220 (Introduction to Asset Management and Corporate Finance), and Course 230 (Principles of Asset/Liability Management). The course covers advanced readings in solvency management, rating agencies, and corporate strategy.

GROUP AND HEALTH BENEFITS COURSES*

* See also I-342C/I-343U under the ILA Courses for a full description of additional required courses.

**Course G-320 - Design and Distribution of Group and Individual Health Insurance Benefits
(30 Credits) Required**

The examination for this course consists of three hours of written-answer questions. The course contains a comprehensive coverage of group and individual health insurance plan design, marketing, delivery systems, and underwriting.

a) Basic Concepts and Environment

This section provides an overview of the basic concepts involved in group and individual health insurance including a discussion of the regulatory environment and the impact of inflation.

b) Group Insurance Coverages and Plan Design

This section includes a comprehensive description of the various coverages provided by insurers. A discussion of group and individual health plan design issues is included. Also, the readings include discussions of reinsurance topics.

c) Underwriting, Marketing and Administration

This section contains a discussion of underwriting concepts. The readings discuss marketing aspects of including an overview of alternate delivery systems, and flexible benefits approaches.

**Course G-522 - Senior Products
(10 Credits) Elective**

The examination for this course consists of one and one-half hour of written-answer questions. The course covers funding methods for continuing care retirement communities, techniques of periodic actuarial valuations for management purposes, and methods of adjusting funding methods when necessary. Other topics include plan design and pricing methods for long-term care insurance.

**Course G-523 - Non-pension Postretirement and Postemployment Benefits
(10 Credits) Elective**

Examinations V-485, G-523, and I-545 are administered simultaneously. See restrictions on page 19.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers plan design, funding methods, techniques of periodic actuarial valuations, regulatory environment and tax aspects.

**Course G-528 - Advanced Health Topics
(15 Credits) Elective**

Examinations G-528 and F-590 are administered simultaneously. See restrictions on page 19.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers the forces driving the changes in health insurance practices and their relationship to the development and evaluation of health insurance programs for both an individual or group specific and national basis.

INDIVIDUAL LIFE AND ANNUITY COURSES

**Course I-342C - Life Insurance Law and Taxation - Canada
(15 Credits) Required***

* Credit may not be received for both I-342C and I-343U.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers laws in Canada relative to both individual and group life and health insurance contracts; the making, continuation, contest and settlement of insurance contracts; and common life insurance policy provisions. The system of taxation of life insurance companies in Canada is also covered.

**Course I-343U - Life Insurance Law and Taxation - U.S.
(10 Credits) Required***

* Credit may not be received for both I-342C and I-343U.

The examination for this course consists of one and one-half hour of written-answer questions. The course covers laws in the U.S. relative to both individual and group life and health insurance contracts; the making, continuation, contest and settlement of insurance contracts; and common life insurance policy provisions. The system of taxation of life insurance companies in the U.S. is also covered.

**Course I-440C - Advanced Design and Pricing - Canada
(20 Credits) Required***

* Credit may not be received for both I-440C and I-441U.

The examination for this course consists of two hours of written-answer questions. The course builds on the concepts introduced in Course I-340 (Survey of Actuarial Practice - Individual Life Insurance and Annuities), exploring the product development process in greater detail. The effects of marketing, administrative systems, competition, and regulatory environment on product design are considered and illustrated for specified individual life insurance and annuity coverages. Particular issues involved in projecting and measuring profitability for traditional and nontraditional life and annuity products are covered.

a) Product Development

The readings in this section cover various stages of the product development process, as well as the various measures of product profitability. The effects of the marketing and investment environment are also considered.

b) The Regulatory Environment

The regulatory environment in which product development takes place has a significant effect on the design and pricing of products. The readings cover the special requirements that are imposed by regulators as well as standards of professional actuarial organizations.

c) Policyholder Taxation

Policyholder taxation plays a major role in determining the design of life insurance and annuity products in Canada. The readings describe how policies are taxed, and the design constraints necessary to minimize taxation of the policyholder.

d) Product-Specific Issues

The readings illustrate pricing and design concepts by outlining the specific issues associated with various types of products and benefits.

**Course I-441U - Advanced Design and Pricing - U.S.
(25 Credits) Required***

* Credit may not be received for both I-440C and I-441U.

The examination for this course consists of two and one-half hours of written-answer questions. The course builds on the concepts introduced in Course I-340 (Survey of Actuarial Practice - Individual Life Insurance and Annuities), exploring the product development process in greater detail. The effects of marketing, administrative systems, competition, and regulatory environment on product design are considered and illustrated for specified individual life insurance and annuity coverages. Particular issues involved in projecting and measuring profitability for traditional and nontraditional life and annuity products are covered.

a) Product Development

The readings in this section outline the various stages of the product development process, as well as the various factors which will determine the success of the process. The effects of the marketing

and investment environment are also considered.

b) The Regulatory Environment

The regulatory environment in which product development takes place has a significant effect on the design and pricing of products. The readings cover the special requirements that are imposed by regulators as well as standards of professional actuarial organizations.

c) Policyholder Taxation

Policyholder taxation plays a major role in determining the design of life insurance and annuity products in the U.S. The readings describe how policies are taxed and the design constraints created by various definitions of life insurance.

d) Product-Specific Issues

The readings illustrate pricing and design concepts by outlining the specific issues associated with various types of products and benefits.

**Course I-545 - Disability Income
(15 credits) Elective**

Examinations V-485, G-523 and I-545 are administered simultaneously. See restrictions on page 19.

The examination for this course consists of one and one-half hours of written-answer questions. Topics to be covered will include plan design and administration, pricing and profitability, and actuarial reserves and financial reporting.

PENSION COURSES

**Course P-361C - Design of Retirement Programs - Canada
(20 Credits) Required***

* Credit may not be received for both P-361C and P-362U.

The examination for this course consists of two hours of written-answer questions. The course covers the design and use of defined benefit and defined contribution retirement plans. The readings discuss traditional and nontraditional designs, as well as executive retirement programs, public employee plans, multi-employer plans, flexible plans and conversions to defined contribution plans.

**Course P-362U - Design of Retirement Programs - U.S.
(20 Credits) Required***

* Credit may not be received for both P-361C and P-362U.

The examination for this course consists of one and one-half hours of written-answer questions. The course covers the design and use of defined benefit and defined contribution retirement plans, considered within the context of current legislation and regulation. The readings discuss traditional and nontraditional designs, as well as executive retirement programs, early retirement windows, and public employee plans.

