

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

[2/17/2022] On page 129, in exercise 11.13, on the line below the table, change “given than” to “given that”.

[5/8/2022] On pages 180–181, Example 16E is not solved correctly, since $\bar{x} = 1420$. If it is solved correctly, the VHM is negative, resulting in no credibility.

Here is a revised example:

EXAMPLE 16E You have the following experience for two group policyholders for one year:

Group	Number of members	Mean loss	Standard deviation of loss
A	68	1500	1800
B	32	1000	2200

Using nonparametric empirical Bayes estimation, calculate anticipated losses per member for each group.

SOLUTION: The overall mean is

$$\bar{x} = \frac{68(1500) + 32(1000)}{100} = 1340$$

The expected process variance is obtained by pooling the variances of the two groups. We use the numbers of members to do this.

$$\widehat{\text{EPV}} = \frac{1800^2(67) + 2200^2(31)}{98} = 3,746,122$$

The denominator of the VHM is

$$100 - \frac{68^2 + 32^2}{100} = 43.52$$

The variance of hypothetical means is

$$\widehat{\text{VHM}} = \frac{68(1500 - 1340)^2 + 32(1000 - 1340)^2 - 3,746,122}{43.52} = 38,921.82$$

The credibility factor is

$$\hat{k} = \frac{3,746,122}{38,921.82} = 96.247$$

$$\hat{Z}_A = \frac{68}{68 + 96.247} = 0.414010$$

$$\hat{Z}_B = \frac{32}{32 + 96.247} = 0.249518$$

The mean that balances the estimators is

$$\hat{\mu}_X = \frac{0.414010(1500) + 0.249518(1000)}{0.414010 + 0.249518} = 1311.98$$

The credibility estimates are

$$P_A = 0.414010(1500) + 0.585990(1311.98) = \boxed{1389.82}$$

$$P_B = 0.249518(1000) + 0.750482(1311.98) = \boxed{1234.13}$$

□

[3/31/2022] On page 192, replace the solution to exercise 16.15 with

$$\begin{aligned}
 m &= 357 + 222 + 181 = 760 \\
 \bar{x} &= \frac{357(890) + 222(589) + 181(431)}{760} = 692.76 \\
 \widehat{\text{EPV}} &= \frac{356(1000^2) + 221(400^2) + 180(400^2)}{760 - 3} = 555,033 \\
 \widehat{\text{VHM}} &= \frac{357(890 - 692.76)^2 + 222(589 - 692.76)^2 + 181(431 - 692.76)^2 - 2(555,033)}{760 - (357^2 + 222^2 + 181^2)/760} = 56,922.51 \\
 k &= \frac{555,033}{56,922.51} = 9.7507
 \end{aligned}$$

The credibility factors are

$$\begin{aligned}
 Z_1 &= \frac{357}{357 + 9.7507} = 0.9734 \\
 Z_2 &= \frac{222}{222 + 9.7507} = 0.9579 \\
 Z_3 &= \frac{181}{181 + 9.7507} = 0.9489
 \end{aligned}$$

The credibility-weighted mean, and the prediction, are

$$\begin{aligned}
 \bar{x}^{\text{CRED}} &= \frac{0.9734(890) + 0.9579(589) + 0.9489(431)}{0.9734 + 0.9579 + 0.9489} = 638.67 \\
 P_C &= (0.9734)(890) + (1 - 0.9734)(638.67) = \boxed{883.3}
 \end{aligned}$$

[3/6/2022] On page 302, replace the solution to exercise 26.6 with

Mean Group #3 splits the treatments into four categories: {2}, {1,3}, {4,6}, {5,7,8}. This is 2 more categories than Mean Group #1, for which R indicates 1469 degrees of freedom. Thus a model using Mean Group #3 would have $\boxed{1467}$ degrees of freedom for each fixed effect. Notice that the full model, with all 8 treatments, has 1463 degrees of freedom, four less than mean group #3 which has four fewer groups than the full model, and two more than mean group #1 which has two fewer groups than mean group #3.

[3/29/2022] On page 310, one under the first table, change “grid-approximated prior” to “grid-approximated posterior”.

[3/22/2022] On page 438, one line above Section 36.4, change “highest WAIC” to “lowest WAIC”.

[3/22/2022] On page 446, in the solution to exercise 36.3, on the seventh line, change 0.177759 to 0.717759..

[3/29/2021] On page 511, in the solution to exercise 39.9, on the fifth line, change “ $86 + 82 + 81 + 4(9) = 286$ to $82 + 81 + 11 + 86 + 4(9) = 296$.”

[5/10/2022] On page 593, in question 33, change the WAIC for model2 from 106.1 to 108.1.

[5/8/2022] On page 776, in the solution to question!33 statement I, change 96.7 to 96.2.

[5/10/2022] On page 789, vchange the answer key for question 18 from (A) to (B).