Errata and Updates for ASM Exam MAS-II (Second Edition) Sorted by Page

Practice Exam 4:22, page 617, is defective. Replace the question with the one below.

[2/28/2021] On page 4, in the solution to Example 1A, change 500 to 5000 in the five places that it appears. In other words, on the first line change $(500-a, 500+a)$ to $(5000-a, 5000+a)$; change $(500+a, \infty)$ to $(5000+a, \infty)$. On the second line change $(-\infty, 500-a)$ to $(-\infty, 5000-a)$ and change $500+a$ to $5000+a$.

[4/30/2012] On page 31, change the solution to exercise 3.9 to

$$\lambda_F = \left(\frac{\Phi^{-1}(0.99)}{0.05}\right)^2 = \left(\frac{2.326}{0.05}\right)^2 = 2164.11$$

For severity, the credibility standard is expressed in terms of number of exposures, which is number of claims. We had 1384 claims.

$$e_X = 2164.11\left(\frac{6{,}010}{55^2}\right) = 4{,}300$$

$$Z_X = \sqrt{\frac{1{,}384}{4{,}300}} = 0.567354$$

For pure premium, the credibility standard is expressed in terms of number of exposures, which is number of policies. We have 21,000 policies. We divide the usual formula for the credibility standard in terms of number of expected claims by 0.085 to express it in terms of number of policies

$$e_P = \frac{2164.11}{0.085}\left(1+\frac{6{,}010}{55^2}\right) = 76{,}044$$

$$Z_P = \sqrt{\frac{21{,}000}{76{,}044}} = 0.525506$$

The absolute difference between credibility factors is $\boxed{\mathbf{0.0418}}$. **(A)**

[4/30/2021] On page 38, in exercise 4.5, on the first line in typewriter font (the seventh line of the question), change `lambda` to `lambdas`.

[5/19/2021] On page 76, in the solution to exercise 7.9, on the first three displayed lines, change every x to q: $f(x)$ should be $f(q)$ and $\mathrm{d}x$ should be $\mathrm{d}q$. Four changes.

[5/19/2021] On page 118, one line above the heading "The exposure unit", insert "are" between "you" and "calculating".

[7/23/2021] On page 159, in the solution to exercise 14.14, replace the first two lines with:

Expected claims are $0.2(1800) = 360$. The limited fluctuation estimate is based on a credibility factor of $Z = \sqrt{360/1083} = 0.5766$, and is

$$0.5766\left(\frac{200}{1800}\right) + (1-0.5766)(0.2) = 0.1488$$

Replace the last line with:

The percentage change is $0.1724/0.1488-1=$ **+15.91%**. **(E)**

[3/15/2021] On page 174, two lines from the bottom, a sum sign is missing from the numerator. The line should be

$$=\frac{\sum_{j=1}^{n} m_j^2(\beta+\alpha/m_j)}{m^2}$$

[3/15/2021] On page 175, two lines from the bottom of the sidebar, change $v(n-1)$ to $v(r-1)$.

[3/15/2021] On page 187, in the solution to exercise 16.6, on the line for σ^2_{HM}, change $\frac{2163}{3}$ to $\frac{2163}{8}$.

[4/8/2021] On page 273, in the solution to Example 25A, on the first line, change $\hat{\beta}_0=\frac{5}{7}$. to $\hat{\beta}_1=\frac{5}{7}$.

[3/23/2021] On page 300, in the last paragraph, lines 3–4, change the two sentences beginning with "Covariance" to

Covariance of two observations of the same student with different teachers is a. Covariance of two observations of the same teacher with different students is b.

[3/22/2021] On page 300, on the third line from the end of the page, change $b+c$ to $a+b$.

[4/22/2021] On page 305, on the third line of the page, change 15 to 5.

[4/7/2021] On page 316, in the solution to exercise 28.12, replace the last three lines with

$$\frac{100}{9}a^2=0.1$$
$$a=\boxed{\textbf{0.09487}}$$
$$b=1-\frac{7}{3}a=\boxed{\textbf{0.77864}}$$

[3/22/2021] On page 346, one line under $\mathsf{X}\rightarrow\mathsf{Y}\rightarrow\mathsf{Z}$, change B to Y.

[8/3/2021] On page 380, in equation (33.1), change θ_{prop} to $p(\theta_{\text{prop}}$ and θ_{curr} to $p(\theta_{\text{curr}}$, where p is the prior density function.

[8/3/2021] On page 382, in equation (33.1), the right parenthesis after "Data" in the denominator should be moved to after θ_{curr}, also in the denominator.

[2/13/2021] On page 410, in the solution to exercise 34.9, change the final answer from 35 to 36.

[4/16/2021] On page 451, one line above the last paragraph on the page, change $K(K-1)$ to $K(K-1)/2$.

[4/13/2021] On page 479, in the solution to exercise 38.10, on the first line, change "so in Model I $Y=P$" to "so in Model I $Y=U$.

[4/27/2021] On page 527, in the solution to exercise 40.12, replace II with

When a variable is scaled, it is divided by its standard deviation to make the variance 1. Since the first principal component has maximal variance, it will put lower loading on variables with lower variance. The higher the variance of the original variable, the greater the reduction in loading.

Comparing the unscaled and scaled biplots, we see that X3's loading on the first principal component was significantly decreased whereas the loadings of the other variables on the first principal component were increased. We conclude that X3 has the highest variance. ✓

[4/27/2021] On page 528, replace the solutoin to exercise 40.20 with

I. I can be deduced.✓

II. It is not clear whether Sue sold a lot of dental insurance or had a high first principal component

score because she sold a lot of life or health insurance.✗

III. Bob may have sold a lot of life insurance but very little health and dental.✗**(E)**

[4/27/2021] On page 599, in question 24, change the fourth line to $\text{logit}(p_i) = \alpha + \beta T_i$.

[4/11/2021] On page 591, replace question 22 with

X has a Bernoulli distribution with $q = 0.4$.

Calculate the information entropy of 20 observations of X.

[4/8/2021] On page 740, in the solution to question 39, change the answer key to **(B)**. Make the same change in the answer key on page 733.

[4/11/2021] On page 749, in the solution to question 3, on the third line, change $sigma^2_{HM}$ to σ^2_{HM}.

[4/18/2021] On page 764, replace the solution to question 40 with

We multiply the first row of the loading matrix, the loadings of the first variable on the three principal components, by the scores of the three principal components.

$$x_{11} \approx 1.220(0.732) + 0.002(0.437) - 1.279(-0.523) = \boxed{\mathbf{1.563}} \qquad \textbf{(E)}$$