**Course P-364C - Regulatory Requirements for Retirement Plans - Canada
(20 Credits) Required**

**Examinations P-364C and V-595 are administered simultaneously.
See restrictions on page 19.**

The examination for this course consists of two hours of written-answer questions. The course covers legislation and regulations for retirement plans in Canada.

**Course P-365U - Regulatory Requirements for Pension Plans - U.S.
(25 Credits) Required**

Course P-365U consists of the Pension Examination [EA-2] of the Joint Board for the Enrollment of Actuaries. EA-2 is a four-hour multiple-choice examination covering U.S. pension law and regulation of employee retirement benefits.

**Course P-567 - Retirement Income Security - A Worldwide Perspective
(25 Credits) Elective**

*** Credit may not be received for both P-560 and P-567.**

The examination for this course consists of two and one-half hours of written-answer questions. The purpose of this course is to provide the candidate with a perspective on the principles behind the provision of retirement income and the ways in which these principles are addressed worldwide. The readings broadly cover the design and financing of private pension plans and social insurance systems. They have been selected to include a variety of cultures and economic situations and are intended to illustrate the diversity of pension systems that developed in response to particular environments. Candidates will be encouraged to recognize that these developments could influence the future direction of pension systems in Canada and the U.S. Finally, the course will consider the effect of the increase in multi-national organizations and mobility of employees across national borders.

INVESTMENT COURSES**Course V-485 - Advanced Portfolio Management
(15 Credits) Required**

**Examinations V-485, G-523 and I-545 are administered
simultaneously. See restrictions on page 19.**

The examination for this course consists of one and one-half hours of written-answer questions. The course builds on the material covered in Course 220 (Introduction to Asset Management and Corporate Finance), and Course 230 (Principles of Asset/Liability Management). The course covers advanced readings in capital asset pricing model, asset allocation, portfolio insurance/dynamic hedging and international markets.

**Course V-595 - Applied Asset/Liability Management
(20 credits) Required**

**Examinations P-364C and V-595 are administered simultaneously.
See restrictions on page 19.**

The examination for this course consists of two hours of written-answer questions. The course covers advanced readings in ALM, swaps, and pension fund management.

FELLOWSHIP ADMISSIONS COURSE

For those completing all course examination requirements in November 1999, the Fellowship Admissions Course (FAC) will be offered in two locations in March 2000. Details will be provided in the *Fall 1999 Catalog*. The FAC will cover the same topics and follow the same format as the one offered following the Spring 1999 examinations. Please refer to the FAC description following the Spring Courses in this Catalog for general information.

APPENDIX 1

Education System Redesign

At its October 1996 meeting, the SoA BoG approved the overall design of a new education system. Critical courses (specifically needed to attain credit for Courses 1-8) will be offered through the end of 1999. The new system will begin in the year 2000. Courses will not be available concurrently under the two systems.

A. Course Descriptions

Basic (Courses 1-6)

Course 1 Mathematical Foundations of Actuarial Science

Covers the fundamental tools for quantitatively assessing risk. Requires application of calculus and probability to problems set in a business context.

Course 2 Interest Theory, Economics and Finance

Covers interest theory (discrete and continuous), intermediate macroeconomics and microeconomics, and the fundamentals of finance.

Course 3 Actuarial Models

This course develops the candidate's knowledge of the theoretical basis of actuarial models and the application of those models to insurance and other financial risks. Topics include: (1) Quantifying the financial impact of contingent payments; (2) Survival Distributions; (3) Frequency, Severity and Compound Distributions; (4) Stochastic Process Models; (5) Ruin Theory; and (6) Simulation.

Course 4 Actuarial Modeling

This course provides an introduction to modeling and covers important actuarial and statistical methods that are useful in modeling. Topics include: (1) Modeling; (2) Estimation and Fitting of Frequency, Severity and Survival Distributions; (3) Regression; (4) Time Series; (5) Forecasting; and (6) Credibility Theory.

Course 5 Application of Basic Actuarial Principles

Provides coverage of basic actuarial principles across various traditional and non-traditional coverages. Includes plan and product design; risk classification principles and techniques; principles and practices applied in pricing, ratemaking, and funding; marketing, distribution and administration; and valuation of liabilities.

Course 6 Finance and Investments

Covers basic actuarial principles in the fields of investments and asset management. Covers investment vehicles and markets, application of asset/liability management tools, applications of derivatives, and

principles of portfolio management.

Candidates must complete Course 1 through 6 and the Associate Professionalism Course to attain the ASA designation.

Advanced (Courses 7 and 8)

Course 7 Applied Modeling

Course 7 is an intensive seminar on applied actuarial modeling. The interactive, hands-on approach to this subject allows the candidate to build upon knowledge from the basic courses and learn applied modeling skills in a hands-on environment. The course also emphasizes communication skills, team work and the synthesis of subjects in an applied setting.

The last course in the formal examination process is Course 8, covering advanced specialized actuarial practice. There will be a unique Course 8 for each significant area of practice. The current design has included seven areas: Individual Life, Group Life and Health, Managed Care, Retirement Benefits – U.S., Retirement Benefits – Canada, Finance, and Investments. The courses will cover more advanced, complex topics within a specific practice area but will not require mastering detailed nation and time-specific information.

Professional Development

The candidate must obtain a minimum of 50 units of eligible education within a two year period, with at least 35 units of the total coming from the completion of suitable formal professional development programs (seminars and symposia, meeting sessions, professional examinations, and courses with providers to include actuarial organizations, employers, universities and commercial entities) and 15 units from the completion of a professional project and communication of the relevant aspects of the project.

Within the formal program component, a unit is defined as the equivalent of a formal seminar hour; programs must be selected in accordance with the objectives of the PD experience. The two-year effective period begins with the completion date of the earliest program within the candidate's individual plan. However, recognized/accepted evaluation-validated options such as professional examinations have no expiration date and do not determine the effective starting point for a candidate's PD program.

Application for credit for the Professional Development component cannot be made until the candidate has passed all of the examination requirements in the Basic and Advanced categories (Courses 1-8). Candidates planning to make use of formal programs (excluding evaluation-validated options) taken prior to, but within two years of, the passing of the last Basic or Advanced course may submit their Professional Development plan to the SOA within one month of receiving notice of passing their final course examination. Application earlier in the process will be automatically denied; this restriction is intended to minimize the nonproductive effort expended by candidates, advisors, and the SOA volunteers on Professional

Development plans in which a significant part of the program will expire before the candidate can actually meet the prerequisite requirements for Professional Development.

For standard practice areas, models developed by the SOA will list a range of courses, seminars, experiences and activities that can be selected to fulfill 35 units. This in conjunction with the completion and communication of the project (15 units), leads to the candidate being recognized as having fulfilled the Professional Development requirement.. There currently are nine standard practice areas identified by the Task Force, those being Life, Pension, Health, Property/Casualty, Software, Finance, Investments, Research, and University.

