Errata and Updates for ASM Exam MAS-I (First Edition) Sorted by Date

[8/12/2018] On page 667, change the first two lines of exercise 44.15 to

In a cumulative proportional odds model for an ordinal variable, the fitted model is

$$\ln \frac{\sum_{i=1}^{j} \hat{\pi}_i}{1 - \sum_{i=1}^{j} \hat{\pi}_i} = b_{0j} + b_1 x_1$$

[8/12/2018] On page 674, in the solution to exercise 44.23, two lines from the end, change $\Phi(1.01)$ to $\Phi(1.32)$.

[8/12/2018] On page 1183, in the solution to question 33, on the second line, put "ln" before $\frac{\mu}{1-\mu}$.

[8/8/2018] On page 745, exercise 48.16 is a duplicate of exercise 48.13.

[8/8/2018] On page 746, in exercise 48.17, on the second line of the second bullet, put a period after 0.940. The statement beginning "A second regression equation" should be moved to a third bullet.

[8/8/2018] On page 753, in the solutions to exercises 48.10 and 48.11, on the displayed line in each solution, SSE_R and SSE_{UR} should be interchanged so that the numerator is $(\text{SSE}_\text{R} - \text{SSE}_\text{UR})/q$. In addition, in the solution to exercise 48.11, put parentheses around $n - p$ in the denominator.

[8/8/2018] On page 753, in the solution to exercise 48.13, on the first and second lines, delete the sentence fragment "The unrestricted model with 8 variables."

[8/8/2018] On page 753, in the solution to exercise 48.14, on the displayed line, change $n - k$ to $n - p$.

[8/8/2018] On page 764, in exercise 49.2, in the first bullet, change $\hat{y}$ to $\hat{y}_i$.

[8/8/2018] On page 766, in the solution to exercise 49.2, on the second line, change $\hat{y}$ to $\hat{y}_i$. Replace the last line with

$$r_3 = \frac{\hat{\varepsilon}_3}{s\sqrt{1 - h_{33}}} = \frac{1.2}{2\sqrt{1 - 0.6}} = \boxed{\mathbf{0.948683}}$$

[8/8/2018] On page 842, replace the solution to exercise 54.10 with

The mean squared error of the full model is $284/(60 - 5) = 5.163636$. Then

$$C_p(0) = \frac{326}{60} = 5.4333$$
$$C_p(1) = \frac{314 + 2(5.163636)}{60} = 5.4055$$
$$C_p(2) = \frac{303 + 2(2)(5.163636)}{60} = 5.3942$$
$$C_p(3) = \frac{293 + 2(3)(5.163636)}{60} = 5.4000$$
$$C_p(4) = \frac{284 + 2(4)(5.163636)}{60} = 5.4218$$

The **2-variable** model is selected.

[8/8/2018] On page 843, replace the solution to exercise 54.11 with

The estimated value of the mean square error of the model with 4 explanatory variables is

$$\hat{\sigma}^2 = \frac{\text{RSS}}{n-p} = \frac{132}{29-5} = 5.5$$

We calculate Mallow's C_p for each model.

$$C_p(0) = \frac{162}{29} = 5.586$$
$$C_p(1) = \frac{145 + 2(1)(5.5)}{29} = 5.379$$
$$C_p(2) = \frac{140 + 2(2)(5.5)}{29} = 5.586$$
$$C_p(3) = \frac{136 + 2(3)(5.5)}{29} = 5.828$$
$$C_p(4) = \frac{132 + 2(4)(5.5)}{29} = 6.069$$

The model with **1 explanatory variable** has the lowest C_p and is therefore the best.

[8/8/2018] On page'843, in the solution to exercise 54.14, on the fourth line, delete the first $\frac{15}{12}$, the one without parentheses.

[8/8/2018] On page 851, on the second line of Section 55.3, change "test data" to "training data".

[8/8/2018] On page 856, in the solution to exercise 55.11, on the second line, but a negative sign before $\frac{1}{2}\frac{\partial f}{\partial \beta_0}$.

