Canadian Institute of Actuaries EDUCATION

Institut canadien des actuaires ÉDUCATION

FCIA SYLLABUS

Individual life and annuities track

February 2023

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FCIA exams syllabuses overview

Background

In June 2021, the CIA Board approved new qualification pathways to ACIA (Associate, CIA) and FCIA (Fellow, CIA) designations, including CIA-drafted examinations and modules. Five FCIA-level education tracks are available to candidates. All FCIA tracks include three exams and two modules. This document outlines the individual life and annuities (ILA) track exams and modules syllabuses.

Exams are administered as an open-book, four-hour exam requiring analysis in the context of a problem and submission of written responses to specific questions. Candidates will complete the exam through the CIA learning management system. The ranges of weights (in parentheses) attached to the examination topics further below apply to most of the administered exams. Candidates should also recognize that questions often cover multiple learning objectives, including communication.

Education tracks

For information, the table below outlines the FCIA-level exams applicable to each track:

Track	Exams
Individual life and annuities (ILA)	F1ILA: Finance and Valuation F2ILA: Product Design F3ILA: Risk Management
Property and casualty (PC)	F1PC: Pricing F2PC: Estimating unpaid claims and financial reporting under IFRS 17 – *Insurance Contracts* F3PC: ERM, Economic Capital Modeling and Stress and Scenario Testing
Group benefits (GB)	F1GB: Product Design and Group Benefits Environment F2GB: Group Benefits Product Pricing F3GB: Group Benefits Reserving
Finance, investments and ERM (FIE) with option in banking	F1FIE: Financial Products F2FIE: Valuation and Financial Considerations F3FIE: Risk Management *or* F3BNK: Banking Applications
Retirement benefits (RET)	F1RET: Pension Funding and Regulation F2RET: Financial Reporting F3RET: Pension Risk Management

Bloom's taxonomy description

The CIA exam syllabuses set out the depth of knowledge and application required, using revised Bloom's taxonomy of education objectives. For comparison purposes, the development of the IAA Education Syllabus is also based on the revised Bloom's taxonomy. This model reflects two dimensions: the knowledge dimension and the cognitive process dimension. This framework is widely used and respected by educators worldwide.

Revised Bloom's Taxonomy (RBT)
Cognitive Process Dimension

Verbs → / Objects ↓	1. REMEMBER Recognize, Recall	2. UNDERSTAND Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain	3. APPLY Execute, Implement	4. ANALYZE Differentiate, Organize, Attribute	5. EVALUATE Check, Critique	6. CREATE Generate, Plan, Produce
A. Factual Knowledge	A1	A2	A3	A4	A5	A6
B. Conceptual Knowledge	B1	B2	B3	B4	B5	B6
C. Procedural Knowledge	C1	C2	C3	C4	C5	C6
D. Metacognitive Knowledge	D1	D2	D3	D4	D5	D6

Factual knowledge: Basic information; includes relevant information such as terminology and knowledge of applicable details of the subject matter.

Conceptual knowledge: The relationships between topics of a broader structure that make them function together. Consists of systems of information, such as classifications and categories.

Procedural knowledge: How to apply knowledge; includes algorithms, heuristics (rules of thumb), techniques, and methods, as well as knowledge about when to use these procedures.

Metacognitive knowledge: Knowledge of thinking in general and in particular. Refers to knowledge of thinking processes and information about how to manipulate these processes effectively.

Given the open book nature of the exams, it was established that the exams syllabuses would reflect higher levels learning, according to the following guidelines. Basic knowledge serves to lay the foundation of the exam questions.

	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual	A1	A2	A3	A4	A5	A6
Conceptual	B1	B2	B3	B4	B5	B6
Procedural	C1	C2	C3	C4	C5	C6
Metacognitive	D1	D2	D3	D4	D5	D6

First level	A1, A2, B1, B2
Second level	A3, A4, B3, B4, C1, C2, C3, D1, D2, D3
Third level	A5, A6, B5, B6, C4, C5, C6, D4, D5, D6

Individual life and annuities track exams

Exam F1ILA: Finance and Valuation

The aim of this exam is for candidates to develop the following skills:

1. Understand the main principles and techniques for estimating reserves and claims-related expenses (hereafter referred to simply as “claims”) that are relevant to life insurance.
2. Apply these principles and techniques within the context of life insurance.
3. Evaluate the considerations involved in selecting a best estimate reserve.
4. Understand how estimating reserves links to wider business processes (e.g., business planning, pricing, financial reporting, and capital setting).
5. Describe International Financial Reporting Standard 17 - Insurance Contracts (hereafter referred to as IFRS 17) and calculate actuarial values for financial reporting under IFRS 17.
6. Create appropriate proposals and recommendations related to reserves and IFRS 17 financial reporting in the life insurance business.
7. Evaluate hypothetical scenarios, including using judgment to assess the implications of possible actions.

