

Individual Life and Annuity Life Risk Management Exam

Fall 2017/Spring 2018

Important Exam Information:

Exam Registration	Candidates may register online or with an application.
Order Study Notes	Study notes are part of the required syllabus and are not available electronically but may be purchased through the online store.
Introductory Study Note	The Introductory Study Note has a complete listing of all study notes as well as errata and other important information.
Case Study	A copy of the case study will be provided with the examinations. Candidates will not be allowed to bring their copy of the case study into the examination room.
Past Exams	Past Exams from 2000-present are available on SOA website.
Updates	Candidates should be sure to check the Updates page on the exam home page periodically for additional corrections or notices.

**Individual Life and Annuity Life Risk Management
Fall 2017 & Spring 2018**

Exam: ILA - LRM	TOPIC: <u>Understanding Risk Management</u>
Learning Objectives	
1. The candidate will demonstrate an understanding of the principles of Risk Management.	
Learning Outcomes	
The candidate will be able to:	
<ul style="list-style-type: none"> A. Define and evaluate risk. B. Evaluate the role of risk management within an insurance company C. Articulate the economic incentives for applying risk management D. Describe how risk management techniques may be used to manage capital deployed by insurers and how they impact strategic decision making 	
Syllabus Resources	
<ul style="list-style-type: none"> • LRM-100-14: The Theory of Risk Capital in Financial Firms • LRM-104-14: Rethinking Risk Management • LRM-123-15: Enterprise Risk Management, S&P, May 2013, pp. 3 – 28 • LRM-124-15: All on the Same Train, But Heading in Different Directions, Underwood, Thompson & Ingram • LRM-125-15: Ch. 1 of <i>Financial Enterprise Risk Management</i>, Sweeting • CIA: Dynamic Capital Adequacy Testing (DCAT) Revised Education Note, November 2013 (pages 4-33) • ERM Specialty Guide, May 2006– Chapters 1-6 • Risk Appetite: Linkage with Strategic Planning • Describing Risk Culture, The Actuary, August 2012 	

**Individual Life and Annuity Life Risk Management
Fall 2017 & Spring 2018**

Exam: ILA – LRM	TOPIC: <u>Understanding the Various Sources of Risks</u>
Learning Objectives	
2. The candidate will demonstrate an understanding of the various sources of risks faced by an insurer.	
Learning Outcomes	
The candidate will be able to:	
<ul style="list-style-type: none">A. Identify, categorize and evaluate potential sources of risk in products including but not limited to mortality, morbidity and lapse.B. Identify, categorize and evaluate potential sources of risk in investments including but not limited to credit risk, liquidity, equity-based exposure and asset-liability matching.C. Describe and evaluate the other risks an insurance company faces including operational, marketplace and expense risks.	
Syllabus Resources	
<ul style="list-style-type: none">• <i>The xVA Challenge</i>, Gregory, 3rd Edition, 2015<ul style="list-style-type: none">Ch.7, Credit Exposure and FundingCh. 10, Quantifying Credit Exposure, Sections 10.4,10.5 and 10.6Ch. 17, Wrong-Way Risk• LRM-105-14: Mapping of Life Insurance Risks, AAA Report to NAIC• LRM-106-14: Moody's Looks at RM & the New Life Insurance Risks – 2000• LRM-126-15: Liquidity Risk, Saunders & Cornett, Ch. 17, pp. 493 – 514• A New Approach for Managing Operational Risk - SOA Research 2008	

**Individual Life and Annuity Life Risk Management
Fall 2017 & Spring 2018**

Exam: ILA – LRM	TOPIC: <u>Measuring & Estimating Risk</u>
Learning Objectives	
3. The candidate will demonstrate an understanding of important risk measurement techniques along with their uses and limitations, and be able to perform risk measurement calculations.	
Learning Outcomes	
<p>The candidate will be able to:</p> <p>A. Analyze and evaluate risk measures & estimators (e.g., Value-At-Risk, Conditional Tail Expectations, etc.)</p> <p>B. Apply and analyze scenario and stress testing in managing risk including the calibration and setting of assumptions</p> <p>C. Analyze and evaluate parameter risk</p>	
Syllabus Resources	
<ul style="list-style-type: none"> • LRM-108-14: Study Note on Parameter Risk • LRM-111-14: Value-At-Risk: Evolution, Deficiencies and Alternatives • LRM-112-14: Stress Testing OSFI E-18 • LRM-121-14: Value at Risk - Uses and Abuses • LRM-127-15: Measures of Financial Risk, Dowd, Ch. 2, pp. 19 – 32 • LRM-128-15: A Short, Comprehensive, Practical Guide to Copulas, GARP, Oct 2011 • LRM-129-15: Stress Testing: A Robust End-To-End Approach, GARP, Dec 2011 • LRM-130-15: Diversification: Consideration on Modelling Aspects & Related Fungibility and Transferability, CRO, Oct 2013, pp. 4 – 14, 19 – 30 • How Fair Value Measurement Changes Risk Management Behavior in the Insurance Industry SOA- Rosner 2013 • Economic Scenario Work Group Report, Dec 2008 • Academy Interest Rate Generator: Frequently Asked Questions (FAQ), June 2014 • Summary of "Variance of the CTE Estimator", <i>Risk Management Newsletter</i>, August 2008, Issue No. 13 • Getting to Know CTE , Ingram, <i>Risk Management Newsletter</i>, July 2004, Issue No. 2 	

**Individual Life and Annuity Life Risk Management
Fall 2017 & Spring 2018**

Exam: ILA - LRM	TOPIC: Asset Liability Management
Learning Objectives	
<p>4. ALM: The candidate will demonstrate an understanding of the principles of modeling, cash flow testing and asset-liability matching, and perform related calculations.</p>	
Learning Outcomes	
<p>The candidate will be able to:</p> <p>A. For an ALM model:</p> <ul style="list-style-type: none"> i) Select appropriate assumptions and scenarios ii) Model dynamic behavior of both assets and liabilities iii) Model and explain various strategies, including hedging iv) Analyze and evaluate results (including actual v. projected differences) v) Recommend appropriate strategies <p>B. Define and calculate duration, convexity and key rate durations including the rationale for matching as a means to manage risk</p> <p>C. Evaluate the principles of Cash Flow Testing to help in understanding the underlying risks and to assess their impact on capital and surplus</p>	
Syllabus Resources	
<ul style="list-style-type: none"> • <i>Asset Liability Integration</i>, SOA – Society of Actuaries, 2002 <ul style="list-style-type: none"> Ch. 2 - Defining Asset-Liability Management Ch. 3 – Why Did ALM Become Important? • LRM-114-14: ALM for Insurers • LRM-116-14: Life Insurance Forecasting and Liability Models, exclude appendices. • LRM-117-14: Key Rate Durations: Measures of Interest Rate Risk • LRM-118-14: Revisiting the Role of Insurance Company ALM w/in a RM Framework • LRM-119-14: Chapter 13 of <i>Valuation of Life Insurance Liabilities</i>, Lombardi • LRM-120-14: Chapter 14 of <i>Life Insurance Products and Finance</i>, Atkinson/Dallas Section 14.4 only on ALM Matching 	