Several of these practice areas require the consideration of country-specific concerns, owing to regulatory considerations. For each standard practice area, and where appropriate, the major (regulatory) jurisdictions of practice, a model will be developed that will consist of recommended courses, experiences, and activities that would provide suitable professional development for the candidate. Examples of plans based on activities and programs that would be recognized within the standard practice models are included in the appendix to this proposal.

Where candidates use these standard practice models, no formal SOA approval is required before the candidate begins the process. The candidate will of course still need to confer with his/her advisor.

Where candidates wish to go outside the standard practice areas, or are interested in using courses, experiences and activities not covered by the models, the candidates will be required to file a plan describing the program the candidate would like to pursue. Candidates must obtain a recommendation for approval from the advisor and approval from the SOA.

Standard values for program elements:

SOA approved:

Seminars of professional actuarial organizations	6 units per day
Meeting session, professional actuarial organizations	1 unit per hour

Not SOA approved:

Graduate level course at accredited University	Maximum of 10 units of credit
Seminars provided by university, employer, commercial vendor	5 units per day, 10 maximum

Structure

At the onset, the candidate identifies his/her chosen practice area, territory or jurisdiction of practice, if applicable, and type of professional environment (business connection) in which he/she plans to practice. In consultation with the advisor the candidate identifies goals for his/her PD plan and develops an individual PD plan.

Programs are selected to address the education objectives as they relate to the development of the individual candidate. Where the programs selected are included in the model plans developed and provided by the SOA, the programs are accepted automatically as meeting consistency and rigor expectations. For custom plans, either within or outside traditional areas of practice, the advisor will confirm that the rigor and content of the plan elements are consistent with the

standards established by the model plans. Where the advisor is unable or unwilling to confirm the acceptability of custom plan elements, the SOA will serve as the arbiter.

The requirement for the formal program segment of the PD component is completion of a minimum of 35 units, of which at least 20 units are from SOA-approved programs, identified in the model plans, in the SOA continuing education catalog, or through special request to the SOA for program approval.

In the project segment, the candidate defines a project, addressing an issue of relevance to his/her chosen practice area. After identifying the project (issue), the candidate undertakes the needed research and investigation, conducting the appropriate literature search or data collection, analyzing the data, and articulating the conclusions and recommendations reached from the research and analysis. The project should represent a significant work product, and may be associated with, but not identical to, work done in conjunction with employment. To effect successful completion of this element of the PD requirement, the candidate will communicate the essential aspects of the project in a medium, oral or written, that provides an opportunity for peer review and comment. The SOA may, at its discretion, decide to publish detailed information about successfully completed projects, including the identification of the candidates.

SOA-approved programs

The programs cited within the previously approved framework for the Professional Development component (being superseded by this document) are seminars and symposia offered by the SOA, CAS, CIA, AAA, etc., along with graduate-level courses at accredited universities. In addition, evaluation-validated programs (additional Course 8, CFA examinations, practice specific examinations or programs required by the Joint Board or AAA or CIA, etc.) are recognized as being SOA-approved programs. Conversion credit from passing examinations in the current (pre-2000) basic education system is recognized as SOA-approved credit.

With the possible exception of graduate-level courses, the SOA-approved programs share the characteristic of generally being technical and closely related to the practice of the actuary. This in essence prescribes that candidates will be expected to rely on technically based programs for more than 50% of the credit needed to satisfy the PD requirement. There will be situations where this implicit assumption will not be met, and the SOA approval mechanism will be sufficiently flexible to permit this deviation where the legitimate professional education objectives of the individual candidate warrants such treatment.

No mention is made within the previously approved framework of sessions at the professional meetings of recognized actuarial organizations. There certainly are a number of sessions at these meetings that would be both suitable and valuable as professional development experiences, although there are also sessions that would contribute relatively little to the education of the candidate. Within the planning of the SOA's Continuing Education Coordinating Committee, provision will be made for a mechanism to establish and publish/publicize which sessions earn PD credit, and the magnitude of that credit. It may be necessary to put some limitations/restrictions in

place that will guarantee a threshold concerning content and relevance, so that candidates do not squander their opportunities to acquire useful experiences that fit into their PD plans/programs.

Values for Examination validated options (all SOA-approved)

Course 8	25 units
Passing all CFA exams	25 units total
Passing all EA exams	25 units total
Passing all CLU exams	5 units
Passing all CPCU exams	5 units
Passing all ChFC exams	5 units

Research paper option 25 units (counts as the 15 units for the required project/ communication component, plus 10 units of the 35 units required from formal programs required)

Ph.D. dissertation and published research papers are also eligible for credit, if relevant.

The list of examination validated options presented above should be viewed as illustrative rather than exhaustive. Other professional examinations such as those of the CAS, the consulting examinations of ASPA, the CPA/CA examinations will all be recognized toward completion of the Professional Development requirement; however, the associated values for these examinations have not yet been determined.

Advisor

The candidate may recruit one or more individuals to serve as advisors to his/her PD program. Where the candidate chooses to have an advisory panel, he/she may elect to include non-FSA's. The advisor or, in the case of a panel, the head of the panel must be an FSA, and have been an FSA for at least 5 years. There are no employer/employee restraints on the relationship between the candidate and the advisor; the professionalism of both parties governs, and they are subject to the SOA professional code and related requirements.

In general the role of the advisor is to review the candidate's PD plan, comment on the plan, guide the candidate in developing a plan that will help fulfil the candidate's PD needs, and concur with the appropriateness of the plan in fulfilling those needs. The advisor will be expected to assist the candidate as committed to when agreeing to serve as the candidate's advisor, but responsibility for the execution of the plan rests solely with the candidate. The advisor will be asked to declare the plan executed, including the completion and communication of the project if appropriate, and will so attest via signature on a document to be submitted to the SOA. The specific agreements between the advisor and the candidate, and the advisor and the SOA will be documented in letters of commitment, to be provided by the SOA.

The SOA will provide as reference support for the candidate and advisor the following:

- Guidelines for candidate and advisor
- CE catalog
- Models
- Examples of work products and research
- Resource list
- SOA meeting sessions, for training and discussion of advisor's

role

B. Conversion Rules

For candidates who have not attained their FSA when the new system becomes effective, conversion rules have been created to determine the credit awarded under the new system for course credits obtained under the current system. The conversion rules are:

Course 1, Mathematical Foundations of Actuarial Science — credit given if candidate has passed either Course 100 or Course 110. If a candidate has passed both courses, credit is received for Course 1 plus 20 unassigned credits.

