Advanced Ratemaking – Exam 8

Delivery Format

APPOINTMENT TIME: 4.5 HOURS		
Exam Duration	**Scheduled Break**	**Exam Tutorial, Confidentiality Agreement, End of Exam Survey**
4 hours	**15 min**	**15 min**

Exam Item Types

Candidates may see the following item types in the CAS examinations. Candidates should become familiar with these item types. Item type samples are available on the Pearson Vue CAS webpage.

Multiple Choice

Multiple answer choices are presented after a problem with only one correct answer.

Multiple Selection

Multiple answer choices are presented after a problem with more than one correct answer.

Point and Click

An image is presented after a problem where the candidate must identify the correct area of the image by clicking on the correct location in the image.

Fill in the Blank

One or more blank sections are presented after the problem or within a statement where the candidate must input the correct response(s).

Matching

Content columns presented after a problem where the candidate must correctly match content from one column to another.

Constructed Response

A blank response area is presented after a problem where candidates must construct and develop their own answer.

Spreadsheet

Spreadsheet-type items are displayed to the candidate in a spreadsheet format and candidates can make use of most spreadsheet functions. Please review the testing guide prior to sitting for your exam to note any differences between the Pearson Vue testing environment and common spreadsheet software (e.g., Excel, Google Sheets).

Exam Cognitive Level

Each task is tied to a certain type of mental operation or thinking skill, which is called the cognitive level. ACAS and FCAS use four cognitive levels, and every examination item is authored to address both the task and one of the following cognitive levels paired with that task.

Remember: 0-10%

Tests the ability of the candidate to recall or remember knowledge or facts.

Understand and Apply: 20-30%

Measures the candidate's ability to understand and apply ideas and concepts to new situations.

Analyze and Evaluate: 50-60%

Requires the candidate to analyze information, combine ideas and concepts, and justify a position resulting from that combination.

Create: 10-20%

Requires the candidate to synthesize conclusions by evaluating the validity of ideas and concepts.

Exam Section Details

DOMAINS	DOMAIN WEIGHT
A. Classification Ratemaking	**60-80%**
B. Excess, Deductible, and Individual Risk Rating	**20-40%**

A. Classification Ratemaking

Candidates are expected to go beyond mechanical construction to the comparison and evaluation of alternative classification ratemaking schemes.

TASKS
1. Interpret classification ratemaking models (e.g., GLM & its extensions).
2. Evaluate the validity of rate classes.
3. Measure statistical significance & credibility of rate classes including estimates of loss costs of rate classes.
4. Measure and assess model fit (e.g., use results for a rating plan).
5. Evaluate classification ratemaking models (e.g., benchmark, recalibrate variables, implementation).
6. Describe approaches to stripping out rating factors using predictive models for further analysis (e.g., territorial). *This task does not apply to the October/November 2025 administration.*
7. Describe approaches to modeling with high dimensional variables (e.g., vehicle make and model, workers compensation classes). *This task does not apply to the October/November 2025 administration.*
8. Evaluate combinations of ratemaking component models (e.g., frequency/severity).

Readings
   - ASOP 12
   - ASOP 25
   - Bailey & Simon
   - Couret & Venter
   - GLM
   - Holmes & Casotto
   - Mahler

B. Excess, Deductible, and Individual Risk Rating

Candidates will be able to design and manage excess, deductible, and individual risk rating systems.

Excess and Deductible Rating

Candidates will be able to apply general knowledge and understanding of excess coverages and the problems inherent in pricing these coverages for different lines of business.

Experience Rating

Candidates will be able to adjust an individual risk's rate to reflect the extent to which that risk's own experience identifies it as being different from other risks in the same class.

Retrospective and Loss Sensitive Rating

Candidates will be able to make adjustments to individual risk premium after policy expiration in response to actual loss and expenses associated with the policy.

TASKS
1. Estimate aggregate loss distributions.
2. Determine expected losses by layer of insurance by applying frequency and severity distributions.
3. Calculate the cost of the layer of risk given the overall loss cost.
4. Analyze a loss sensitive rating plan (e.g., retrospective rating).
5. Analyze an experience rating plan.
6. Assess the effectiveness of rating plans.

