Page 75, footnote 84: will be applied to policies effective from 1/90 to 12/90.

Page 79: If the modified loss ratios trend upwards. ⇔ Credibility too **small** (for given size group.)

If the modified loss ratios trend downwards. ⇔ Credibility too **big** (for given size group.)

Pages 91 and 727: Q. 4.30 should be eliminated. It is actually 9, 11/0**3**, Q.6 which is Q. 4.28.

page 303:
Exercise: Determine the excess loss premium.
[Solution: Excess Loss Premium = c (Standard Premium) (Excess Loss Factor)
= (1.07) ($3 million) (0.347) = **$1,113,870**.]

The minimum premium is: (**0.7**)($3 million) = $**2.1** million.
Thus for this example, the retrospective premium would be:
(1.04) {(1.07) (Limited Losses) + $540,000 + $**1,113,870**},
subject to a minimum premium of $**2.1** million and a maximum premium of $4.5 million.
The losses entering the calculation of the retrospective premium are limited to $50,000 per accident, in this example the limitation agreed upon at the time the retro policy was written.

Exercise: Determine the amount of limited losses corresponding to the maximum and minimum premiums.
[Solution: $**2.1** million = (1.04) {(1.07) (Limited Losses) + $540,000 + $**1,113,870**}.
⇒ Limited Losses = $**341,459**.
$4.5 million = (1.04) {(1.07) (Limited Losses) + $540,000 + $**1,113,870**}.
⇒ Limited Losses = $**2,498,180**.]

page 605: Then the contribution to the excess ratio from fatal would be: (**2**%)(12%).

page 651, bottom: $\sum_{i=1}^{C} (\overline{V_i} - \overline{V}) (\overline{W_i} - \overline{W})\, m_i \;/\; m = \sum_{i=1}^{C} \overline{V_i}\, \overline{W_i}\, m_i \;/\; m - \overline{V}\, \overline{W}$.

page 652, bottom: $\sum_{i=1}^{C} \overline{X_i}\, \overline{Y_i}\, m_i \;/\; m - \overline{X}\, \overline{Y} = 0.03090 - (0.0899)(0.3367) = 0.00063$.

page 661: should have been 12 PT claims in order to be consistent with the solution.
Also in the comment, the relativity should have been: **0.0102** / 0.006.

page 694, sol. 2.21: Actual Primary Losses are: 9**1**,500. Thus the mod is 1.66.

page 697, sol. 2.24:
The primary losses for claim 2 are limited to $10,000 since there are multiple claimants.

Claim Number	Total Incurred Loss	Limit	A_p	A_e
1	$ 15,000	$15,000	$1500	$3000
2	$ 300,000	$296,000	**$10,000**	$286,000
Total			$11,500	$289,000

M = {11,500 + (0.21)(289,000) + (1 - 0.21)(140,574) + 32,450} / (174,900 + 32,450) = **1.04**.

page 698, sol. 2.27: Claim #5 is 300,000, so using the 2008 version of the plan the accident limit has no effect. Thus the excess losses are 467,700, the mod is 1.93,
and the standard premium is $289,500.

page 755: there are two identical copies of sol. 5.27.

page 769, sol. 6.29: letter solution should be **E** rather than D.

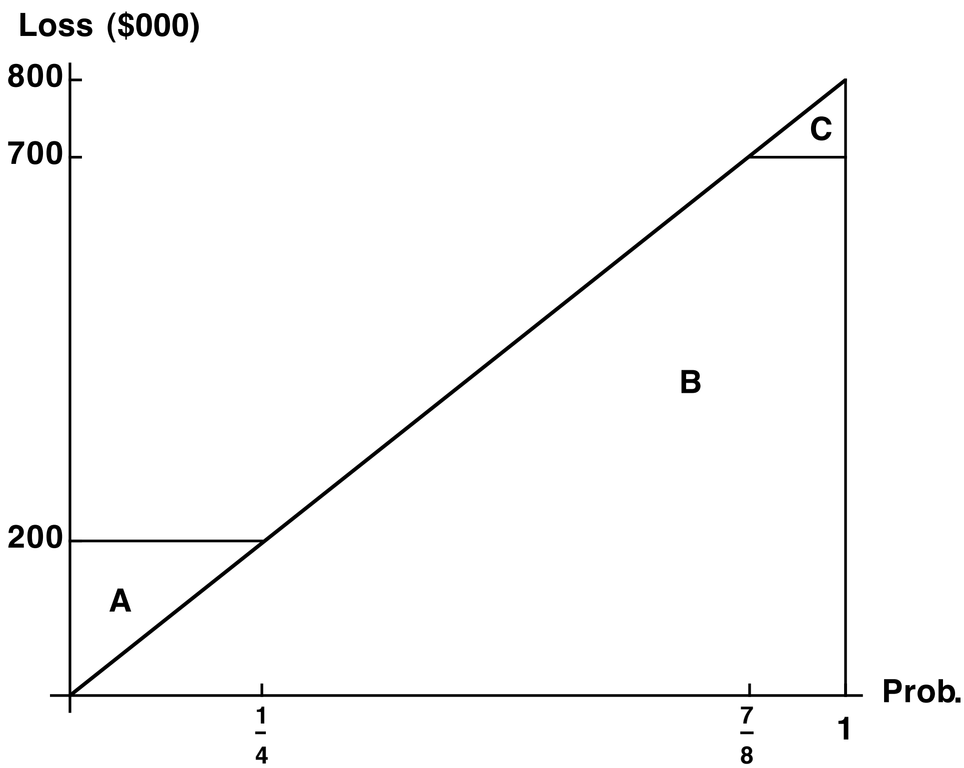
page 804, sol. 7.32: letter solution should be **B** rather than A.