Course 2, Interest Theory, Economics and Finance — credit given if candidate has 20 unassigned credits plus passed Course 140 or 141.*

Course 3, Actuarial Models — credit given if candidate has passed both Course 150 and Course 151. Credit is also given if a candidate has passed Course 150 plus 30 unassigned credits.

Course 4, Actuarial Modeling — credit given if candidate has passed Course 120, Course 160, and CAS 4B. Alternatively, credit will also be given if a candidate has passed two out of the three courses (120, 160 or CAS 4B) as well as 20 unassigned credits.** If a candidate does not have sufficient credit to obtain Course 4 credit, 15 unassigned credits will be awarded for each of the specified courses passed.

Course 5, Application of Basic Actuarial Principles — credit given if candidate has credit for both Courses 200 and 210.

Course 6, Finance and Investments — credit given if a candidate has credit for both Courses 220 and 230. Alternatively, credit will be given if a candidate has credit for Course 220 and 25 unassigned credits. Candidates who have credit for Courses 1-6 at the time conversion will attain the ASA designation.

Course 7, Applied Modeling — credit given for 50 unassigned credits.

Course 8, Advanced Actuarial Practice — credit given if a candidate has 50 credits from required courses within a single track plus 10 unassigned credits.

Professional Development — requirement will be satisfied if the candidate has 50 unassigned credits.

* Candidates who passed CAS Part 4A prior to August 1997 may substitute CAS Part 4A for Course 140 or 141 to obtain credit for Course 2.

** Candidates are advised that the CIA currently requires candidates wishing to attain the

FCIA designation by virtue of attaining the FSA to pass Part 4B of the CAS syllabus. It is anticipated that the CIA will hold candidates to this requirement independent of the conversion rules for Course 4 credit.

Unassigned credits can be used, as described in these conversion rules, to help gain credit for specific Courses 1-8 or for credit toward the Professional Development requirement, according to the following conditions:

1. Unassigned credits must be used to meet the requirements for Courses 1-8 in ascending order (except as noted in bullet 3 below)
2. Unassigned credits will be awarded for any course from the current system that is not being used for direct conversion credit for a course under the new system. Courses retain the original credit value earned when passed, unless otherwise specified.†
3. Unassigned credits not used for Courses 1-8 will be credited toward the Professional Development requirement and will not expire. Fifty (50) unassigned credits will complete the Professional Development requirement.
4. Credits from required courses within a specialty track will be retained for use toward Course 8 (unless the candidate does not have sufficient track credits or unassigned credits to satisfy the Course 8 requirement). Unassigned credits will be used toward Course 8 before being applied to Course 7. (This means that a candidate who has 50 credits from track required courses plus at least 10 unassigned credits will receive credit for Course 8. This candidate would receive credit for Course 7 only if the candidate has another 50 unassigned credits.)

Candidates wishing to attain credit with the SoA for Courses 3 and 4 in the new education system will need to pass Course 3 and 4 or attain credit for them via the SoA conversion rules.

Candidates who do not expect to have completed all requirements for the ASA or FSA prior to the year 2000 are generally advised to concentrate on passing the required courses in the current system. All courses passed in the current system will earn credit in the new system, but the required courses are more directly tied to the subjects covered in the new system.

Candidates or members with questions concerning the new design system and conversion rules should contact the SoA Ombudsperson at 847-706-3527 (phone); 847-706-3599 (fax); or pholmberg@soa.org (e-mail).

† As EA-1,B is a separate required component for the Course 8, U.S. Retirement Systems examination, credit for the EA-1,B will not automatically become unassigned credit at the time of the conversion. Candidates wishing to use EA-1,B as unassigned credit will be required to confirm, in writing, that they will be completing a Course 8 specialty other than U.S. Retirement Systems.

APPENDIX II

Credit for Research Papers

A. Purpose

One of the specific responsibilities of the SoA is to promote research in actuarial science and to publish the results. As a recognition of that responsibility, the SoA provides candidates with the opportunity to earn 30 elective credits toward Associateship or Fellowship by successfully completing a research paper in lieu of passing a traditional examination. This option is intended to encourage the development of research skills which will be of benefit to candidates, their employers, their clients, and to the profession as a whole. The detailed administrative rules and procedures are outlined below.

B. Application and Approval Process

1. Parties to the Process

- a. The SoA office handles all administrative coordination.
- b. The Research Paper Committee (RPC) approves supervisors, approves candidates' proposals for papers, selects appropriate referees, and determines whether or not final papers are acceptable. The RPC also makes suggestions to improve the acceptability of otherwise marginal proposals and papers.
- c. The supervisor acts as overall advisor to a candidate, similar to the role of an academic advisor for a Master's thesis. The supervisor is expected to ensure that the candidate adheres to the rules of the SoA and the RPC in the preparation of the research paper. The supervisor must write an evaluation based on the proposal for the paper. The evaluation should indicate what is new, creative or original and why the proposed paper is worth pursuing.

The supervisor must be either an Associate or a Fellow of the SoA. The RPC reserves the right to disallow supervisors who may have a conflict of interest. The supervisor must have adequate expertise in the area of the proposed paper and must be experienced in performing research in order to advise the candidate adequately and to help develop the candidate's research skills. This requirement would generally be satisfied by the supervisor's having published a paper in the *North American Actuarial Journal* (NAAJ), the *Transactions, Society of Actuaries* (TSA) or a comparable publication.

It would not be unusual for a supervisor to give guidance to candidates in identifying suitable topics for research papers. Supervisors are expected to provide overall guidance during the research stage of the project, including reviewing and commenting on the outline and the various drafts of the research paper. Supervisors will prepare progress reports at

the end of each three-month interval from the date the proposal is accepted, and serve as a referee of the final paper.

2. Overview of Process

An application and information packet can be obtained from the Education Department at the SoA office. The completed application form, with an outline of the proposed research paper and the application fee, is sent to the SoA office for processing. The candidate's supervisor must consent by signing the application form as well as writing an evaluation which indicates what is new, creative or original and why the paper is worth pursuing. A candidate who wishes to elect this option but does not know a qualified supervisor can contact the SoA office for assistance in locating a supervisor for the paper.

The outline of the paper will be sent to members of the RPC for approval. The candidate will be informed of the RPC's decision approximately one month from the initial receipt of the completed application in the SoA office. If the proposal is not approved, the candidate will be informed of the reasons and given suggestions for improvement. In this case, an amended application can be submitted with no additional application fee. If no revised proposal is forthcoming within two months, the process is considered closed.