1. Principal terms

1. Define principal terms used in the valuation of reserves and IFRS 17 financial reporting for life insurers. (A1)

2. Regulations and applicable standards (15%)

1. Apply legislation (e.g., the Insurance Companies Act) and regulations (e.g., Office of the Superintendent of Financial Institutions guidelines) relevant to the Appointed Actuary’s valuation for financial-reporting purposes. (A3)
2. Apply actuarial professionalism requirements applicable to the valuation of reserves and IFRS 17 financial reporting. (B3)

3. Data (10%)

1. Differentiate the types of data and information required for valuation of reserves, their sources, and main uses. (A4)
2. Differentiate types of data and information required for IFRS 17 financial reporting, their sources, and main uses. (A4)
3. Analyze the implications to data requirements for different life insurance product features (e.g., term vs. whole life vs. universal life, annuities, accumulation guarantees). (B4)
4. Evaluate the insurer’s internal environment (such as changes in operations or information technology [IT]) on data used for valuation of reserves. (B5)
5. Analyze the influence of external environments on data used for valuation of reserves and IFRS 17. (B4)
6. Evaluate the possible causes of data errors and the effects of inadequate data and information. (B5)
7. Create appropriate data-validation processes. (C6)

4. Principles of valuation - basic topics (15%)

1. Analyze the purpose of reserving for life insurers, including: (A4)
    a. The reasons for calculating reserves and how these might influence the approach (such as financial reporting, financial planning and analysis, and pricing); and
    b. The key stakeholders and their interests in the reserves held and reported.
2. Calculate and evaluate reserves using appropriate methods. (C5)
3. For methods in 2.:
    a. Generate the assumptions and mechanics. (C6)
    b. Analyze assumption changes and determine their influence on the results of reserves. (C4)
    c. Critique the technique with varying data quality and completeness and in different situations. (D5)
    d. Evaluate the strengths and limitations of each technique and the impact of limitations on results. (D5)
    e. Select the appropriate technique and assumptions given specific circumstances. (D5)
4. Apply processes to integrate more complex factors potentially relevant for the estimation of reserves of a given claims portfolio.
    a. Select the appropriate technique and assumptions given changes to the internal and external environment like changes in underwriting practices, public-health measures, and economic conditions. (C3)
5. Describe the role of valuation assumptions with a focus on the following: (C4)
    a. Regular assumptions vs. one-time adjustments.
    b. Economic and non-economic assumptions.
    c. Understand their mechanics, such as how to construct and use select and ultimate tables. (B2)
    d. Analyze assumption changes, determine their influence on the results, and describe techniques for a controlled implementation process. (B4)
    e. Explain how assumptions are impacted by impacts to the insurance environment such as legislative changes or changes to availability of underwriting data. (B2)
6. Determine whether to adjust for adverse deviation and calculate such adjustments to a best estimate of reserves. (D5)

5. Principles of valuation – advanced topics (25%)

1. Describe, calculate, and evaluate approaches to allow for various other items in an actuary's estimation of reserves, including: (C5)
    a. Claims-management expenses (including allocated and unallocated loss-adjustment expenses) and other costs.
    b. Latent claims and potential claims features that have not manifested in the reported claims data.
    c. Late reported claims and potential claims features that have not manifested in the reported claims data.
2. Critique margins for adverse deviations, including their purpose, how they are set, and the financial consequences of setting them inappropriately. (B5)
3. Calculate estimates of reserves for reinsurance.
    a. Compare the approaches to calculating reserves for reinsurance contracts held by analyzing claims gross and net of reinsurance held vs. claims gross of reinsurance held and claims ceded to reinsurance. (C4)

b. Calculate reserves for reinsurance held using appropriate techniques and assumptions that reflect the characteristics of reinsurance contracts held (e.g., contract terms and conditions, data availability). (C3)
c. Calculate reserves for various layers of claims. (C3)
d. Explain the consequences and calculate the effect on both ceding and assuming companies with respect to the following under various structures: (C3)
    i. Risk transfer and its effect on regulatory capital requirements (including impact on minimum regulatory capital requirements);
    ii. Cash flow;
    iii. Financial statements; and
    iv. Tax and reserve credit requirements.