page 858, sol. 9.18: $G = (b + c\mathbf{r_G}E)T$.

page 1080, solution 22.2:
Thus the 1,2 and 2,1 elements of the covariance matrix are:

$$\sum_{i=1}^{C} \overline{X}_i \overline{Y}_i m_i / m - \overline{X}\,\overline{Y} = 0.023667 - (0.08526)(0.26702) = 0.000901.$$

page 866, 9.44, I left out the solution to part b:
b. Losses are now uniform from 0 to $800,000.
Thus 1/4 of the time the losses are less than 200,000 and the premium is 330,000.
1/8 of the time the losses are greater than 700,0000 and the premium is 870,000.
The remaining 5/8 of the time the premium is in between the maximum and the minimum.
In this last case, the average loss is: (200,000 + 700,000) / 2 = 450,000.
Thus when the premium is in between the maximum and minimum, the average premium is:
100,000 + (1.1)(450,000) = $595,000.
Expected retrospective premium is:
(1/4)(320,000) + (1/8)(870,000) + (5/8)(595,000) = $560,625.
The expected premium savings are: 622,500 - 560,625 = **$61,875**.
Alternately, in the following Lee Diagram the losses entering the retro rating are: Area A + Area B.



Area A = ($200,000)(1/4)/2 = $25,000. Area C = ($100,000)(1/8)/2 = $6250.

Area B + Area C = ($800,000)(1)/2 = $400,000. ⇒ Area B = $393,750.

The expected losses entering the retro rating are: Area A + Area B = $418,750.
Expected retrospective premium is: $100,000 + (1.1)($418,750) = $560,625.
The expected premium savings are: 622,500 - 560,625 = **$61,875**.
Comment: We are not given a tax multiplier.

page 19: rewrite past exam question 5, 5/05, Q.17.

1.15. (5, 5/05, Q.17) (1 point) Which of the functions in the table below define appropriate credibility rules for an experience rating plan?

Assume that full credibility is assigned to an insured of size greater than 5.

Size	f_1	f_2	f_3
1	0.20	0.42	0.04
2	0.40	0.60	0.16
3	0.60	0.76	0.36
4	0.80	0.89	0.64
5	1.00	1.00	1.00

A. f_1 only B. f_2 only C. f_1 and f_2 only D. f_1 and f_3 only E. f_1, f_2, and f_3

Note: I have revised this past exam question.

1.15. B. The three requirements are:

1. Credibility must not be less than zero or greater than one.
2. Credibility should increase as the size of risk increases, all else being equal.
3. The percentage change for any loss of a given size should decrease as the size of risk increases.

Letting E be the size, this becomes: $\Delta(Z/E)/\Delta E$ should be positive.

f_1, f_2, and f_3 each satisfy requirements one and two.

f_1 does not satisfy the third requirement.

Size	Z	Z/E	Delta(Z/E)/Delta(E)
1	0.2	0.2	
2	0.4	0.2	0
3	0.6	0.2	0
4	0.8	0.2	0
5	1	0.2	0

f_2 does satisfy the third requirement.

Size	Z	Z/E	Delta(Z/E)/Delta(E)
1	0.42	0.420	
2	0.60	0.300	0.120
3	0.76	0.253	0.047
4	0.89	0.223	0.031
5	1.00	0.200	0.022

f_3 does not satisfy the third requirement.

Size	Z	Z/E	Delta(Z/E)/Delta(E)
1	0.04	0.040	
2	0.16	0.080	-0.040
3	0.36	0.120	-0.040
4	0.64	0.160	-0.040
5	1.00	0.200	-0.040

Comment: Assume for example that the sizes correspond to expected losses in $100,000.
Then under f_1 for example:

Expected Losses	Z	Actual Losses	Experience Modification
100,000	0.2	100,000	(0.2)(100/100) + (1 - 0.2) = 1.00.
100,000	0.2	110,000	(0.2)(110/100) + (1 - 0.2) = 1.02.
200,000	0.4	100,000	(0.4)(100/200) + (1 - 0.4) = 0.80.
200,000	0.4	110,000	(0.4)(110/200) + (1 - 0.4) = 0.82.

An extra $10,000 in reported losses increases the experience modification in both cases by 0.02, violating the third requirement.
Under f_3 for example:

Expected Losses	Z	Actual Losses	Experience Modification
100,000	0.04	100,000	(0.04)(100/100) + (1 - 0.04) = 1.00.
100,000	0.04	150,000	(0.04)(150/100) + (1 - 0.04) = 1.02.
200,000	0.16	100,000	(0.16)(100/200) + (1 - 0.16) = 0.92.
200,000	0.16	150,000	(0.16)(150/200) + (1 - 0.16) = 0.96.

An extra $50,000 in reported losses increases the experience modification by 0.02 for the smaller risk but 0.04 for the larger risk, violating the third requirement.