

# ILA – Life Product Management Exam

Fall 2019/Spring 2020

## **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 case study will not be provided for this examination.

### [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 Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**1. Topic: Product Design, Pricing and Assumptions**

**Learning Objectives**

The candidate will understand the designs and risks of the common life and annuity products and features, as well as the methods and metrics used to design and price these products.

**Learning Outcomes**

The Candidate will be able to:

- a) Describe the designs of the common life and annuity products and evaluate their associated features and inherent risks
- b) Describe and evaluate methods and metrics used to design and price these products, and assess their profitability
- c) Describe and assess insurance and annuity distribution approaches and the impact of emerging technologies
- d) Describe and evaluate the impact of VM-20 on pricing
- e) Describe considerations and practices related to "Lapse-Supported" insurance
- f) Describe methodologies, approaches, considerations and tools related to the Underwriting function
- g) Describe methodologies and considerations used in the regulation of nonforfeiture practices
- h) Describe and evaluate the product development environment and cycle
- i) Describe and apply the principles of "Macro-Pricing" ("Project Based Analysis" vs. "Unit Based Pricing")
- j) Describe the operation of Life Acceleration Riders and their role in meeting market needs
- k) Describe what is meant by Life Settlements and assess their impact on insurance product pricing/management
- l) Describe and apply the principles of "Risk-Based Pricing" and "Market Consistent Embedded Value"
- m) Describe and apply the methodology for evaluating pricing sensitivities using a "Pricing Surface"
- n) Describe and apply the requirements of applicable ASOPs on Life and Annuity Product Pricing and Assumptions
- o) Describe how taxes may be treated in a pricing model and the impact of tax reform on life products profitability
- p) Describe and apply methods for pricing term conversions
- q) Describe and evaluate the types of assumptions commonly used in actuarial pricing and product development
- r) Describe and evaluate the role of Behavioral Economics in understanding and modeling policyholder behavior in the life and annuity context
- s) Describe how predictive analytics can be used in life and annuity pricing applications

**Resources**

- LPM-107-07: Experience Assumptions for Individual Life Insurance and Annuities

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

- LPM-121-13: Life Insurance and Annuity Non-forfeiture Practices
- LPM-134-15: Digital Distribution in Insurance: A Quiet Revolution
- LPM-136-15: Marketing for Actuaries: Individual Life and Health Insurance, Laporte, 2000 Edition, Ch. 4, pp. 12-31
- LPM-142-16: Malcolm Life Enhances Its Variable Annuities, 2010
- LPM-147-17: Life Insurance: Focusing on the Consumer (excluding Appendices)
- LPM-148-19: Ch. 9 of *Life Insurance Products and Finance*, Atkinson and Dallas
- LPM-149-19: Ch. 11, pp. 499-502 of *Life Insurance Products and Finance*, Atkinson and Dallas
- LPM-150-19: Tax Reform Impacts on Life Insurance Pricing and Profitability, 2018
- LPM-151-19: Transamerica Term Life: Understanding Post-Level Experience
- LPM-152-19: Lapse Supported Insurance Analysis
- LPM-165-19: Life Products and Features
- LPM-166-19: Annuity Product and Features
- [ASOP 2: Non-guaranteed Charges or Benefits for Life Insurance Policies and Annuity Contracts](#), May 2011 (excluding Appendices)
- [ASOP 54: Pricing of Life and Annuity Products](#), Jun 2018
- [Impact of VM-20 on Life Insurance Product Development](#), SOA Research, Nov 2016, pp. 1-31 (excluding discussion of 20-year term)
- [The Use of Predictive Analytics in the Development of Experience Studies](#), The Actuary, 2015, pp. 26-34
- [Variable Annuity Guaranteed Living Benefits Utilization](#), SOA LIMRA Research, 2018, Executive Summary only (pp. 19-32)
- [Predictive Modeling for Life Insurance: Ways Life Insurers Can Participate in the Business Analytics Revolution](#), Product Matters, 2018
- [Macro-Pricing](#), Product Development Monograph, pp. 11-41
- [Life Insurance Acceleration Riders](#), SOA Reinsurance News, 2013, pp. 35-38
- [The Response of Life Insurance Pricing to Life Settlements](#), Product Matters, Sep 2006
- [Risk Based Pricing – Risk Management at Point of Sale](#), Product Matters, Jun 2009
- [Report on Pricing Using Market Consistent Embedded Value \(MCEV\)](#), Jun 2012 (excluding Appendix 2)
- [Pricing Surface](#), Product Matters, 2017
- [Life Insurance for the Digital Age: An End-to-End View](#), Product Matters, Nov 2017
- [Term Conversions: Pricing and Reserving](#), Product Matters, Mar 2017
- [Term Conversions - A Reinsurers Perspective](#), Product Matters, Jun 2012
- [Setting Assumptions, Exposure Draft, ASOP](#), Dec 2016
- [Term Mortality and Lapses](#), Product Matters, Aug 2005
- [Ending the Mortality Table](#), Living to 100 Symposium
- [Mortality Table Slope: The Discussion Goes On](#), Product Matters, Jul 2004