4. Evaluate stochastic processes for estimating reserves.
    a. Evaluate the likely sources of uncertainty in estimates of unpaid claims. (B5)
    b. Evaluate the uses of stochastic techniques for estimating unpaid claims. (B5)
    c. Evaluate the following types of stochastic techniques, including data required, key assumptions, and mechanics: (B5)
        i. Analytic; and
        ii. Simulation-based.
    d. Evaluate the issues, advantages, and disadvantages of each of the techniques, including sensitivity to assumptions. (C5)
    e. Evaluate the approach to aggregating the results of stochastic estimates of unpaid claims across multiple lines of business and discuss methods of correlation. (C5)
5. Evaluate the results of reserves for adequacy and reasonableness. (D5)
6. Generate alternative estimates of reserves and highlight some of the professional issues in resolving them. (D6)
7. Describe the factors an actuary should consider and the typical diagnostics used in assessing the reasonableness of the results of estimates of unpaid claims. (D2)
8. Critique the reasonableness of changes in the results of reserves over time by describing the factors an actuary should consider. (D5)
9. Analyze current experience to monitor performance and recommend reserves for interim valuations. (D4)
10. Communicate an estimate of unpaid claims:
    a. Describe what is meant by a best-estimate reserve. (B2)
    b. Describe the uses, advantages, and disadvantages of estimating ranges of reserves using the following approaches: (B2)
        i. Stochastic models.
        ii. Scenario tests; and
        iii. Use of alternative sets of assumptions.
    c. Understand the issues to be considered when communicating ranges in estimates of reserves and uncertainties. (D2)
11. Compare and analyze valuation methods in Canada and the United States. (B4)

6. IFRS 17 financial reporting (25%)

1. Describe IFRS 17, – Accounting for Insurance Contracts including its purpose, scope, classification of contracts, and contract boundaries. (A2)
2. Analyze how insurance contracts are measured using the: (B4)
    a. General measurement approach;
    b. Variable fee approach; and
    c. Premium allocation approach.
3. Reflect considerations related to the level of aggregation when accounting for business under IFRS 17, including determination of the unit of account and setting of portfolios and groups of contracts. (C3)
4. Estimate future cash flows for the liability for remaining coverage and the liability for incurred claims under the general measurement approach, variable fee approach, and the premium allocation approach. (C4)
5. Create discount rate curves both using the top-down and bottom-up approaches referred to in IFRS 17. (C6)
6. Determine risk adjustment for non-financial risk, including:
    a. Reflect the criteria for and measurement of the risk adjustment under the general measurement approach, variable fee approach, and the premium allocation approach. (C4)
    b. Apply multiple methods, including: (C4)
        i. Quantile;
        ii. Cost of capital; and
        iii. Margin.
    c. Adjust the role of diversification and allocation in the determination and the application of the risk adjustment. (C4)
    d. Determine the risk adjustment for reinsurance contracts held. (C4)
7. Determine key actuarial components of IFRS 17 financial statements, including:
    a. Contractual service margin; (C4)
    b. Liability for remaining coverage; (C4)
    c. Liability for incurred claims; (C4)
    d. Risk adjustment for non-financial risk; (C4)
    e. Discounting; (C4)
    f. Loss component; (C4)
    g. Onerous contracts; (C4)
    h. Non-distinct investment component. (C4)
8. Analyze the components (statements, key exhibits, and schedules) of the Canadian regulatory return and how they interrelate. (B4)
9. Calculate key financial metrics and evaluate an insurer's financial performance and strength based on such ratios. (D5)
10. Describe the Appointed Actuary's role with respect to IFRS 17 financial reporting. (B2)

7. Financial management (10%)

1. Describe and calculate financial performance measures. (C3)
2. Perform financial analysis by product line and total company. (C4)
3. Apply methods of valuation to business and asset acquisitions and divestitures, including embedded-value methodologies. (C3)
4. Explain and apply methods of surplus management and financial management. (C3)
5. Describe and apply the principle of creation of value from a financial economics perspective. (C3)
6. Describe the principles underlying the determination of Canadian regulatory capital (i.e., the Canadian Life Insurance Capital Adequacy Test, or LICAT), including the following: (B2)
    a. Identification of significant risk components; (B2)
    b. Identification of specialized product LICAT requirements;
    c. Interpreting results from a regulatory perspective. (B2)
    d. Compare and contrast to other regulatory capital regimes. (C4)

Exam F2ILA: Product Design and Pricing

The aim of this exam is for candidates to develop the following skills:

1. Understand the main principles and techniques of pricing that are relevant to life insurance, including techniques to estimate the key components of a technical price.
2. Apply these principles and techniques within the context of life insurance.
3. Understand how pricing links to wider business processes (e.g., business planning, estimating reserves, and capital setting).
4. Create and evaluate hypothetical scenarios, including using judgment to assess the implications of possible actions and to develop appropriate proposals or recommendations relating to pricing life insurance products.

