

General Insurance Introduction to Ratemaking and Reserving  
SPRING 2015

**Important Exam Information:**

[Exam Registration](#)

Candidates may register online or with an application.

Order Study Notes

There is no study note package for this examination.

[Introductory Study Note](#)

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.

[Past Exams](#)

Past copies of this exam from 2013-present are available on the SOA website.

[Updates](#)

Candidates should be sure to check the Updates page on the exam home page periodically for additional corrections or notices.

Appendices

The Appendices to *Fundamentals of General Insurance Actuarial Analysis* are part of the course of reading for this examination. Because they apply to multiple topics, they are not mentioned in the specific readings in the syllabus.

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<b>1. Topic: Introduction and Key Considerations</b>
<b>Learning Objectives</b>
The candidate will understand the key considerations for general insurance actuarial analysis.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Understand professional requirements and the actuarial control cycle</li><li>b) Identify different types of data used for actuarial analysis</li><li>c) Identify professional responsibilities related to data</li><li>d) Recognize differences in how data are aggregated and segregated</li><li>e) Identify qualitative information required for actuarial analysis</li><li>f) Describe the use of credibility theory</li><li>g) Identify trend adjustments and describe the relationship between trend and loss development</li><li>h) Describe documentation requirements</li><li>i) Describe and recognize the role of professional judgment in actuarial analysis</li><li>j) Create a claims development triangle from claims transaction data</li><li>k) Estimate written, earned and unearned premiums</li><li>l) Adjust historical earned premiums to current rate levels</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland<ul style="list-style-type: none"><li>○ Part 1: Introduction</li><li>○ Part 2: Key Concepts Relevant to Many Types of Actuarial Work</li><li>○ Part 3: Preparing the Data</li></ul></li></ul>

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**2. Topic: Projecting Ultimate Claims**

**Learning Objectives**

The candidate will understand how to calculate projected ultimate claims and claims-related expenses.

**Learning Outcomes**

The Candidate will be able to:

- a) Use loss development triangles for investigative testing
- b) Estimate ultimate claims using various methods: development method, expected method, Bornhuetter Ferguson method, Cape Cod method, frequency-severity methods, Berquist-Sherman methods
- c) Estimate claims-related expenses and recoveries
- d) Explain the effect of changing conditions on the projection methods cited in (b)
- e) Assess the appropriateness of the projection methods cited in (b) in varying circumstances
- f) Evaluate and justify selections of ultimate values based on the methods cited in (b)

**Resources**

- *Fundamentals of General Insurance Actuarial Analysis*, J. Friedland
  - Part 4: Projecting Ultimate Claims, Claims-Related Expenses, and Recoveries

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<b>3. Topic: Financial Reporting</b>
<b>Learning Objectives</b>
The candidate will understand financial reporting of claim liabilities and premium 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) Describe the components of claim liabilities in the context of financial reporting</li><li>d) Evaluate the estimates of ultimate claims to determine claim liabilities for financial reporting</li><li>e) Describe the components of premium liabilities in the context of financial reporting</li><li>f) Evaluate premium liabilities</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland<ul style="list-style-type: none"><li>○ Part 5: Financial Reporting and the Establishment of Reserves</li></ul></li></ul>

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<b>4. 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 the time periods associated with trending procedures</li><li>b) Describe the influences on frequency and severity of changes in deductibles, changes in policy limits, and changes in mix of business</li><li>c) Choose trend rates and calculate trend factors for claims</li><li>d) Describe the influences on exposures and premiums of changes in deductibles, changes in policy limits, and changes in mix of business</li><li>e) Choose trend rates and calculate trend factors for exposures</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland<ul style="list-style-type: none"><li>○ Part 6: Trending Procedures</li></ul></li></ul>

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**5. Topic: Ratemaking**

**Learning Objectives**

The candidate will understand how to apply the fundamental ratemaking techniques of general insurance.

**Learning Outcomes**

The Candidate will be able to:

- a) Describe the objectives of general insurance rate regulation and the various regulatory environments
- b) Calculate expenses used in ratemaking analyses including expense trending procedures
- c) Incorporate underwriting profit and contingency margins into ratemaking
- d) Calculate loadings for catastrophes and large claims
- e) Demonstrate the use of credibility in ratemaking
- f) Calculate overall rate change indications under the claims ratio and pure premium methods
- g) Calculate risk classification changes and territorial changes
- h) Calculate deductible factors, increased limits factors, and coinsurance penalties
- i) Calculate rates for large accounts
- j) Perform individual risk rating using standard plans
- k) Calculate rates for claims-made coverage

**Resources**

- *Fundamentals of General Insurance Actuarial Analysis*, J. Friedland
  - Part 7: Ratemaking
- “*The Mathematics of Excess of Loss Coverages and Retrospective Rating—A Graphical Approach*,” Lee, Y., Casualty Actuarial Society, 1988 Proceedings, Vol. LXXV

**This article may be accessed at [www.casact.org](http://www.casact.org) through the following navigation:**

  - **Publications**
    - **Yearbook/Proceedings**
      - **1988 Proceedings of the Casualty Actuarial Society, Volume LXXV**
        - *The Mathematics of Excess Loss Coverage...*

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<b>6. Topic: Monitoring Results</b>
<b>Learning Objectives</b>
The candidate will understand the need for monitoring results.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Describe the role of monitoring in ultimate values and pricing</li><li>b) Analyze actual claims experience relative to expectations</li><li>c) Develop plans for future actuarial work based on the results of monitoring</li><li>d) Demonstrate the use of the actuarial control cycle in the context of monitoring</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Fundamentals of General Insurance Actuarial Analysis</i>, J. Friedland<ul style="list-style-type: none"><li>○ Part 8: Monitoring Results</li></ul></li></ul>

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<b>7. Topic: Catastrophe Modeling</b>
<b>Learning Objectives</b>
The candidate will understand the nature and application of catastrophe models used to manage risks from natural disasters.
<b>Learning Outcomes</b>
The Candidate will be able to: <ul style="list-style-type: none"><li>a) Describe the structure of catastrophe models</li><li>b) Apply catastrophe models to insurance ratemaking, portfolio management, and risk financing</li></ul>
<b>Resources</b>
<ul style="list-style-type: none"><li>• <i>Catastrophe Modeling: A New Approach to Managing Risk</i>, Grossi, P.; and Kunreuther, H.<ul style="list-style-type: none"><li>○ Ch. 1-7 (Section 2.4.1 is incorrect and will not be tested; however, exceedance probability curves as discussed elsewhere in the book may be tested)</li></ul></li></ul>