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

- [Post Level Term Experience Results](#), 2014, pp. 21-44
- [Level Term Lapse Rates – Lessons Learned Here and in Canada](#), Product Matters, Oct 2011, pp. 11-14
- [Modeling of Policyholder Behavior for Life and Annuity Products](#), SOA, 2014, pp. 6, 9-16 & 19-73
- [Report on Premium Persistency Assumptions Study of Flexible Premium Universal Life Products](#), May 2012, pp. 9-15
- [Understanding the Volatility Experience and Pricing Assumptions in Long-Term Care Insurance](#), 2014, pp. 4-46
- [Report on the Conversion Experience Study for the Level Premium Term Plans](#), 2015, pp. 6-9, 39-40 & Appendix B
- [Industry-Wide Report Analyzes Post-Level Term Lapse and Mortality Experience](#), The Actuary, 2014
- [Long-Term Care Insurance: The SOA Pricing Project](#), 2016

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**2. Topic: Value Creation**

**Learning Objectives**

The candidate will understand the theory of "Value Creation" for life and annuity products and how to evaluate the patterns of earnings emergence under various regulatory regimes.

**Learning Outcomes**

The Candidate will be able to:

- a) Describe, evaluate and apply the economic value creation framework
- b) Describe and apply the common profit metrics (IRR, Value of New Business, Embedded Value, ROE) used in pricing insurance products
- c) Describe and evaluate the emergence of earnings under various financial reporting regimes US Statutory, US GAAP, Canadian CALM and Solvency II regimes
- d) Describe and evaluate how Source of Earnings analyses can enhance understanding of the drivers of earnings, and apply the methodology
- e) Describe and evaluate fundamental strategies for enhancing value through active in-force and operational management

**Resources**

- LPM-113-09: Economics of Insurance: How Insurers Create Value for Shareholders, pp. 4-31
- LPM-153-19: Life in-force Management: Improving Consumer Value and Long-Term Profitability
- LPM-154-19: Introduction to Source of Earnings Analysis
- LPM-155-19: Understanding Profitability in Life Insurance
- [Pricing in a Return-on-Equity Environment](#), TSA XXXIX, 1987, pp. 257-271
- [Earnings Emergence Insurance Accounting under Multiple Financial Reporting Bases](#), 2015, pp. 4-6, 10-24 & 45-53
- [Relationship of IRR to ROI on a Level Term Life Insurance Policy](#), Product Matters, Jun 2013, pp. 18-21
- [Evolving Strategies to Improve Inforce Post-Level Term Profitability](#), Product Matters, Feb 2015, pp. 23-29

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**3. Topic: Product Management, Operations and Studies**

**Learning Objectives**

The candidate will understand common issues and practices related to In Force and New Business Product Management, and how experience studies are designed and used for evaluating past experience and for setting assumptions.