1. Principal terms

1. Define the principal terms used in pricing life insurance products. (A1)

2. Data (10%)

1. Differentiate the types of data and information required for pricing, their sources, and main uses. (A4)
2. Apply the concepts of homogeneity and credibility in selecting data for pricing analyses. (B3)
3. Analyze the implications to data requirements of different characteristics of insurance. (B4)
4. Evaluate the influence of the insurer's internal environment (such as changes in operations or IT) on data used for pricing analyses. (B5)
5. Evaluate the influence of external environments on data used for pricing analyses. (B5)
6. Understand the possible causes of data errors and the effects of inadequate data and information. (B2)
7. Create appropriate data-validation processes. (C6)

3. Drivers of product design (25%)

1. Describe and explain the insurance market stakeholders, how they interact, and their needs: (B2)
    a. Customers;
    b. Distributors;
    c. Internal stakeholders (claims, underwriting, marketing, admin/operations, etc.)
2. Describe, explain, and evaluate drivers of product design (B5):
    a. Company strengths and weaknesses;
    b. Economic conditions;
    c. Marketplace demographics;
    d. Consumer behaviour;
    e. Distribution channel behaviour;
    f. Market evolution, such as availability of market data and advancement of technology;
    g. Market shocks (i.e., COVID-19 and the loss of fluid-tested underwriting);
    h. Competition;
    i. Regulatory requirements.

4. Design and purpose of various product types, benefits, and features (25%)

1. Describe, in detail, product types, benefits, and features of life and annuity products. (B2)
2. Construct and recommend designs consistent with the market needs and constraints identified in the idea-generation step. (C6)
3. Evaluate feasibility of designs with respect to: (D5)
    a. Profitability;
    b. Product risk profile;
    c. Systems implementation;
    d. Marketing and competition;
    e. Operations.
4. Describe and apply the principles of macro pricing (project-based analysis vs. unit-based pricing) (C3)
5. Describe and evaluate how diversification of insurance risks can reduce volatility. (C5)

5. Relationship between the product features, risks, assumptions, and modelling (25%)

1. Identify and evaluate the setting of appropriate assumptions for product characteristics, like: (B5)
    a. Riders.
    b. Policyholder dividends.
    c. Equity-linked account/fund values.
    d. Embedded options.
    e. Return of premium (e.g., on death, lapse, maturity).
    f. Secondary guarantees.
    g. Premium payment patterns.
    h. Payout annuity benefits.
    i. Crediting methodology.
2. Identify and evaluate the setting of appropriate assumptions for risks and other factors, like (B5):
    a. Mortality, morbidity, lapse.
    b. Company experience and industry data.
    c. The marketplace.
    d. Underwriting.
    e. Distribution channel characteristics.
    f. Business mix.
    g. Reinsurance.
    h. Expenses (fixed, variable, marginal).
    i. Taxes (income and premium); and
    j. Investment strategy.
3. Analyze results and recommend actions with respect to risk and profit measures, like: (D5)
    a. IFRS 17;
    b. Rate-of-return measures:
        i. ROE, IRR, ROI, ROA;
        ii. Risk-adjusted versions of i. above;
    c. Market-consistent pricing; and
    d. Embedded value.
4. Analyze the capital requirements for a product and solutions such as reinsurance and securitization. (C4)

5. Describe the use of generalized linear, stochastic, and multi-state models, the advantages and disadvantages of each, and the methods for their construction (C2).
6. Interpret and analyze model results described in 5. (B4)
7. Describe and apply methods for modelling guarantees linked to investment performance and their hedges (GMMB, GMDB, GMAB) (C2)
8. Draw insights from financial data to validate past decisions and support future proposals. (C3)
9. Understand source-of-earnings analysis and its use in decision-making with regards to product development and pricing (C5).
10. Understand, explain, and use results for purposes of decision-making. (C3)
11. Understand and describe Part 2700 of the CIA Standards of Practice – Policyholder Dividend Determination. (C2)

6. Actuarial requirements of product implementation and monitoring (15%)

1. Describe and evaluate compliance with illustration regulations and other policy-form regulations (C5).
2. Evaluate variation in the actual experience from expected in assumptions – including (but not limited to) business mix, mortality, investment returns, expenses, and policyholder behavior such as policy and premium persistency – through the use of experience studies. (C5)
3. Evaluate and explain the impact of the variation in the actual experience from expected to other actuaries, insurance professionals, and a non-technical audience. (D5)
4. Recommend changes to non-guaranteed elements for deviations from expected. (C6)

Exam F3ILA: Risk Management

The aim of this exam is for candidates to develop the following skills:

1. Understand the main principles and techniques of enterprise risk management (ERM) and economic capital modelling that are relevant to life insurance.
2. Apply these principles and techniques within the context of life insurance.
3. Understand how ERM and economic capital modelling links to wider business processes (e.g., business planning, pricing, estimating reserves, and capital setting).
4. Create and evaluate hypothetical scenarios, including using judgement to assess the implications of possible actions and to develop appropriate proposals or recommendations for life insurers.

