

# General Insurance Ratemaking and Reserving Exam

Spring 2023

## Important Exam Information:

<a href="#">Exam Registration</a>	Candidates may register online or with an application.
Order Study Notes	There is no study note package for this examination.
<a href="#">Introductory Study Note</a>	The Introductory Study Note has a complete listing of all readings as well as errata and other important information.
Case Study	There is no case study for this examination.
<a href="#">Past Exams</a>	Past copies of this exam from 2013-present are available on the SOA website.
<a href="#">Updates</a>	Candidates should be sure to check the Updates page on the exam home page periodically for additional corrections or notices to the current syllabus.
Appendices	The Appendices to <i>Fundamentals of General Insurance Actuarial Analysis</i> are part of the course of reading for this examination. They are mentioned in specific topics in the syllabus, although they apply to multiple topics. As a result, they can be read with the various topics or separately.

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<b>1. Topic: Introduction and Key Considerations</b>
<b>Learning Objectives</b>
The candidate will understand the key considerations for and key concepts underlying general insurance actuarial work.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Identify sources of professionalism requirements and good practice</li><li>b) Demonstrate knowledge of good practice related to actuarial work</li><li>c) Use the actuarial control cycle to frame actuarial work</li><li>d) Understand the components of ultimate values</li><li>e) Explain how estimates of ultimate values are used</li><li>f) Demonstrate the importance of understanding key terminology and interrelationships</li><li>g) Identify different types of data used for actuarial work</li><li>h) Explain the responsibilities of the actuary related to data</li><li>i) Describe how and why data are segregated and aggregated</li><li>j) Describe qualitative information required for actuarial work</li><li>k) Understand the sources of data and information for actuarial work</li><li>l) Understand credibility as used for actuarial work</li><li>m) Explain the application of trend adjustments in actuarial work</li><li>n) Illustrate the types of trend that influence the future cost of claims, expenses, and premiums</li><li>o) Identify the actuary's responsibilities with regards to documentation for actuarial work</li><li>p) Describe the role of professional judgment in actuarial work</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland, Second Edition, 2022<ul style="list-style-type: none"><li>○ Part 1: Introduction</li><li>○ Part 2: Key Concepts (excluding Chapter 10)</li></ul><i>[Candidates may also use First Edition, 2013 (Parts 1 &amp; 2) with 2019 Supplement (Chapter 4)]</i></li><li>• <i>Actuarial Standards of Practice</i>, Actuarial Standards Board of the American Academy of Actuaries,<ul style="list-style-type: none"><li>○ <a href="#">No. 25, Credibility Procedures, 2013</a></li></ul></li></ul>

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**2. Topic: Preparing Claims and Exposure Data for Actuarial Work**

**Learning Objectives**

The candidate will demonstrate the ability to prepare claims and exposure data for general insurance actuarial work.

**Learning Outcomes**

The Candidate will be able to:

- a) Create development triangles of claims and counts from detailed claim transaction data
- b) Describe the different types of exposures used for conducting actuarial work
- c) Calculate written, earned, in-force and unearned premiums for portfolios of policies with various policy terms and earnings patterns
- d) Adjust historical earned premiums to current rate levels
- e) Understand types of changes influencing average premium levels
- f) Describe adjustments needed to estimate ultimate premiums

**Resources**

- *Fundamentals of General Insurance Actuarial Analysis*, J. Friedland, Second Edition, 2022
  - Part 3: Preparing the Data (excluding sections 12.6.4 & 12.6.6)

*[Candidates may also use First Edition, 2013 (Part 3) with 2019 Supplement (Chapter 11) (excluding sections 11.8.4 & 11.8.6)]*

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**3. Topic: Projecting Ultimate Claims**

**Learning Objectives**

The candidate will know how to calculate and evaluate projected ultimate values.

**Learning Outcomes**

The Candidate will be able to:

- a) Identify considerations for selecting methods for estimating ultimate claims
- b) Identify and describe good practice related to projecting ultimate claims with regard to required data, large claims, reinsurance recoverables, and comparison of current to prior actuarial work
- c) Identify the types of development triangles that can be used for investigative testing
- d) Analyze development triangles for investigative testing
- e) Describe the key assumptions underlying the following projection methods: development method, frequency-severity methods, expected method, Bornhuetter Ferguson method, Benktander method, Cape Cod method, Generalized Cape Cod, and Berquist-Sherman adjustments to the development method
- f) Demonstrate knowledge of good practice related to projecting ultimate values
- g) Estimate ultimate values using the methods cited in (e)
- h) Explain the effect of changing conditions on the projection methods cited in (e)
- i) Assess the appropriateness of the projection methods cited in (e) in varying circumstances
- j) Evaluate and justify selections of ultimate values based on the methods cited in (e)