Readings
   - Bahnemann
   - Case Study for Fisher et al.
   - Fisher et al.
   - ISO (Commercial General Liability Experience and Schedule Rating Plan)
   - NCCI (Experience Rating Plan Manual)
   - NCCI Circular (Retrospective Rating Plan Manual)

Complete Text References for Exam 8

Text references are alphabetized by the citation column.

Citation	Abbreviation	Domains/ Tasks	Source
Actuarial Standards Board of the American Academy of Actuaries, "Actuarial Standard of Practice No. 12, Risk Classification (for all Practice Areas)," December 2005, updated for deviation language in May 2011.	ASOP 12	A2	**OP**
Actuarial Standards Board of the American Academy of Actuaries, "Credibility Procedures Applicable to Accident and Health, Group Term Life, and Property/Casualty Coverages," October 1996, updated for deviation language in May 2011.	ASOP 25	A2-A3	**OP**
Bahnemann, D., "Distributions for Actuaries," CAS Monograph #2, Chapters 5 and 6. Including errata. It is highly recommended that candidates should read the entire monograph, as the material in Chapters 1-4 will be assumed to be familiar to candidates.	Bahnemann	B1-B3	**OP**
Bailey, R. A. and Simon, L. J., "An Actuarial Note on the Credibility of Experience of a Single Private Passenger Car," PCAS XLVI, 1959, pp. 159-164. Including discussion of paper: Hazam, W. J., PCAS XLVII, 1960, pp. 150-152.	Bailey & Simon	A2-A4	**OP**
Couret, J. and Venter, G., "Using Multi-Dimensional Credibility to Estimate Class Frequency Vectors in Workers Compensation," ASTIN Bulletin, Vol. 38, No. 1, May 2008, pp. 72-85.	Couret & Venter	A2-A4	**OP**
Fisher, G., et al., "Individual Risk Rating Study Note," CAS Study Note, Version 3, October 2019.	Fisher et al.	B1-B6	**OP**
Fisher, G., et al., Case Study for "Individual Risk Rating Study Note" (Excel file).	Case Study for Fisher et al.	B1-B6	**OP**
Goldburd, M., et al., "Generalized Linear Models for Insurance Rating," CAS Monograph #5, 2nd edition, Chapters 1-10.	GLM	A1, A3-A5, -A8	**OP**
Holmes, T. & Casotto, M, "Penalized Regression and Lasso Credibility," CAS Monograph #13, November 2024	Holmes & Casotto	A1, A3-A5	**OP**

Citation	Abbreviation	Domains/ Tasks	Source
Insurance Services Office, Inc., Commercial General Liability Experience and Schedule Rating Plan – Multistate, Manual Notice GL-MU-2019-CGLES-001. Candidates are not required to memorize the details but will be expected to be able to use them on the examination. The entire manual will be provided both in the study kit and on the exam.	ISO	B5-B6	**SK**
Mahler, H. C., "An Example of Credibility and Shifting Risk Parameters," PCAS LXXVII, 1990, pp. 225-282. Candidates will not be tested on the Appendices.	Mahler	A2, A4	**OP**
National Council on Compensation Insurance, Experience Rating Plan Manual for Workers Compensation and Employers Liability Insurance, 2003 Edition, Issued 06/23/2023. Candidates are not required to memorize the details but will be expected to be able to use them on the examination. The entire manual will be provided both in the study kit and on the exam	NCCI	B5-B6	**SK**
National Council on Compensation Insurance, Retrospective Rating Plan Manual for Workers Compensation and Employers Liability Insurance, 2022, selected pages are included in the Study Kit. The manual consists mostly of three tables in Appendices A, B, and C: - Tables of Expected Loss Ranges - Tables of Aggregate Loss Factors - Tables of Expense Ratios. Only a sample of each of these tables will be included in the manual. Candidates are not required to memorize the details but will be expected to be able to use them on the examination. The edited manual will be provided both in the study kit and on the exam.	NCCI Circular	B4, B6	**SK**

Source Key

B	Book – may be purchased from the publisher or bookstore.
BO	Book (Optional) – may be purchased from the publisher or bookstore.
OP	All text references marked as Online Publications will be available on a web page titled Complete Online Text References.
SK	Material included in the 2025 Study Kit.