Once the application has been approved, the candidate has one month in which to submit the research paper fee. Upon submission of the fee, the candidate will be given up to eight months to complete the research paper. If the completed research paper is not submitted within eight months, the candidate will need to resubmit an application with the appropriate fees and begin the process anew.

Upon completion, the candidate will submit the research paper to the SoA office in the specified format with the appropriate number of copies. The SoA office will distribute the paper to the referees chosen by the RPC for their review.

Review is generally completed within three months. If revisions are required, the candidate will be informed and be given up to four months to complete the requested revisions. The paper will be reviewed a second time, and a decision will be made on its acceptability.

The referees will report the results of their review to the RPC.
The RPC will determine whether or not the paper is acceptable.

3. Fees

Currently, the application fee is \$60, and the research paper fee is \$300. The application fee is non-refundable. In the event that an application as submitted is rejected, but the RPC has suggested changes to make the application acceptable, no additional application fee will be assessed, provided that an amended application is received in the SoA office within two months of the letter notifying the candidate of the initial refusal.

4. Approval Process

All applications will be reviewed by the SoA office for compliance with requirements. Outlines of papers will be sent to the RPC for their approval. The outline should be as complete as

possible and detailed enough to address the following items:

- a. Define the problem or issue, indicate its relationship to actuarial practice or theory, and discuss why it is worth pursuing.
- b. Indicate the methods and techniques that will be used to study the problem or issue.
- c. Outline the topics to be covered in the paper.
- d. Include a discussion of the published literature on the topic and attach a bibliography.
- e. Explain how the paper will extend the current body of knowledge on the subject. Indicate what is new, creative, or original about your proposal.
- f. Include suggestions for future work on the topic.

The RPC will not know the identity of the candidate, but will be informed of the identity of the supervisor.

When an application is not approved, the SoA office will inform the candidate and describe what is required for approval (e.g., more appropriate subject; more detailed outline; change in direction or emphasis of paper). If a revised application is not received within two months, it is assumed that the candidate does not wish to pursue writing a research paper on this topic and the process is closed.

When an application is approved, the SoA office notifies the candidate and the supervisor. The candidate must submit the research paper fee to the SoA office within one month from the date of the notification letter. Failure to do so will incur a late fee and will eventually result in cancellation of the approval. The candidate is informed that the paper may not be submitted earlier than two months nor later than eight months from the date of notification. The candidate is provided with a copy of the research paper guidelines detailing format, number of copies and other procedures.

Candidates are requested to notify the SoA one month prior to the anticipated submission date so that referees can be arranged in a timely fashion. Failure to do so may delay the review process. Supervisors are requested to provide progress reports to the SoA office at the end of each three-month period following the date the proposal is accepted. If a research paper is not received within the eight-month deadline, the candidate will be notified that he or she will be required to reapply and the process will begin anew.

C. Completed Research Papers

1. Initial Disposition

The candidate submits **nine copies** (eight copies plus one unbound original) of his/her research paper to the SoA office, together with an abstract of six to eight lines. The SoA office acknowledges receipt and distributes copies of the paper and the previously approved outline to the referees and the RPC. A minimum of three referees will be utilized. The candidate's supervisor will be one of the referees. The author will be anonymous to all other referees.

2. Review Process

The RPC will review the referees' reports and determine if the paper is accepted or rejected for credit or if revisions are required before a final decision can be made. The candidate will be notified of this review's results within three months from the SoA's acknowledgment letter.

If revisions are required, the candidate will be given up to four months to revise the paper. If the paper is rejected (no amount of revision can make it acceptable), the candidate may submit another application.

If the paper is accepted, the candidate will receive 30 elective credits, and the results will be communicated to the profession in *The Actuary*.

3. Publication

Papers accepted for credit will be placed in the SoA library. It is expected that such papers will be published by the SoA on a regular basis. *The Actuary* will be used to communicate the successful completion of research papers by candidates and to acknowledge publicly the work of the referees. The titles of such papers and their synopses will also be included.

If the paper contains proprietary material, it may be withheld from circulation to the membership for up to one year. This will require a specific request to the RPC (generally by the candidate's employer), and a specific authorization by the RPC. Any such request cannot preclude review by the referees.

The Everett Curtis Huntington Prize is awarded to the best research paper which receives credit under the Society's educational program for research papers. The prize, which consists of a cash award of \$1,000 and a plaque, is awarded under the administration of the directors of the Actuarial Education and Research Fund. See the *SoA Yearbook* for a more complete description of the prize and its purpose.

D. Research Paper Guidelines

1. General

The research paper should demonstrate the candidate's ability to work independently and creatively on a meaningful actuarial problem. The paper should reflect the appropriate application of both theoretical insight and methodological skill to the examination of a substantial actuarial issue. The paper must be a substantial effort, containing a detailed discussion of the problem under investigation and discussion of the published literature on the subject. It must contain some original work. These standards are intended to be comparable to those required for a significant Master's research thesis. It is expected that typical research papers will be 20-80 pages in length. The research paper must be completed in its entirety (both the research and writing) by the candidate. Substantially all the work must be done after the application is made to the SoA office.

2. Quality

The paper should be of comparable quality to papers published in NAAJ, PCCA (formerly PCAPP), TSA and JRIA. A paper which has been accepted for credit will be published in ARCH, unless a candidate wishes to submit the paper to some other publication. Accordingly, candidates should strive to attain the highest standards of scholarly writing including:

- a. Observation of all the principles of mature, formal expository prose;
- b. Use of third person and avoidance of jargon; and
- c. Completeness and sound reasoning to a greater degree than in many other kinds of prose.

3. Characteristics of a Research Paper

A good research paper requires individual investigation. It should start with an identification of the actuarial problem being researched, including a discussion as to why the problem is relevant and important. It should contain a review of what is known currently concerning the problem including a formal bibliography.

The candidate is required to synthesize and analyze the information presented and arrive at appropriate conclusions regarding the problem. Finally, the paper should conclude with nontrivial suggestions for future work on the topic.

Reference material may be used to support the candidate's theme, but the candidate is expected to contribute some original work. The candidate may be requested to furnish copies of reference material for review by the RPC or the referees. If the basis of a candidate's research paper is work that has been accepted previously by an academic institution, journal or society, then the candidate must disclose this information to the RPC at the time the proposal is submitted.

