



Institute
and Faculty
of Actuaries

Fellowship Qualification

General Insurance Pricing (SP8) Specialist Principles

Syllabus for the 2024 Examinations

April 2023

General Insurance Pricing (SP8)

Syllabus for the 2024 Examinations

This syllabus includes information to support the study of this subject. It will guide you through what you need to learn, application of learning as well as the skills that you need to develop. Information regarding the assessment of this subject is also included.

This syllabus includes:

- Aim of the subject
- How this subject links across the Qualifications
- Subject topics and topic weightings
- Subject objectives
- Assessment information

Aim

Apply relevant actuarial principles and techniques to the pricing of general insurance and reinsurance products and understand how pricing links to other business processes within a general insurance company.

Links across the Qualification

Fellowship Qualification

General Insurance Reserving and Capital Modelling Specialist Principles (SP7), General Insurance Pricing Specialist Principles (SP8) and General Insurance Specialist Advanced (SA3) are a trio of subjects for actuarial work specific to General Insurance. Each subject develops a specific set of skills and knowledge needed by actuaries working in or who wish to work in General insurance. The subjects are related as follows:

- General Insurance Reserving and Capital Modelling Specialist Principles (SP7) covers relevant actuarial principles and techniques for reserving and capital modelling within general insurance companies, and how these link to other business processes such as data, business planning, pricing, reinsurance and investment.
- General Insurance Pricing Specialist Principles (SP8) covers relevant actuarial principles and techniques for pricing of general insurance and reinsurance products, and how these link to other business processes such as data, risk management, business planning, reserving, capital setting, reinsurance and catastrophe modelling.
- General Insurance Advanced (SA3) builds upon the skills and knowledge covered in SP7 and SP8, applied to more complex scenarios. It covers general insurance markets, regulation, legislation, taxation, financial management, monitoring and strategies.

Topics and topic weightings

1. General insurance products and general business environment [25%]
2. Data, risks and risk management [25%]
3. Rating bases and methodology [35%]

4. Credibility, reinsurance and catastrophe modelling [15%]

Objectives**1 General insurance products and general business environment [25%]**

Understand the main features of general insurance markets and both insurance and reinsurance products, along with consideration of customer needs and risks posed to the insurers. Understand the implications of key aspects of the general business environment on general insurance companies.

1.1 The main types and features of general insurance market and products considering:

- The needs of customers
- The financial and other risks for the general insurer including their capital requirements and possible effect on solvency

1.2 The main types of reinsurance products for general insurers and the purposes for which they may be used

1.3 Implications of the general business environment on general insurers in terms of:

- Marketing strategies
- Fiscal regimes
- Inflation and economic factors
- Legal, political and social factors
- Climate and environmental factors
- Professional guidance
- Technological change

2 Data, risks and risk management [25%]

Understand the major areas of risk and uncertainty in relation to pricing within general insurance companies, along with the use of data in pricing, key actuarial investigations on pricing and the collective risk model.

2.1 The major areas of risk and uncertainty for general insurers with respect to pricing, in particular those that may threaten profitability or solvency

2.2 The use of data in pricing:

- Types of data that are used
- Main uses of data
- Requirements for a good information system
- Possible causes of data errors
- Effects of inadequate data

2.3 The major actuarial investigations and analyses of experience undertaken with regard to pricing for general insurers

2.4 The Collective Risk Model and its applications in a general insurance environment including the derivation of the Aggregate Claim Distribution for the Collective Risk Model and its approximations using stochastic simulation

3 Rating bases and methodologies [35%]

Understand bases and methodologies used in rating general insurance products, and the main approaches to pricing general insurance products. Understand generalised linear models, multivariate modelling and machine learning techniques.

3.1 The components of a general insurance premium

3.2 The basic methodology used in rating general insurance products

3.3 The factors to consider when setting rates

3.4 Appropriate rating bases for general insurance contracts in relation to:

- Underwriting considerations
- Policy conditions such as self-retention limits
- Reinsurance considerations
- Expenses
- Investment
- Capital allocation, return on capital

3.5 The main approaches to pricing, including the determination of relevant assumptions and practical considerations for use:

- Burning cost approach
- Frequency/severity approach
- Original Loss Curves

3.6 Generalised linear models, multivariate modelling and machine learning techniques to pricing

4 Credibility, reinsurance and catastrophe modelling [15%]

Understand credibility theory, the application of credibility models, differences in pricing direct and reinsurance business, determining reinsurance premiums, and an outline of catastrophe models.

4.1 The fundamental concepts of credibility theory

4.2 Comparison of the Classical and Bayes credibility models

4.3 The applications of credibility models to pricing

4.4 The similarities and differences between pricing direct and reinsurance business

4.5 Appropriate premiums for each of the following types of reinsurance, including their data requirements:

- Proportional reinsurance
- Non-proportional reinsurance
- Property catastrophe reinsurance
- Stop loss

4.6 The basic structure of a catastrophe model and the key perils that it can be used to model

Assessment

The assessment of this subject will consist of one examination.

Candidates can expect to answer a number of questions of varying marks, using Microsoft Word to construct and type their answers. The duration of this examination is three hours and twenty minutes and is timed and online. This time includes reading time.

Candidates will be expected to be able to apply knowledge and skills from across the syllabus topics to scenarios and questions proposed by the examiners and produce coherent solutions and actions, including:

- Analysis of complex problems in terms of actuarial, economic and financial factors to a level where appropriate analytical techniques may be used.
- Assess the implications and relevance of such factors, integrating the results into a coherent whole.
- Evaluate the results critically in a wider context, drawing appropriate conclusions.
- Propose solutions and actions, or a range of possible solutions and actions, based on this evaluation.

Topic weighting

The topic weighting percentage noted alongside the topics is indicative of the volume of content of a topic within the subject and therefore broadly aligned to the volume of marks allocated to this topic in the examination. For example if a topic is 20% of the subject then you can expect that approximately 20% of the total marks available in the examination paper will be available on that topic.

Candidates for assessment should ensure that they are well prepared across the entire syllabus and have an understanding of the principal terms used in general insurance pricing. The examination can be composed of questions drawing from any part of the syllabus within any examination sitting and using any command verb. This includes knowledge, techniques, principles, theories, and concepts as specified. Candidates should not rely on past papers alone and should ensure they have covered the entire syllabus as part of their learning and development of this subject. A list of command verbs used in the examinations is included on the IFoA website.

In each examination, candidates will be expected to demonstrate, through their answers, that they have knowledge of, can apply and use higher order skills in this subject:

- Knowledge will be demonstrated through answering questions that assess your understanding of that knowledge as well as through questions that ask you to apply relevant knowledge to scenarios.
- Application will be demonstrated through answering questions which assess that you can identify and apply relevant concepts and skills to solve problems (both numerical and non-numerical).
- Higher order skills will be demonstrated through questions that will assess that you can use relevant knowledge, concepts and skills to solve problems, draw appropriate conclusions, and make meaningful and appropriate comments on those conclusions.

As a guide, in the examination of this subject, you can expect that approximately 15% of the total number of marks for this examination be allocated to the demonstration of knowledge, 60% to application and 25% to higher order.

Qualifications Handbook, Examinations Handbook and Assessment Regulations

Please ensure you read and have understood the Examinations Handbook and Assessment Regulations ahead of your exam as well as the Qualifications Handbook. These are all available on the IFoA website.

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