1. Principal terms

1. Define principal terms used in ERM, economic capital modelling, and stress and scenario testing. (A1)

2. ERM concept, framework, and process (10%)

1. Apply the concept of ERM. (D3)
2. Apply the framework for risk management and control within an insurer. (D3)
3. Describe regulatory requirements related to ERM including own-risk and solvency assessment (ORSA). (A2)
4. Describe the perspectives of credit-rating agencies. (B2)
5. Reflect data issues in general and special considerations with respect to ERM. (C3)
6. Demonstrate how to determine and articulate: (C3)
    a. Risk appetite,
    b. Risk identification,
    c. Risk assessment,
    d. Risk monitoring,
    e. Risk limits,
    f. Risk mitigation,
    g. Risk capacity,
    h. Risk tolerances,
    i. Desired risk profile,
    j. Risk objectives, and
    k. Risk reporting.
7. Assess the implications of financial and other risks and opportunities for strategic planning. (C4)
8. Describe the risk management control cycle, including the relevance of external influences and emerging risks. (C2)
9. Utilize methods to identify risks and their causes and implications. (D4)

3. Risk categories and risk identification (10%)

1. Explain what is meant by risk and uncertainty, including different definitions and concepts of risk. (B2)
2. Describe risk taxonomy, including an awareness of how individual risks might be categorized in different ways. (B1)
3. Describe and evaluate common risks faced by life insurers including: (B2)
    a. Market risk,
    b. Economic risk,
    c. Interest rate risk,
    d. Foreign exchange risk,
    e. Basis risk,
    f. Credit risk,
    g. Counterparty risk,
    h. Liquidity risk,
    i. Insurance risk,
    j. Operational risk,
    k. Legal risk,
    l. Regulatory risk,
    m. Political risk,
    n. Agency risk,
    o. Reputational risk,
    p. Strategic risk,
    q. Demographic risk,
    r. Moral hazard, and
    s. Other emerging risks.
4. Analyze the relationship between systemic risk vs. non-systemic and specific risk vs. concentration of risk. (B4)
5. Identify, categorize, and evaluate potential sources of operational risk, such as regulatory, marketplace, technology and expense risks. (C3)
6. Identify, categorize, and evaluate potential sources of risk in products including (but not limited to) mortality, morbidity, and lapse. (C3)

4. Economic capital modelling and aggregation of risks (25%)

1. Describe the extent to which each of the risks in 3.3 (above) can be amenable to quantitative analysis. (B2)
2. Demonstrate an understanding of the use of correlation measures.
    a. Describe enterprise-wide risk aggregation techniques that incorporate the use of correlation. (C2)
3. Apply different correlation measures based on their relative merits and implications. (C4)
4. Apply copulas as part of the process of modelling multivariate risks and evaluate different types of copulas for a given situation. (C5)
5. Reflect the importance of the tails of distributions and tail correlations. (C4)
6. Describe how extreme-value theory can be used to help model risks that have a low probability. (C2)
7. Demonstrate how model and parameter risk can be incorporated into an economic capital model. (C4)
8. Use economic capital models in the overall ERM decision-making process. (C4)
    a. Describe the development and use of models for decision-making purposes in ERM. (B2)

b. Demonstrate how the decision-making process considers the organization's risk appetite and corporate governance and builds on the results of stochastic modelling, scenario analysis, stress testing, and analysis of model and parameter risk. (D4)
c. Evaluate different types of models for a given purpose. (D5)

5. Risk measurement and assessment (20%)

1. Using common risk measures (such as VAR, TVAR, and probability of ruin), determine risk exposures and tolerances using these measures. (C3)
2. Understand the key considerations in deriving and applying economic capital modelling techniques using deterministic and stochastic models. (D2)
3. Recommend a specific choice of model based on the results of both quantitative and qualitative analysis of financial and insurance data. (D5)
4. Describe approaches, including parameterization and validation, for the assessment of capital requirements for the following risk types: (C2)
    a. Catastrophe.
    b. Underwriting and pricing.
    c. Reserving.
    d. Credit.
    e. Climate-related.
    f. Liquidity; and
    g. Operational.
5. Describe the practical considerations (including data availability, parameterization, and validation procedures) that should be borne in mind when undertaking capital modelling. (D2)
6. Calculate regulatory capital requirement. (C4)
7. Demonstrate understanding of regulator guidance and context for different approaches to responsible investment and, specifically, the integration of environmental, social, and governance (ESG) factors in the investment process. (C3)
8. Demonstrate an understanding of the underlying issues that constitute factors within each of the ESG areas. (C3)
9. Demonstrate an understanding of the ESG market: relevance, size, scope, key drivers and challenges, and risks and opportunities. (C3)

6. Stress and scenario testing (15%)

1. Describe the use of scenario analysis and stress testing in the risk measurement process, including the advantages and disadvantages of each. (B2)
2. Describe the appointed actuary's responsibilities related to financial condition testing (FCT). (A2)
3. Explain the primary categories of risk associated with climate change from a life insurer's perspective, including:
    a. Transition risk; (A2)
    b. Physical risk and environmental risks; and (A2)
    c. Liability risk. (A2)
4. Describe the actuary's role with respect to climate-change risk. (B2)

