



# Individual Life and Annuity Design and Pricing

## U.S. Only

### Fall 2008

#### Syllabus Resources

- Atkinson & Dallas, *Life Insurance Products and Finance*, 2000, Chapters 2, 3, 4, 5, 11, 14
- LOMA, *Life and Health Ins. Marketing*, Third Edition, 2003, pp.242-243
- ILA-D100-07: *World- Class New Product Development* – Dimancescu and Dwenger, 1996 – chapters 3, 4, 5 and 6.
- ILA-D101-07: Product Development Trends
- ILA-D102-07: Equity Indexed Annuities: Product Design and Pricing Considerations
- ILA-D103-07: Innovative Financing: Life Insurance Securitization, January 2006
- ILA-D111-07: LOMA, *Product Design for Life Insurance & Annuities*, Chapter 1 and Chapter 2 pages 31-33
- ILA-D112-08: Valuation of Living and Death Benefit Guarantees for Variable Annuities, pp. Sections 1 through 4.1.4 (pp. 3-15)
- ILA-D803-07: Role of the Actuary in Product Roll-out
- Shane Chalke, “Macro Pricing: A Comprehensive Product Development Process”, TSA XLIII, 1991  
<http://www.soa.org/library/research/transactions-of-society-of-actuaries/1990-95/1991/january/tsa91v436.pdf>
- “Incorporating Dynamic Policyholder Behavior Assumptions into Pricing of Variable Annuities”, Rebecca Scotchie, Product Matters, September 2006 <http://66.216.104.119/library-pdf/PDN0609.pdf>
- Inflation-Indexed Income Annuities: Pricing Considerations and Investment Strategies, Simpa Baiye, Product Matters, September, 2006  
<http://66.216.104.119/library-pdf/PDN0609.pdf>
- Pitfalls in EI Products, Product Development News, March 1998  
<http://www.soa.org/library/newsletters/product-development-news/1998/march/pdn9803.pdf>
- Equity Indexed Universal Life: The Devil’s in the Details, Product Matters!, August 2005  
<http://www.soa.org/library/newsletters/product-development-news/2005/august/pdn0508.pdf>
- Variable Annuity Risk and Seeking the Perfect Hedge, Product Matters!, July 2003  
<http://www.soa.org/library/newsletters/product-development-news/2003/july/pdn0307.pdf>
- What’s Backing Your Life Insurance Guarantee?, The Actuary, February 2005  
<http://www.soa.org/library/newsletters/the-actuary-magazine/2005/february/wha2005february.aspx>
- VUL Secondary Guarantees: Catalyst for Sales Rebound”, Product Matters!, July 2003  
<http://www.soa.org/library/newsletters/product-development-news/2003/july/pdn0307.pdf>
- Managing Variable Policyholder Behavior Risk, Product Matters!, March 2005  
<http://www.soa.org/library/newsletters/product-development-news/2005/march/pdn0503.pdf>
- Return of Premium Term, Product Matters!, July 2004  
<http://www.soa.org/library/newsletters/product-development-news/2004/july/pdn0407.pdf>
- Term Mortality and Lapses, Product Matters!, August 2005  
<http://www.soa.org/library/newsletters/product-development-news/2005/august/pdn0508.pdf>
- “Designing & Pricing LTCI Combination Products” , Long Term Care News, December 2004  
<http://www.soa.org/library/newsletters/long-term-care/2004/december/ltc0412.pdf>
- Does Preferred Wear Off? Product Matters, July 2004  
<http://www.soa.org/library/newsletters/product-development-news/2004/july/pdn0407.pdf>
- Mortality Table Slope – the Discussion Goes On, Product Matters July 2004  
<http://www.soa.org/library/newsletters/product-development-news/2004/july/pdn0407.pdf>
- The Process of Premium Formulation, Bob Shapiro, 50<sup>th</sup> Anniversary Monograph  
<http://www.soa.org/library/research/transactions-of-society-of-actuaries/1982/january/tsa82v3418.pdf>
- Lapse Experience Under Lapse Supported Products, Product Matters!, December 2005  
<http://www.soa.org/library/newsletters/product-development-news/2005/december/pdn-2005-iss63-lebel.pdf>