Note: While an acceptable paper should be of comparable quality to a significant Master's research thesis or a paper published in the NAAJ or TSA, not all papers accepted there would necessarily qualify for credit. There are generally four types of papers published in the NAAJ and TSA. These are: research papers, educational papers, comprehensive reviews, and papers on practical topics. Papers in the last three categories would generally not meet the requirement for some original work. Submission Guidelines for Authors in NAAJ contains the following description of papers appropriate to the NAAJ:

"In general, we are looking to publish papers in the NAAJ that provide a springboard for the further development of education, research or improved practice. Types of papers include but are not limited to those that: present original research or new applications of existing research in actuarial science; educate actuarial candidates or members of the actuarial profession; survey timely topics in an actuarial context; offer useful insights into topics important to practicing actuaries; combine disparate aspects of an actuarial subject into a unified whole; promote dialogue or research on developing issues of interest to actuaries."

APPENDIX III

Books Included in the Course of Reading

Order books as soon as possible in case there are delays. Any candidate who experiences a delay in obtaining a book from the publisher should contact the SoA office immediately.

For texts available from the SoA, see the order form at the back of this Catalog.

A "†" indicates a new textbook or a new edition of a textbook for May 1999.

COURSE(S)

- | | |
|---|--|
| P-360
[EA-1,B] | Aitken, W.H., <i>Pension Funding and Valuation</i> (Second Edition), 1996, ACTEX Publications. |
| P-363 | Allen, E.T., Melone, J.J., Rosenbloom, J.S., and VanDerhei, J.L., <i>Pension Planning</i> (Eighth Edition), 1997, Irwin Professional Publishers, order from Mc-Graw Hill or book distributors. |
| P-359C,
P-360U
[EA-1,B],
P-461U,
P-462C | Anderson, A.W., <i>Pension Mathematics for Actuaries</i> (Second Edition), 1990, ACTEX Publications. |
| 100 | Anton, H., <i>Elementary Linear Algebra</i> (Seventh Edition), 1994, John Wiley & Sons and John Wiley & Sons Canada, Ltd. |
| †230 | Babbel, D. and C. Merrill, <i>Valuation of Interest-Sensitive Financial Instruments</i> , 1996, Fabozzi & Associates. |
| 141 | Batten, R.W., <i>Life Contingencies - A Guide for the Actuarial Student</i> , 1997, ACTEX. |
| P-564 | Berenblut, M.L. and Rosen, H.N., <i>Litigation Accounting: The Quantification of Economic Damages</i> (Student Edition), 1997, Carswell Publishers. |
| P-360U
[EA-1,B] | Berin, B.N., <i>Fundamentals of Pension Mathematics</i> , 1989, SOA. |
| 200,
I-540 | Black, Jr., K., and Skipper, Jr., H.D., <i>Life Insurance</i> (Twelfth Edition), 1994, Prentice-Hall Simon Schuster and Prentice-Hall Canada, Inc. |
| G-420C,
G-421U,
G-422 | Bluhm, W.F., editor, <i>Group Insurance</i> (Second Edition), 1996, ACTEX Publications. |
| 141
[EA-1,A],
150,
151 | Bowers, N.L., Jr., et al, <i>Actuarial Mathematics</i> (Second Edition), 1997, Society of Actuaries. |

- F-580 Brealey, R.A. and Myers, S., *Principles of Corporate Finance* (Fifth Edition), 1996, McGraw-Hill Book Company and McGraw-Hill Ryerson, Ltd.
- I-443, F-580 Brenner, H.F. et al, *Life Insurance Accounting*, 1994, Insurance Accounting and Systems Association, Inc.
- 141 [EA-1,A] Broverman, S.A., *Mathematics of Investment and Credit* (Second Edition), 1996, ACTEX Publications.
- 161 Brown, R.L., *Introduction to Mathematics of Demography*, (Third Edition), 1997, ACTEX Publications.
- 135 Burden, R.L. and Faires, J.D., *Numerical Analysis* (Sixth Edition), 1997, International Thomson Publishing or ITP Nelson, Canada.
- 141 [EA-1,A] Butcher, M.V. and Nesbitt, C.J., *Mathematics of Compound Interest*, 1971, Ulrich's Bookstore. [**Note:** Out of print]
- †V-480, †F-580, †F-585 Chew, Jr., D., *The New Corporate Finance: Where Theory Meets Practice*, (Second Edition), 1999, McGraw-Hill Book Company and McGraw-Hill Ryerson, Ltd.
- V-480 Chriss, N.A., *Black-Scholes and Beyond: Option Pricing Models*, 1997, Irwin Professional Publishing.
- V-480 Chriss, N.A., *The Black-Scholes and Beyond Interactive Toolkit*, 1997, Irwin Professional Publishing. [**Note:** recommended but not required.]
- †230 Fabozzi, F.J., Editor, *Bond Portfolio Management*, 1996, Frank J. Fabozzi Associates.
- 230 †P-363 Fabozzi, F.J. et al., *Handbook of Fixed Income Securities* (Fifth Edition), 1997, Irwin Professional Publishing, order from McGraw-Hill or book distributors.
- P-360U (EA-1,B) Farrimond, W. and Mayer, D., *Actuarial Cost Methods, A Review, EA-1(B) Study Notes* (Second Edition), 1994, ASPA Book Order Department, ASPA.
- G-525U Frost, K.L., Gifford, D.L., Seltz, C.A., and Sperling, K.L., *Fundamentals of Flexible Compensation* (Second Edition), 1992, John Wiley & Sons Publishing and John Wiley & Sons Canada, Ltd. [**Note:** Out of Print. Available in complete set of study notes.]
- F-585 Greenbaum, S. and Thakor, A., *Contemporary Financial Intermediation*, 1995, Harcourt Brace Companies.
- 200, P-462C Hall, G.M., *Mercer Handbook of Canadian Pension and Benefit Plans* (Eleventh Edition), 1996, CCH Canadian, Ltd.
- 130 Hillier, F. and Lieberman, G., *Introduction to Operations Research* (Sixth Edition), 1995, McGraw-Hill, Inc. and

McGraw-Hill Ryerson, Ltd.