7. Capital management (10%)

1. Apply key elements of ORSA and FCT, specifically: risk identification and assessment, quantification of risk to capital requirements, board oversight and senior management responsibility, monitoring, reporting, and internal controls. (D4)
2. Demonstrate an understanding of capital calculations:
    a. Utilize the concept of economic measures of value and capital and their uses in corporate decision-making processes. (D5)
    b. Evaluate different risk measures and capital assessment approaches. (D5)
    c. Demonstrate the ability to develop a capital model for a representative financial firm. (D6)
3. Compare techniques for allocating capital across an organization. (C4)

8. Asset/liability management (10%)

1. For an asset/liability management (ALM) model for a block of life insurance policies or annuity contracts and a given asset portfolio:
    a. Select and use appropriate assumptions and scenarios (C3);
    b. Incorporate dynamic behavior of both assets and liabilities (B2);
    c. Incorporate, explain, and apply risk-mitigation strategies, including hedging and immunization (C3); and
    d. Analyze and evaluate results, including actual vs. projected differences. (C5)
2. Analyze the application of ALM and liability-driven investment principles to investment policy and asset allocation. (C5)
3. Describe and assess performance measurement methodologies and hedge risk metrics for asset portfolios with regards to ALM.(C5)
4. Apply constraints that prevent the optimization of asset portfolios considering: (C3)
    a. Performance objectives of the ALM strategy;
    b. Investment policy restrictions;
    c. Available assets;
    d. Liquidity; and
    e. Regulations.

Individual life and annuities track modules

FCIA modules syllabuses overview

Background

The CIA Fellow modules enable candidates to acquire and apply knowledge that is Electronically administered. The learning management system serves as the overarching framework from which candidates obtain information on resources and activities required to complete the modules. Candidates will navigate through the materials by:

- Reading the screens;
- Linking to PDF files, Excel files and published material;
- Reviewing examples;
- Visiting other Websites, viewing demonstrations and graphical images;
- Making decisions and selections around targeted scenarios or case studies; and
- Completing specified assessments, where applicable.

Module participants are expected come from a wide array of educational and career backgrounds. Some will be ACIAs or have obtained a recognized FCIA-level designation, and have:

- Demonstrated knowledge of the fundamental concepts and techniques for modelling and managing risk;
- Learned the basic methods of applying fundamental concepts and techniques to common problems involving uncertain future events, especially those with financial implications; and
- Completed a professionalism course covering the importance of adherence to recognized standards of practice and the CIA *Rules of Professional Conduct* or some other professional code of conduct.

The primary audience for the FCIA modules is individuals who desire to be admitted as Fellows of the CIA. Individuals seeking continuing professional development credit can also register for the FCIA modules.

Each FCIA candidate through Pathways 1 and 2 is required to complete both FCIA modules, while Pathway 3 candidates will have to complete the second module. It is anticipated that FCIA module candidates will have six months from the date of module purchase to complete each FCIA module. As a general guideline, candidates should expect to spend approximately 100 hours completing all activities included in a module.

ILA Module 1: Actuarial work and life insurance applications

1. Introduction to risk and insurance

1. Describe risk including insurable risk.
2. Provide examples of types of insurable risks and classes of life insurance that respond to insurable risk.
3. Describe and provide examples of perils and hazards.
4. Explain the conflicts that can arise in the objectives of risk management.
5. Identify and describe the five steps of the risk management process:
    a. Step 1 – Identifying and analyzing exposures.
    b. Step 2 – Formulating options.
    c. Step 3 – Selecting the best technique.
    d. Step 4 – Implementing the risk management plan.
    e. Step 5 – Monitoring results and modifying the plan.

2. Insurance categories and functions

1. Describe the basic insurance relationship of pooling funds to pay losses.
2. Explain the major functions of insurance:
    a. Spread of risk.
    b. Aid to security.
    c. Aid to credit.
    d. Loss prevention.
    e. Source of capital.
    f. Source of employment.
3. Identify and describe categories of insurance.
4. Identify and describe categories of retirement schemes.
5. Describe the different forms of insurance companies (e.g., stock mutual, government insurers, captive insurance companies.)
6. Explain financial stability and returns for insurers including the differences for stock companies and mutuals.

3. Regulatory framework

1. Describe the different roles of government in the regulation of insurance companies including federal control and provincial and territorial control.
2. Describe the major laws and regulations impacting insurance in Canada including:
    a. The Insurance Companies Act.
    b. Provincial and territorial insurance acts.
    c. Regulations.
3. Describe the role of privacy laws in life insurance including the *Personal Information Protection and Electronic Documents Act*.
4. Describe how the United States and Canada monitor the insurance market and regulate it.
5. Describe why consumer protections are needed.
6. Explain the purposes of regulatory consumer laws and regulations.
7. Recognize the key points of a sample of regulations or laws relating to market regulation.