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Exam: ILA - DP
Learning Objectives
<b>2. Understanding the drivers for product design (the idea step)</b>
Learning Outcomes
For a given context or product, the candidate will be able to:  A. Identify customers – internal and/or external B. Analyze the advantage/disadvantages of different internal drivers C. Analyze how the forces of the economy and demographics, impact product design D. Analyze consumer behavior impact product design. E. Analyze how the forces of the marketplace and competition impact product design. F. Describe the questions to ask the sales and marketing (incl. Agents, brokers and direct marketing) G. Describe how investment policy can impact design H. Describe how tax/regulation can drive (not just constrain) product design
Syllabus Resources
<ul style="list-style-type: none"><li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, Chapter 8</li><li>• Desrochers et al., <i>Life Insurance and Modified Endowments Under IRC §7702 and §7702A</i>, 2004, Chapters 2 and 6</li><li>• Hardy, <i>Investment Guarantees</i>, 2003, pp. 14 &amp; 142–143</li><li>• LOMA, <i>Life and Health Insurance Marketing</i>, , Third Edition, 2003, Chapters 5-9, 12-17</li><li>• <i>Marketing for Actuaries</i>, 2000 Edition, All Chapters</li></ul>

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Exam: ILA - DP
Learning Objectives
<b>3. Understand the feasibility step of product design (prudent, practical)</b>
Learning Outcomes
For a given context or product, the candidate will be able to:
<ul style="list-style-type: none"> <li>A. Describe considerations for prudent and practical decision making</li> <li>B. Assess the risks underlying the design of certain products and features within those products as well as suggestions as to the management of such risks.</li> <li>C. Describe and Analyze the tax and regulatory constraints – policyholder perspective</li> </ul>
Syllabus Resources
<ul style="list-style-type: none"> <li>• Atkinson &amp; Dallas, <i>Life Insurance. Products and Finance</i>, 2000, Chapter 2</li> <li>• Desrochers et al., <i>Life Insurance and Modified Endowments Under IRC §7702 and §7702A</i>, 2004, Chapters 1, 2, 3, 4, 6 and 9</li> <li>• Hardy, <i>Investment Guarantees</i>, 2003, Chapter 1</li> <li>• ILA-D104-07: Easton and Harris <i>Actuarial Aspects of Individual Life Insurance and Annuity Contracts</i>, chapter 3 The Product Development Process</li> <li>• ILA-D111-07: LOMA, Product Design for Life Insurance &amp; Annuities, Chapter 1</li> <li>• ILA-D800-07: Life Insurance and Annuity Nonforfeiture Practices</li> <li>• ILA-D801-07: NAIC Standard Nonforfeiture Law for Life Insurances: Sections 1-4, 5c, 6-9</li> <li>• ILA-D802-07: NAIC Standard Nonforfeiture Law for Individual Deferred Annuities</li> <li>• ASOP #1 Nonguaranteed Charges or Benefits for Life Insurance Policies and Annuity Contracts  <a href="http://www.actuarialstandardsboard.org/pdf/asops/asop001_092.pdf">http://www.actuarialstandardsboard.org/pdf/asops/asop001_092.pdf</a></li> </ul>

Exam: ILA – DP
Learning Objectives
<b>4. Understand how to plan for and design new products</b>
Learning Outcomes
The candidate will be able to:
<ul style="list-style-type: none"> <li>A. Describe in detail the basic benefit/product types and their uses,</li> <li>B. Recommend designs for products and features to reach particular goals</li> <li>C. Demonstrate the integration of the results of the first steps into a recommended design</li> </ul>
Syllabus Resources
<ul style="list-style-type: none"> <li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, 2000, Chapters 1 &amp; 2</li> <li>• ILA-D105-07: Life and Annuity Products and Features</li> </ul>