- 110 Hoel, P.G., S.C. Port and C.J. Stone, *Introduction to Probability Theory*, 1971, and *Introduction to Statistical Theory*, 1971. [**Note:** out of print]
- 110 Hogg, R.V. and Craig, A.T., *Introduction to Mathematical Statistics* (Fifth Edition), 1995, Prentice-Hall Simon & Schuster and Prentice Hall Canada.
- 110 Hogg, R.V. and Tanis, E.A., *Probability and Statistical Inference* (Fifth Edition), 1997, Prentice-Hall Simon & Schuster.
- V-480 Hull, J.C., *Options Futures and Other Derivative Securities* (Third Edition), 1997, Prentice-Hall Simon Schuster and Prentice-Hall Canada, Inc.
- 141 Jordan, C.W., *Life Contingencies* (Second Edition), 1967, Society of Actuaries. [**Note:** out of print]
[EA-1,A]
- 140, Kellison, S.G., *The Theory of Interest* (Second Edition),
141 1991, Irwin Professional Publishers, order from McGraw-
[EA-1,A] Hill or book distributors.
- 100 Kolman, B., *Introductory Linear Algebra with Applications* (Sixth Edition), 1997, Prentice-Hall Simon & Schuster and Prentice Hall Canada.
- G-421 Kongstvedt, P.R., *The Managed Health Care Handbook* (Third Edition), 1996, Aspen Publishers, Inc.
- I-540 Kotler, P., *Marketing Management* (Ninth Edition, U.S. Edition only), 1997, Prentice Hall Simon Schuster and Prentice Hall Canada, Inc.
- I-340, LaPorte, P., editor, *Marketing for Actuaries*, 1993,
I-540 LIMRA.
- P-363 Leibowitz, Bader and Kogelman, *Return Targets and Shortfall Risks: Studies in Strategic Asset Allocation*, 1996, Irwin/McGraw-Hill
- 165 London, D., *Graduation: The Revision of Estimates*, 1985, ACTEX Publications.
- 160 London, D., *Survival Models and Their Estimation* (Third Edition), 1997, ACTEX Publications.
- G-524C McKay, R.J., Editor, *Canadian Handbook of Flexible Benefits*, (Second Edition), 1996, John Wiley & Sons Canada, Ltd.
- I-442C, *Measuring Financial Performance in the Life Insurance Industry*, 1992, LOMA [Candidates may order this text
I-443U directly from LOMA. Mention the SOA when ordering for a reduced fee.]

- 110 Mood, A.M., Graybill, F.A. and Boes, D.C., *Introduction to the Theory of Statistics* (Third Edition), 1974, McGraw-Hill Book, Inc. And McGraw-Hill Ryerson, Ltd.
- G-421, O'Grady, F.T., Editor, *Individual Health Insurance*, 1988, Society of Actuaries.
G-422
- †230 Panjer, H, Editor, *Financial Economics*, 1998, The Actuarial Foundation [order through book distributors or from the Society of Actuaries].
- 141 Parmenter, M.M., *The Theory of Interest and Life Contingencies with Pension Applications: A Problem-Solving Approach*, 1988, ACTEX Publications.
[EA-1,A]
- 120 Pindyck, R. and Rubinfeld, D., *Econometric Models and Economic Forecasts* (Fourth Edition), 1998, McGraw-Hill
- 100 Purcell, E.J. and Varberg, D., *Calculus with Analytic Geometry* (Sixth Edition), 1992, Prentice-Hall Simon Schuster and Prentice-Hall Canada, Inc.
- †200 Rejda, G.E., *Social Insurance and Economic Security* (Sixth Edition), 1999, Prentice Hall Simon Schuster and Prentice-Hall Canada, Inc. NOTE: the Fifth Edition may be used for this exam only
- 121 Roberts, H.V., *Data Analysis for Managers with MINITAB* (Second Edition), 1991, International Thomson Publishing and ITP Nelson, Canada.
- G-422 Sutton, H.L., and Sorbo, A., *Actuarial Issues in the Fee-For-Service/Prepaid Medical Group* (Second Edition), 1993, Medical Group Management Association.
- 110 Tanur and Mosteller, et al, *Statistics: A Guide to the Unknown* (Third Edition), 1989, International Thomson Publishing and Nelson, Canada.
- 100 Thomas, G.B., Jr. and Finney, R.L., *Calculus and Analytic Geometry* (Ninth Edition), 1996, Addison-Wesley Publishing Company and Addison-Wesley Publishers, Ltd.
- I-550 Tiller, J.E., and Fagerberg, D., *Life, Health and Annuity Reinsurance* (Second Edition), 1995, ACTEX Publications.
- I-443U Tullis, M.A., and Polkinghorn, P.K., *Valuation of Life Insurance Liabilities* (Third Edition), 1996, ACTEX Publications.
- F-585 Uyemura, D. and Van Deventer, D., *Financial Risk Management in Banking*, 1993, Irwin Professional Publishers.

APPENDIX IV

Publishers and Ordering Information

The book distributors listed below carry textbooks for the SoA courses. Order forms from these distributors are included with each SN order, or they may be obtained from the Education Services Representative at 847-706-3515.

Order forms contain information such as prices, shipping charges, mailing policy and credit card acceptance. Any distributor who carries textbooks for SoA courses may have an order form included in this set unless the SoA office receives substantial complaints about service.

Candidates should notify the Study Note Department at the SoA in writing if they encounter serious problems with any distributor.

Distributors -- Canada and United States

The Actuarial Bookstore
30 Center Road #7
Somersworth, NH 03878
Phone: 800-582-9672
Phone: 603-692-5599
Fax: 603-692-5597
E-Mail:
sales@actuarialbookstore.com
Website:
www.actuarialbookstore.com
-Accepts phone orders
-Accepts credit cards

Actuarial Study Materials
P.O. Box 522
Merrick, NY 11566
Phone: 888-ASK-4ASM (toll free)
Phone: 888-275-4276 (toll free)
Phone: 516-868-2083
Fax: 516-868-6595
E-Mail: asm@webcentre.com
Website: www.ask4asm.com
-Accepts phone orders
-Accepts credit cards

Evans Bookstore
11 Irwin Avenue
Toronto, ON M4Y 1L1
Canada
Phone: 416-964-0161
Fax: 416-964-7305
-Accepts phone orders

Mad River Books (a division of
Actex Publications)
P. O. Box 974
Winsted, CT 06098
Phone: 800-282-2839
Fax: 860-738-3152
E-Mail: retail@actexmadriver.com
Website: www.actexmadriver.com
-Accepts phone orders
-Accepts credit cards

Publishers -- United States

ACTEX Publications
 P. O. Box 974
 Winsted, CT 06098
 Phone: 800-282-2839
 Fax: 203-738-3152
 E-mail: retail@actexmadriver.com
 -Accepts phone orders
 -Accepts credit cards

Addison-Wesley
 LongmanPublishing Co.
 Attn: Corporate Services
 One Jacob Way
 Reading, MA 01867
 Phone: 800-822-6339
 Fax: 800-367-7198
 -Accepts phone orders
 -Accepts credit cards

ASB (Actuarial Standards Board)
 c/o American Academy of
 Actuaries
 1720 I Street NW, 7th Floor
 Washington, DC 20006
 Phone: 202-223-8196
 Fax: 202-872-1948

American Society of Pension
 Actuaries (ASPA)
 Book Order Department
 Department 417
 P. O. Box 753
 Waldorf, MD 20604
 Phone: 301-645-0756
 -Accepts phone orders