4. Insurance company operations

1. Describe the major functions of an insurance company, including:
    a. Finance, accounting, and investment.
    b. Actuarial.
    c. Marketing, agency, or production.
    d. Underwriting.
    e. Claims.
    f. Reinsurance.
    g. Risk management.
2. Describe basic insurance administration and how actuaries are involved.
3. Describe underwriting regimes, applications for insurance, preferred criteria, and screening tests, and how they relate to selection of risk.
4. For reinsurance:
    a. Explain the purpose of reinsurance.
    b. Describe the primary methods and types of reinsurance.
    c. Describe the main reinsurance contract provisions.
5. Describe the roles and responsibilities of actuaries in insurance companies.

5. Insurance documents and processes

1. Understand insurance as a contract and describe the major components of an insurance policy.
2. Identify and explain key insurance documents including:
    a. The policy.
    b. Certificates of insurance.
    c. Endorsements.
    d. Binders/cover notes.
3. Describe the major sections of an insurance policy including:
    a. Coverage summary.
    b. Insuring agreements.
    c. Statutory conditions.
    d. Policy conditions.
    e. Signature clause.
4. Describe the process and requirements for assigning, terminating, and renewing an insurance contract.
5. Identify the stakeholders in an insurance policy (policyholder, insureds, including employees and dependents, etc.).
6. Describe insurance documentation and processes.

6. The insurance marketplace

1. Describe basic insurance products:
    a. Life insurance and annuities.
    b. Property and casualty (P&C).
    c. Health and group insurance.
    d. Government-sponsored and public plans:

i. Employment Insurance;
ii. Workers' compensation;
iii. Health care; and
iv. Pension plans.

2. Describe key issues related to customers of insurance products.

7. Consulting firm operations

1. Describe the traditional functions of a consulting firm:
   a. Administration and consulting of pension plans.
   b. Filing requirements.
   c. Actuarial valuation and financial reporting requirements.
   d. Benefit plan design and amendments.
   e. Audit and peer review.
   f. Appointed Actuary tasks and responsibilities.
   g. Product design and pricing.
   h. Negotiation of premium rates.
   i. Sales and distribution of insurance.
   j. Third-party administration.
   k. Risk management.
2. Describe the roles and responsibilities of actuaries in consulting firms.

8. Life insurance product development process

1. Describe contractual provisions applicable to life insurance and annuity contracts, including, but not limited to:
   a. Insurer requirements;
   b. Policyholder options; and
   c. Participating product requirements.
2. Describe typical insurance products in Canada.
   a. Life products (e.g., whole, term, universal, annuities, etc.).
   b. P&C (e.g., auto, homeowner, liability, etc.).
   c. Group insurance (e.g., health, dental, long-term disability, critical illness, etc.).
3. Describe and explain steps in the iterative control-cycle process within the context of product development:
   a. Idea generation;
   b. Feasibility;
   c. Planning the design;
   d. Actuarial development:
   e. Assumptions;
   f. Key performance indicators, including profitability and risk metrics and standards;
   g. Regulatory issues;
   h. Choice of model; and
   i. Implementing and monitoring the experience of the product.

4. Describe and explain interaction of the actuary with other stakeholders within the product development process.

9. Actuarial models

1. Describe model efficiency concepts and explain and apply both the representative scenarios and replicating liabilities techniques for improving model efficiency.
2. Explain and apply the technique for the compression of model data using the "cluster analysis spatial approach."
3. Describe and evaluate best practices for actuarial model governance over process and controls.
4. Describe and evaluate key components of model risk management.
5. Describe and apply model validation techniques and methods.
6. Describe issues and techniques related to sound spreadsheet model management.
7. Describe best practices documentation and governance over assumptions used in models.
8. Describe and evaluate guidance related to models in actuarial standards of practice.
9. Describe and evaluate issues related to open and closed coding of models, and methods for addressing those issues and concerns.
10. Describe and evaluate considerations around the governance of expert judgment in actuarial modelling.
11. Describe and evaluate considerations related to modelling investments, discount rates, inflation, and catastrophic mortality.
12. Describe and evaluate considerations related to centralizing the actuarial modelling function.

10. Principles of actuarial evidence

1. Describe the role of actuaries in family law, including the valuation of pension plan benefits in marriage (relationship) breakdown.
2. Describe the role of actuaries in civil litigation, including damages in personal injuries, fatalities, wrongful termination, insurance and reinsurance disputes, pension disputes, and other litigation.
3. Describe the role conferred to actuaries by the Criminal Code of Canada in calculating the criminal rate of interest.
4. Describe and distinguish the roles of a fact witness, an expert witness, and a provider of litigation advice.
5. Describe the context provided by the common law, legislation, and the rules of civil procedure on actuarial evidence practice.
6. Describe the role of CIA Rules of Professional Conduct and the Standards of Practice and (Part 1000, general, and Part 4000, actuarial evidence) in guiding the professionalism of actuarial evidence practice. Show awareness of the importance of professionalism for actuaries whose actuarial evidence practice is incidental to full-time practice in another actuarial practice area, such as insurance or pensions.
7. Describe the functions fulfilled by other professionals in the litigation area, such as life-care planners, vocational experts, accountants, economists, engineers, personal financial planners, business valuators, appraisers, and structured settlement brokers, and how these professionals complement and compete with the function of actuaries in actuarial evidence.