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Exam: ILA – DP
Learning Objectives
<b>5. Consider the operational requirements for a particular product</b>
Learning Outcomes
For a given context or product, the candidate will be able to:  A. Identify gaps between the product design and the operations of the company and procedures and systems B. Recommend ways to close the gaps
Syllabus Resources
<ul style="list-style-type: none"><li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, 2000, Chapter 2</li><li>• Hidden Costs of Administering Complex Products, Product Matters!, Nov. 2003 <a href="http://www.soa.org/library/newsletters/product-development-news/2003/november/pdn0311.pdf">http://www.soa.org/library/newsletters/product-development-news/2003/november/pdn0311.pdf</a></li><li>• Hidden Costs of Product Complexity, Product Matters!, Nov. 2003 <a href="http://www.soa.org/library/newsletters/product-development-news/2003/november/pdn0311.pdf">http://www.soa.org/library/newsletters/product-development-news/2003/november/pdn0311.pdf</a></li><li>• 2006 Marketing and Distribution Section Product Implementation Survey – Summary of Results, Product Matters! June 2007 <a href="http://www.soa.org/library/newsletters/product-development-news/2007/june/PDN0706.pdf">http://www.soa.org/library/newsletters/product-development-news/2007/june/PDN0706.pdf</a></li></ul>

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Exam: ILA - DP
Learning Objectives
<b>6. Understand the relationship between the product design and the selection of appropriate assumptions for pricing the product (mortality, persistency, investment returns, expenses, etc.).</b>
Learning Outcomes
The candidate will be able to:
<p>A. Identify the assumptions needed for a particular product design, including any embedded options, expenses, and reinsurance.</p> <p>B. Select appropriate assumptions for a given product design, reflecting</p> <ul style="list-style-type: none"> <li>i) product characteristics</li> <li>ii) available experience data</li> <li>iii) the marketplace</li> <li>iv) underwriting</li> <li>v) distribution channel characteristics</li> </ul> <p>C. Explain the effect of each assumption on product pricing.</p> <p>D. Incorporate expenses (fixed, variable, marginal and taxes (income and premium) into product pricing</p> <p>E. How assumption setting reflects investment strategy e.g., hedging</p> <p>F. Special assumptions per special features – eg equity-linked, invest crediting,</p> <p>G. Data Quality (experience studies)</p>
Syllabus Resources
<ul style="list-style-type: none"> <li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, 2000, Chapter 3, Chapter 7, Chapter 9 and Chapter 13, Section 13.4 only</li> <li>• Hardy, <i>Investment Guarantees</i>, 2003, Chapters 2, 6 and 8</li> <li>• ILA-D102-07: Equity Indexed Annuities - Product Design and Pricing Considerations Update</li> <li>• ILA-D105-07: Life and Annuity Products and Features</li> <li>• ILA-D106-07: Gross Premiums for Disability Waiver Benefits</li> <li>• ILA-D107-07: Experience Assumptions for Individual Life Insurance and Annuities</li> <li>• ILA-D108-07: Asset/Liability Management</li> <li>• ILA-D109-07: Moody's Investors Service Corporate Default and Recovery Rates, 1920-2006</li> <li>• Product Development Challenges in a Principles-Based World, Product Matters!, October 2007  <a href="http://www.soa.org/library/newsletters/product-development-news/2007/october/pm-0710.pdf">http://www.soa.org/library/newsletters/product-development-news/2007/october/pm-0710.pdf</a></li> <li>• Press Release: Across America, Valuation Actuaries Are Being Warmly Welcomed to Product Development Project Teams, Product Matters! February 2007  <a href="http://www.soa.org/library/newsletters/product-development-news/2007/February/PDN0702.pdf">http://www.soa.org/library/newsletters/product-development-news/2007/February/PDN0702.pdf</a></li> <li>• The Responses of Life Insurance Pricing to Life Settlements, Product Matters!, September 2006  <a href="http://www.soa.org/library/newsletters/product-development-news/2006/september/PDN0609.pdf">http://www.soa.org/library/newsletters/product-development-news/2006/september/PDN0609.pdf</a></li> <li>• "Ending the Mortality Table"  <a href="http://www.soa.org/library/monographs/retirement-systems/living-to-100-and-beyond/2005/january/m-li05-1-ix.pdf">http://www.soa.org/library/monographs/retirement-systems/living-to-100-and-beyond/2005/january/m-li05-1-ix.pdf</a></li> <li>• ASOP #23 Data Quality  <a href="http://www.actuarialstandardsboard.org/pdf/asops/asop023_097.pdf">http://www.actuarialstandardsboard.org/pdf/asops/asop023_097.pdf</a></li> </ul>