Aspen Publishers, Inc.
 Distribution Center
 7201 McKinney Circle
 Frederick, MD 21701
 Phone: 800-638-8437
 Fax: 301-695-7931
 -Accepts phone orders
 -Accepts credit cards

Frank J. Fabozzi & Associates
 858 Tower View Circle
 New Hope, PA 18938-9400
 Phone: 215-598-8924
 Fax: 215-598-8932
 -Accepts phone orders
 -Accepts American Express

Harcourt Brace Companies
 6277 Sea Harbor Drive
 Orlando, FL 32887-6777
 Phone: 800-544-6678
 Phone: 800-433-6303
 -Accepts phone orders
 -Accepts credit cards

Insurance Accounting and
 Systems Association, Inc.
 P.O. Box 51008
 Durham, NC 27707-1008
 Phone: 800-817-4272
 Phone: 919-489-0991
 Fax: 800-668-4272

Irwin/McGraw-Hill
 6350 Crested Butte Circle
 Colorado Springs, CO 80919
 Phone: 800-338-3987
 Fax: 719-533-1127
 -Accepts phone orders
 -Accepts credit cards

International Thompson
 Publishing
 7625 Empire Drive
 Florence, KY 41042
 Phone: 800-347-7707
 Phone: 800-487-5510
 Fax: 606-525-1543
 -Accepts phone orders
 -Accepts credit cards

LIMRA
 Attn: Customer Service
 P. O. Box 208
 Hartford, CT 06141
 Phone: 800-235-4672
 Fax: 860-298-9555

LOMA
2300 Windy Ridge Parkway
Suite 600
Atlanta, GA 30339-8443
Phone: 770-984-3784
Phone: 800-275-5662
Fax: 770-984-6417
Fax: 770-984-0441
-Accepts phone orders
-Accepts credit cards
-Mention you are an SoA student
to receive student price

Medical Group Management
Association
Denver, CO 80256-0444
Phone: 303-397-7888
Fax: 303-643-4439
-Accepts credit cards
-Prepayment required

Prentice-Hall Simon Schuster
Order Processing Center
P.O. Box 11071
Des Moines, IA 50336-1071
Phone: 800-947-7700
Phone: 800-374-1200
Fax: 515-284-2607
Fax: 800-835-5327
-Accepts phone orders
-Accepts credit cards

Richard D. Irwin, Inc. - See
Irwin/Mc-Graw Hill

Society of Actuaries
475 North Martingale Road
Suite 800
Schaumburg, IL 60173-2226
Phone: 847-706-3526
Fax: 847-706-3599
-Prepayment required
-Accepts Visa and MasterCard
-Use order form in Catalog center

Ulrich's Bookstore
549 East University Avenue
Ann Arbor, MI 48104
Phone: 800-288-5497x 212
Fax: 313-662-7859
-Accepts phone orders
-Accepts credit cards

John Wiley & Sons Publishing
1 Wiley Drive
Somerset, NJ 08875
Phone: 800-225-5945
Fax: 908-302-2300
Fax: 800-597-3299
-Accepts credit cards
-Accepts phone orders
-No shipping charge for prepaid
orders

Publishers -- Canada

Addison-Wesley Publishers, Ltd.
26 Prince Andrew Place
P. O. Box 580
Don Mills, ON M3C 2T8
Phone: 416-447-5101
Phone: 800-387-8028
Fax: 416-443-0948
Fax: 800-465-0536
-Accepts phone orders
-Accepts credit cards

Carswell
Customer and Order Services
2075 Kennedy Road, 11th Floor
Scarborough, ON M1T 3V4
Phone: 800-387-5164
Fax: 416-298-5082
-Prepayment required
-Accepts credit cards

CCH Canadian, Ltd.
Order Desk
6 Garamond Court
North York, ON M3C 1Z5
Phone: 416-441-0086
Phone: 800-268-4522
Fax: 800-461-4131 (Canada)
Fax: 416-441-4001
-Accepts phone orders
-Accepts credit cards

McGraw-Hill Ryerson, Ltd.
300 Water Street
Whitby, ON L1N 9B6
Phone: 905-430-5000
or 800-565-5758 (Canada)
Fax: 905-430-5203
or 800-463-5885
-Accepts phone orders
-Accepts credit cards

ITP Nelson, Canada
1120 Birchmount Road
Scarborough, ON M1K 5G4
Phone: 416-752-9100
or 800-268-2222 (Canada)
Fax: 416-752-8101
-Accepts phone orders
-Accepts credit cards

Prentice-Hall Canada, Inc.
539 Collier Macmillian Drive
Cambridge, ON N1R 5W9
Phone: 800-567-3800
Fax: 800-263-7733
-Accepts phone orders
-Accepts credit cards

John Wiley & Sons Canada, Ltd.
22 Worcester Road
Etobicoke, ON M9W 1L1
Phone: 416-236-4433
Fax: 416-236-8743
-Accepts credit card orders
-No shipping/handling charges for
prepaid orders

APPENDIX V

Joint Sponsors of SoA Examinations

American Academy of Actuaries
(All Examinations)
1100 17th Street, N.W.
7th Floor
Washington, DC 20036 USA
Phone: 202-223-8196
Fax: 202-872-1948
Website: www.actuary.org

American Society of Pension
Actuaries
(Pension Enrollment
Examinations)
4350 N. Fairfax Drive, Suite 820
Arlington, VA 22203-1619
Phone: 703-516-9300
Fax: 703-516-9308
Website: www.aspa.org

Canadian Institute of Actuaries
(All Examinations)
360 Albert Street, Suite 820
Ottawa, ON K1R 7X7 Canada
Phone: 613-236-8196
Fax: 613-233-4552
Website: www.actuaries.ca

Casualty Actuarial Society
(Course Examinations 100-120,
135)
1100 North Glebe Road, Suite
600
Arlington, VA 22201 USA
Phone: 703-276-3100
Fax: 703-276-3108
Website: www/casact/org

Conference of Consulting
Actuaries
(All Examinations)
1110 West Lake Cook Road,
Suite 235
Buffalo Grove, IL 60089
Phone: 847-419-9090
Fax: 847-419-9091
Website: CCAactuaries.org

Joint Board for the Enrollment of
Actuaries
(Pension Enrollment
Examinations)
c/o Department of the Treasury
Internal Revenue Service (C:AP:P)
Washington, DC 20220 USA
Phone: 202-401-4091
Fax: 202-401-6657

Society of Actuaries
(All Examinations)
475 North Martingale Road
Suite 800
Schaumburg, IL 60173 USA
Phone: 847-706-3500
Fax: 847-706-3599
Website: www.soa.org

NOTES