**Resources**

- *Fundamentals of General Insurance Actuarial Analysis*, J. Friedland, Second Edition, 2022
  - Part 4: Basic Methods for Estimating Ultimate Claims (excluding sections 15.8, 16.7, 17.8, 18.8, 19.6, 20.6, 21.3.5, & 21.3.6)
  - Appendices A through F (excluding sections A.3.6, A.5, D.6 and D.7)

*[Candidates may also use First Edition, 2013 (Part 4 and Appendices A – F) with 2019 Supplement (Chapters 14, 19 & 20) (excluding sections 14.8, 15.7, 16.8, 17.8, 18.6, 19.6, 20.5.5 & 20.5.6)]*

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<b>4. Topic: Financial Reporting</b>
<b>Learning Objectives</b>
The candidate will understand financial reporting of claim liabilities.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Describe the key assumptions underlying ratio and count-based methods for estimating unpaid unallocated loss adjustment expenses</li><li>b) Estimate unpaid unallocated loss adjustment expenses using ratio and count-based methods</li><li>c) Evaluate and justify selections of unpaid unallocated loss adjustment expenses based on ratio and count-based methods</li><li>d) Demonstrate knowledge of good practice related to actuarial work supporting financial reporting</li><li>e) Describe the components of claim liabilities in the context of financial reporting</li><li>f) Calculate claim liabilities</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland, Second Edition, 2022<ul style="list-style-type: none"><li>○ Part 5: Financial Reporting and the Establishment of Reserves (Chapter 23 &amp; 24) (excluding section 23.4)</li><li>○ Appendices A through F (excluding sections A.3.6, A.5, D.6 and D.7)</li></ul></li></ul> <p><i>[Candidates may also use First Edition, 2013 (chapters 22 &amp; 23 and Appendices A-F) (excluding section 22.4)]</i></p>

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<b>5. Topic: Trending</b>
<b>Learning Objectives</b>
The candidate will understand trending procedures as applied to ultimate claims, exposures and premiums.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Identify and describe the influences of portfolio changes on claim frequency and severity</li><li>b) Identify the time periods associated with trending procedures</li><li>c) Analyze and evaluate trend for claims (including frequency, severity, and pure premium) and exposures (including inflation-sensitive exposures and premiums)</li><li>d) Choose trend rates for claims (frequency, severity, and pure premium) and exposures</li><li>e) Calculate trend factors for claims and exposures</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland, Second Edition, 2022<ul style="list-style-type: none"><li>○ Part 6: Trending Procedures</li><li>○ Appendices A through F (excluding sections A.3.6, A.5, D.6 and D.7)</li></ul></li></ul> <p><i>[Candidates may also use First Edition, 2013 (Part 6 and Appendices A-F)]</i></p>

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<b>6. Topic: Ratemaking</b>
<b>Learning Objectives</b>
The candidate will understand how to apply the fundamental ratemaking techniques of general insurance.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Describe the objectives of general insurance rate regulation</li><li>b) Identify the different types of rate regulatory approaches for general insurance</li><li>c) Describe the purpose of base rates and rating factors and explain how they are used to determine an insured's premium</li><li>d) Quantify different types of expenses required for ratemaking including expense trending procedures</li><li>e) Incorporate underwriting profit and contingency margins in ratemaking</li><li>f) Explain the requirements for loadings for catastrophes and large claims in ratemaking</li><li>g) Calculate loadings for catastrophes and large claims</li><li>h) Apply loadings for catastrophes and large claims in ratemaking</li><li>i) Describe the claim ratio and pure premium methods of ratemaking</li><li>j) Calculate indicated rates and indicated rate changes using the claim ratio and pure premium methods</li><li>k) Demonstrate the use of credibility in ratemaking</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland, Second Edition, 2022<ul style="list-style-type: none"><li>○ Part 7: Ratemaking (Chapters 28 through 32)</li><li>○ Appendices A through F (excluding sections A.3.6, A.5, D.6 and D.7)</li></ul></li></ul> <p><i>[Candidates may also use First Edition, 2013 (Chapters 27 through 31) and Appendices A through F]</i></p>

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**7. Topic: Analyze and evaluate real-life scenarios**

**Learning Objectives**

The candidate will be able to define an approach for actuarial analyses supporting financial reporting and ratemaking analyses under various real-life scenarios. The candidates will be able to define funding requirements for self-insurers.

**Learning Outcomes**

The Candidate will be able to:

- a) Identify data and information requirements
- b) Conduct investigative testing
- c) Choose projection methods to estimate ultimate values
- d) Estimate ultimate values
- e) Justify selections of ultimate values
- f) Develop reserves for financial reporting

**Resources**

- *Fundamentals of General Insurance Actuarial Analysis*, J. Friedland, Second Edition, 2022
  - Appendices A through F (excluding sections A.3.6, A.5, D.6 and D.7)

*[Candidates may also use First Edition, 2013 (Appendices A through F)]*