**Learning Outcomes**

The Candidate will be able to:

- a) Recommend and justify changes to nonguaranteed elements such as credited rates, policy charges, policyholder dividends and guaranteed renewable premiums
- b) Describe and evaluate compliance with applicable regulations (including NY Reg. 210)
- c) Describe and assess the impact of adverse selection due to Life Settlements
- d) Describe and evaluate the challenges insurers face in a low and potentially rising interest rate environment
- e) Describe and evaluate how diversification of insurance risks can reduce volatility
- f) Describe and evaluate approaches for quantifying the price of VA guarantees and evaluating hedge effectiveness
- g) Describe how experience studies are designed and used for evaluating past experience, and for setting assumptions
- h) Describe the framework, process, and significant considerations for creating mortality tables used by life insurance companies
- i) Describe and apply methods for working with actual and expected experience metrics
- j) Describe and apply the methods for determining exposures, and considerations for developing select period mortality rates
- k) Describe and apply the use of statistical credibility methods used for validating actuarial judgment when evaluating experience
- l) Explain and apply the Limited Fluctuation and Buhlmann credibility methods to mortality and lapse experience study data

**Resources**

- LPM-110-07: Policyholder Dividends
- LPM-133-16: Testing for Adverse Selection in Life Settlements: The Secondary Market for Life Insurance Policies, pp. 2-18
- LPM-156-19: The Impact of Stochastic Volatility on Pricing, Hedging and Hedge Efficiency of Withdrawal Benefit Guarantees in Variable Annuities (*Note: Candidates not responsible for mathematical derivations or detailed results, but should understand concepts and methodology*)
- LPM-157-19: Diversification of Longevity and Mortality Risk
- LPM-158-19: A Ticking Clock: New York's Pending Non-Guaranteed Elements Rule for Life Insurance and Annuity Products

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

- LPM-159-19: New York State Department of Financial Services 11 NYCRR 48 (Insurance Regulation 210), pp. 4-9
- [Quantification of the Natural Hedge Characteristics of Combination Life or Annuity Products Linked to Long-Term Care Insurance](#), Mar 2012, pp. 9-35
- [Transition to a High Interest Rate Environment: Preparing for Uncertainty](#), SOA Research, Jul 2015, Executive Summary, section IV: parts C (1-4 & 8-11 only), D, E & H
- [Interesting Challenges for Insurers](#), Product Matters, Jun 2012
- [Table Development](#), Feb 2018 (excluding Appendices C, D, F, G & H)
- [Experience Study Calculations](#), Oct 2016, sections 2-4, 11, 12, 15, 17 & 18 (excluding 18.2, 18.8 & 18.9)
- [Credibility Theory Practices](#), 2009 (excluding Appendices and formula derivations)

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**4. Topic: Reinsurance**

**Learning Objectives**

The candidate will understand the various forms of traditional reinsurance, will be able to assess how and when they are effectively used, and will be able to perform the associated accounting (from both ceding and assuming perspectives) for basic reinsurance transactions.

**Learning Outcomes**

The Candidate will be able to:

- a) Evaluate and analyze traditional and advanced reinsurance transactions, and prepare related financial statement entries
- b) Describe and evaluate indemnity reinsurance and evaluate its use, forms, and requirements
- c) Describe risk transfer considerations, and evaluate their impact on reinsurance agreement provisions
- d) Describe and evaluate nonproportional reinsurance arrangements and their use
- e) Describe and evaluate how strategic/customized reinsurance solutions may enhance insurer prospects

**Resources**

- *Life, Health & Annuity Reinsurance*, Tiller, John E. and Tiller, Denise, 4<sup>th</sup> Edition, 2015
  - Ch. 4: Basic Methods of Reinsurance
  - Ch. 5: Advanced Methods and Structures of Reinsurance
  - Ch. 6: Assumption
  - Ch. 7: Reinsurance of Inforce Risks
  - Ch. 9: Risk Transfer Considerations (pp. 269-280)
  - Ch. 17: Nonproportional Reinsurance
- LPM-160-19: Strategic Reinsurance and Insurance: The Increasing Trend of Customized Solutions, pp. 1-4, 14-15 & 18-31

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**5. Topic: Asset and Portfolio Management Topics**

**Learning Objectives**

The candidate will understand the role of the Investment Actuary and the Portfolio Management Process in the Life Insurance company context, as well as the common forms of Fixed income securities and their uses, and the methods and processes used for evaluating portfolio performance and asset allocation.