ILA Module 2: Professional considerations in the life insurance environment

1. Professional considerations

1. Outline the qualification requirements of the appointed actuary in Canada.
2. Describe the role and responsibilities of the appointed/valuation actuary in Canada.
3. Outline for which instances an appointed actuary is required in Canada.
4. Describe the roles and responsibilities of actuaries in life insurance companies, such as in the areas of valuation, pricing, policy illustration, and ERM.
5. Outline qualification requirements under the U.S. qualification standard (USQS).
6. Outline requirements of the CIA professional standards that may inadvertently be breached in the life insurance practice.
7. Identify and apply actuarial standards of practice relevant to:
    a. Financial reporting and valuation.
    b. Financial condition testing.
    c. Non-guaranteed elements.

2. Overview of the regulatory framework in Canada

1. Summarize the regulation applicable to the insurance market in Canada.
2. Summarize the regulation applicable to the investment market in Canada.
3. Identify the major regulators of the insurance sector in Canada.
4. Identify the major regulators of the investment sector in Canada.
5. Summarize the activities of insurance regulators.
6. Summarize the activities of investment regulators.
7. Describe the goals of regulation and laws in the investment and insurance sectors.
8. Explain how regulation protects consumers of insurance products and investors in insurance companies.
9. Understand the compliance function in an investment management organization.

3. Regulation and taxation of insurance

1. Explain why solvency regulation is important.
2. Describe implications of insolvency.
3. Describe the financial-reporting requirements.
4. Explain the regulatory processes used to monitor solvency.
5. Explain how contracts are taxed to the owner of the contract.
6. Describe constraints on policy design imposed by tax laws.
7. Describe the two major categories of differences between pre-tax and taxable earnings.
8. Distinguish between the different forms of taxes paid by Canadian companies.
9. Understand the differences between federal and provincial taxation.

4. Canadian financial reporting

1. Apply the principles underlying the determination of LICAT, including the following:
    a. Identification of significant risk components;
    b. Identification of specialized-product LICAT requirements;
    c. Interpreting results from a regulatory perspective; and
    d. Compare and contrast to other regulatory capital regimes.
2. Describe and explain the regulatory and tax environment for insurance and annuities in Canada, specifically: effect on product development, reserving, pricing, and business practices.
3. Describe key IFRS 17 financial concepts for written and ceded coverages and how they are calculated.
4. Describe IFRS 17 valuation methods.
5. Calculate IFRS 17 liabilities for life and annuity products and their associated riders.

5. Asset and portfolio management

1. Describe the portfolio management process in an insurance company and the role of investment policy, the investment actuary, and external portfolio managers.
2. Describe and evaluate how a company's objectives, needs, and constraints affect investment strategy and portfolio construction.
3. Describe the role of, and significant considerations related to the design and function of, asset-allocation strategies.
4. Describe fixed-asset portfolio management methods, immunization (including derivatives) and cash-matching strategies, and convexity.
5. Describe and assess alternative investment portfolios in the context of an insurance company portfolio.
6. 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.
7. Describe the principles of liquidity risk management in the context of insurance company portfolio management.
8. Describe how an insurance company can hedge against the cost of borrowing through forward rate, futures and perform related calculations.
9. Demonstrate understanding of regulators' guidance and context for different approaches to responsible investment and, specifically, the integration of ESG factors in the investment process.
10. Demonstrate an understanding of the underlying issues that constitute factors within each of the ESG areas.
11. Demonstrate an understanding of the ESG market: relevance, size, scope, key drivers and challenges, and risks and opportunities.

6. Communication and organizational behaviour

1. Explain differences between good and poor communication techniques and their implications.
2. Apply techniques to structure ideas logically.
3. Develop clear, fact-based messages that can be communicated persuasively.
4. Explain the role of cognitive biases on making suboptimal individual decisions.
5. Evaluate the role of organizational behavior on organizational decision-making processes and efficacy.
6. Explain why communication is strategically important to organizations.
7. Describe how information is communicated within organizations.

8. Describe organizational and individual barriers to effective communication.
9. Identify the risks of ineffective communication.
10. Explain how to overcome communication barriers and minimize risks of ineffective communication.
11. Recognize the influence of unconscious biases, culture, and diversity on communication.
12. Apply the CIA *Standards of Practice* and *Rules of Professional Conduct* in business communication.

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