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

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

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

[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 ia 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

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

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

□

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

[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

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

[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..

[3/6/2022] 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 **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.

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

[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 $82+81+11+86+4(9)=296$.