**Learning Outcomes**

The Candidate will be able to:

- a) Describe the portfolio management process in an insurance company, and the role of Investment Policy, the Investment Actuary, and external portfolio managers
- b) Describe and evaluate how a company's objectives, needs and constraints affect investment strategy and portfolio construction (including capital, funding objectives, risk appetite and risk return tradeoff, tax and accounting, accounting considerations, and constraints such as regulation, rating agency ratings and liquidity)
- c) Describe and assess the role of and significant considerations related to the design and function of asset allocation strategies
- d) Describe and assess Fixed Asset Portfolio management methods, and immunization (including derivatives) and cash matching strategies, including:
  - Considerations such as managing funds against a bond market index, the classification of possible strategies, the impact of risk factors and tracking risk, and the use of indexing and active strategies
  - Considerations such as managing funds against liabilities, the use of dedication strategies and immunization strategies, the assessment of risk minimization for immunized portfolios, and the use of cash flow matching and combo strategies
  - The use of derivative enabled strategies, and the use of futures, swaps, and options
- e) Describe and assess Alternative Investment Portfolios (including real estate) in the context of an insurance company portfolio
- f) Describe and apply methods and processes for evaluating portfolio performance, including performance attribution, sources of earnings analysis on investment income, benchmarks, metrics, and risk adjusted performance appraisals (including total return vs reported earnings)
- g) Describe the principles of Liquidity Risk Management in an insurance company portfolio management context
- h) Describe and apply conventional yield metrics used in bond performance evaluation
- i) Describe the attributes of US Treasuries, Agency Debt Securities, Municipal bonds, Corporate bonds, Private Money Market securities, Floating Rate Agreements, Agency Mortgage Backed securities, Agency Collateralized Mortgage securities, Interest Rate Swaps and Swaptions, Credit Derivatives and High Yield Bonds, and the markets they are traded in
- j) Describe how an insurance company can hedge against the cost of borrowing through forward rate futures, and perform related calculations

Individual Life and Annuities – Life Product Management Exam  
Fall 2019/Spring 2020

**Resources**

- *Managing Investment Portfolios*, Maginn, John L. and Tuttle, Donald L., 3<sup>rd</sup> Edition, 2007
  - Ch. 3: Managing Institutional Investor Portfolios (section 4.1)
  - Ch. 5: Asset Allocation (sections 2-4)
  - Ch. 6: Fixed-Income Portfolio Management (sections 1-5)
  - Ch. 8: Alternative Investments Portfolio Management (section 3)
  - Ch.12: Evaluating Portfolio Performance (section 4)
- *Handbook of Fixed Income Securities*, Fabozzi, Frank J., 8<sup>th</sup> Edition, 2012
  - Ch. 6: Bond Pricing, Yield Measures and Total Return (pp. 102-120)
  - Ch. 9: U.S. Treasury Securities (pp. 194-205)
  - Ch. 10: Agency Debt Securities (pp. 207-220)
  - Ch. 11: Municipal Bonds (pp. 225-230 & 234-246)
  - Ch. 12: Corporate Bonds (pp. 259-287, excluding exhibits 12-1 & 12-2)
  - Ch. 16: Private Money Market Instruments (pp. 337-340 & 345-351)
  - Ch. 17: Floating-Rate Securities
  - Ch. 24: An Overview of Mortgages and the Mortgage Market
  - Ch. 25: Agency Mortgage-Backed Securities
  - Ch. 26: Agency Collateralized Mortgage Obligations
  - Ch. 62: Interest-Rate Swaps and Swaptions
  - Ch. 66: Credit Derivatives (pp. 1541-1559)
- LPM-161-19: High-Yield Bond Market Primer
- LPM-162-19: Liquidity Risk Management: Best Risk Management Practices
- LPM-163-19: Managing your Advisor: A Guide to Getting the Most Out of the Portfolio Management Process
- LPM-164-19: Ch. 7 (sections 7.2-7.5 & 7A) and Ch. 8 (sections 8.3-8.6) of *Derivatives Markets*, McDonald, 3<sup>rd</sup> Edition