Errata and updates for ASM Exam STAM Study Manual (First Edition Second Printing) sorted by page

[10/23/2018] On page 102, three lines below formula (7.1), change f to f_{ult}.

[10/30/2018] On page 120, on the line above the third table, change "We are using Table 8.3" to "We are using the table at the top of page 116".

[10/28/2018] On page 138, in exercise 9.4, on the last line, change "Calculated" to "Calculate".

[11/18/2018] On page 159, in the solution to exercise 10.14, on the second line, in the denominator, remove the parenthesis after 5000 and add a parenthesis after 1.5). The line should read

$$\frac{2{,}000{,}000 + 500{,}000}{500\big(5000(1) + (1000)(1.5)\big)} = 0.769231$$

[10/19/2018] On pages 186–187, the solution to Example 12K is incorrect. Replace it with the following:

The payment per payment random variable Y^P has density $f_{Y^P}(x) = f_{Y^L}(x)\big/\big(1 - F(500)\big)$, where Y^L is the payment per loss random variable, for $x > 500$. Therefore, $\mathbf{E}[Y^P] = \mathbf{E}[Y^L]\big/\big(1 - F(500)\big)$ and $\mathbf{E}[(Y^P)^2] = \mathbf{E}[(Y^L)^2]\big/\big(1 - F(500)\big)^2$. We'll calculate variance as second moment minus first moment squared.

Split the first interval $(0, 1000)$ into two subintervals, $(0, 500]$ and $(500, 1000)$. The average payment in the first interval is 0 and in the second interval the average payment is 250. The probability that a loss will be in the second interval is $0.5(23)/50 = 0.23$. Similarly, the probabilities of the other three intervals are $16/50 = 0.32$, $6/50 = 0.12$, and $5/50 = 0.1$. The average payment per loss in those intervals is the midpoint, minus 500. So the overall average payment per loss is

$$\mathbf{E}[(X - 500)_+] = 0.23(250) + 0.32(1000) + 0.12(3000) + 0.1(7000) = 1437.5$$

Also, $\Pr(X \le 500) = 0.5(23)/50 = 0.23$, so the average payment per payment is $1437.5/(1-0.23) = \boxed{\mathbf{1866.88}}$.

We'll calculate the second moment of payment per loss using equation (2.4) in each interval starting with the interval $(500, 1000)$.

$$\begin{aligned}\mathbf{E}[(X - 500)_+^2] &= \frac{\begin{array}{r}0.23(500^2) + 0.32\big(500^2 + (500)(1500) + 1500^2\big) + 0.12\big(1500^2 + (1500)(4500) + 4500^2\big) \\ + 0.10\big(4500^2 + (4500)(9500) + 9500^2\big)\end{array}}{3} \\ &= 6{,}644{,}166\tfrac{2}{3}\end{aligned}$$

Therefore, the variance of payment per payment is

$$\frac{6{,}644{,}166}{0.77} - 1866.88^2 = \boxed{\mathbf{5{,}143{,}535}}$$

[11/24/2018] On page 224, the first full paragraph is confusing. It says that each ILF calculation should only use data from policies at that limit or higher, yet Example 14B violates this. It instead should say that each LAS calculation should only use data from policies at that limit or higher. Replace the paragraph with the following paragraph:

In the previous example the sizes of all losses were known, but in practice the company would not know the sizes of losses above the limit. Therefore, you should compute the *limited average severity* (LAS) for the basic policy limit and the policy limit of interest. The limited average severity for a limit is the sum

of limited losses, the minimums of loss sizes and policy limit, divided by the number of losses. For each LAS calculation, you should use data only from policies with the policy limit of interest or a higher policy limit; for policies with lower limits, you do not know the limited loss for policies at the policy limit. Since there will be different numbers of policies used in the calculation of limited losses, the number of losses used to calculate each LAS will not be the same.

[11/24/2018] On page 232, change the answer key for exercise 14.5 to **(E)**.

[12/1/2018] On page 240, in exercise 15.6, on the second line, change "primary reinsurer's" to "primary insurer's".

[12/10/2018] On page 343, in the solution to exercise 21.16, on the last line, put primes on the βs;

$$r\beta'(1+\beta')$$

[12/10/2018] On page 340, in Example 22D(iv), add "given θ" after "independent" and before the period.

[11/3/2018] On page 656, on the last line, change "Exam C" to "Exam STAM".

[10/23/2018] On page 693, in the solution to exercise 38.14, on the last line, insert "=" between k and $\frac{1.96}{\sqrt{683}}$.

[10/23/2018] On page 882, in the solution to exercise 48.24, on the ninth line, change v_2 to v_B.