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Exam: ILA - DP
Learning Objectives
<b>7. Understand the use of profit measures in Pricing</b>
Learning Outcomes
The candidate will be able to:
<ul style="list-style-type: none"> <li>A. Measure profitability</li> <li>B. Analyze array of profit measures</li> <li>C. Determine statutory vs. GAAP profit measures</li> <li>D. Describe the capital requirements for the product</li> <li>E. Recommend appropriate measure for particular problem your solving</li> </ul>
Syllabus Resources
<ul style="list-style-type: none"> <li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, 2000, Chapters 10 and 11</li> <li>• Pricing in a Return-on-Equity Environment, TSA XXXIX, 1987 <a href="http://www.soa.org/library/research/transactions-of-society-of-actuaries/1987/january/tsa87v3911.pdf">http://www.soa.org/library/research/transactions-of-society-of-actuaries/1987/january/tsa87v3911.pdf</a></li> <li>• Stochastic Pricing: Session 62 TS from November 2005 SOA Annual Meeting <a href="http://www.soa.org/files/pdf/062bk-annual05.pdf">http://www.soa.org/files/pdf/062bk-annual05.pdf</a></li> </ul>

Exam: ILA – DP
Learning Objectives
<b>8. Understand pricing for particular features and benefits</b>
Learning Outcomes
The candidate will be able to:
<ul style="list-style-type: none"> <li>A. Price products with different features including: <ul style="list-style-type: none"> <li>i) Riders</li> <li>ii) Policyholder Dividends</li> <li>iii) Equity linked (B-S)</li> <li>iv) Embedded Options</li> <li>v) ROP</li> <li>vi) Secondary Guarantees</li> <li>vii) Payout Annuity Benefits</li> <li>viii) Reinsurance</li> <li>ix) Crediting methodology</li> <li>x) Other non-guaranteed elements</li> </ul> </li> <li>B. Identify the most influential assumptions for the particular feature</li> </ul>
Syllabus Resources
<ul style="list-style-type: none"> <li>• Atkinson &amp; Dallas, <i>Life Insurance Products and Finance</i>, 2000, Chapter 13</li> <li>• Hardy <i>Investment Guarantees</i>, 2003, Chapters 6, 8 (pp. 133-143), 12 and 13</li> <li>• ILA-D102-07: Equity Indexed Annuities: Product Design and Pricing Considerations</li> <li>• ILA-D105-07: Life and Annuity Products and Features</li> <li>• ILA-D106-07: Gross Premiums for Disability Waiver</li> <li>• ILA-D110-07: Policyholder Dividends</li> <li>• Return of Premium Term, Product Matters! July 2004 <a href="http://www.soa.org/library/newsletters/product-development-news/2004/july/pdn0407.pdf">http://www.soa.org/library/newsletters/product-development-news/2004/july/pdn0407.pdf</a></li> <li>• ASOP #1, Nonguaranteed Charges or Benefits For Life Insurance Policies and Annuity Contracts</li> </ul>

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Exam: ILA - DP

Learning Objectives

**9. Understand modeling approaches and interpretation**

Learning Outcomes

The candidate will be able to:

- A. Explain how a stochastic model would be used for pricing
- B. Describe the advantages and disadvantages of stochastic and deterministic modeling approached
- C. Interpret results of a stochastic model

Syllabus Resources

- Hardy, *Investment Guarantees*, 2003, Chapter 9.
- RSA Vol 27, #2 Session 86PD Stochastic Pricing  
<http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/2000-09/2001/january/rsa01v27n286pd.pdf>