[7/31/2018] On page 850, in the displayed formula in Subsection 55.2.1, change $\bar{X}$ to $\bar{X}_j$.

[7/29/2018] On page 434, in exercise 29.25, on the second line, the square symbol should be on the denominator:

$$S_X(x) = \frac{\theta^4}{(\theta^2 + x^2)^2}$$

[7/26/2018] On page 910, in the solution to exercise 61.1, change the final answer to 5.83614.

[7/26/2018] On page 912, in the solution to exercise 61.14, on the first line, change 0.7 to 70 and $+0.3$ to -30.

[7/26/2018] On page 1029, in question 27, on the second line, change β_2 to $\mathbf{x}_2$.

[7/26/2018] On page 1030, in question 29, on the first bulleted line, insert a comma between 0.3111 and 0.5584.

[7/26/2018] On page 1078, in the solution to question 30, on the displayed line, change 1.4 in the exponent to 0.4.

[7/24/2018] On page 884, in the solution to exercise 58.13, change the final answer to -1.25.

[7/20/2018] On page 293, in the solution to exercise 24.1, change the answer key from **(C)** to **(B)**.

[7/17/2018] On page 745, in exercise 48.15, on the second line, replace $\beta_4 x_{i1} x_{i2}$ with $\beta_4 x_{i2} x_{i3}$.

[7/10/2018] On page 708, on the third line of Quiz 46-4, change "loglikehood" to "loglikelihood".

[7/10/2018] On page 820, in the solution to exercise 52.5, on the first line, delete "a" before "Poisson".

[7/6/2018] On page 659, in the fourth displayed line, on the right side in the exponent, change $\sum_{i=1}^{p}$ to $\sum_{i=2}^{p}$.

[7/5/2018] On page 1210, in the solution to question 38, on the first line, change "gamma" to "Gaussian". On the fourth line, change "$a(x) = \theta, \underline{(}\theta) = -(x-1)^2/2x$" to "$a(x) = -(x-1)^2/2x$, $b(\theta) = \theta$".

[7/2/2018] On page 834, one line below formula (54.1), change "variance of the residual ε" to "residual variance of the regression".

[7/2/2018] On page 835, in the first paragraph of Example 54A, change "The variance of the residual" to "The residual variance of the regression".

[7/2/2018] On page 838, in exercises 54.8 and 54.9, change "estimated variance of the residuals" to "estimated residual variance of the regression".

[7/2/2018] On page 838, in exercise 54.10, 2–3 lines from the end, delete the sentence beginning "For each model".

[7/2/2018] On page 838, in exercise 54.11, on the first line, change 28 to 29. In the table, delete the $\hat{\sigma}^2$ column.

[7/1/2018] On page 304, in the solution to exercise 24.3, on the second line of the page(the one with $u \rightarrow$), change $\sqrt{(1-u)/2}$ to $1 - \sqrt{(1-u)/2}$. Replace the last two lines of the solution with

Comparing that fraction to the second number in each pair, we have $0.55 \leq 1 - 0.3 = 0.7$, $0.37 \leq 1 - 0.4 = 0.6$, $0.62 \geq 0.6$, and $0.77 \leq 0.8$. We accept when the second number is less than or equal to the fraction, so we accept all except the third number. The average is $(0.3 + 0.4 + 0.8)/3 = \boxed{\mathbf{0.5}}$.

[6/28/2018] On page 730, in exercise 47.20, in the first bullet, change the two subscripts on the right to $i2$ and $i3$:

$\hat{y}_i = 20.0 - 1.5x_{i2} - 2.0x_{i3}$

[6/28/2018] On page 733, in the solution to exercise 47.12, on the third line, change b_2 to b_3.

[6/28/2018] On page 738, on the first line of Example 48B, change $\beta_5 x_6$ to $\beta_5 x_5$.

[6/28/2018] On page 741, in exercise 48.2, on the second line, replace x_{i7} with x_{i6}.

[6/28/2018] On page 747, in exercise 48.21, on the last line, change $\beta_3 = 0$ to $\beta_4 = 0$.

[6/28/2018] On page 769, two lines above equation (50.1), change $\beta_0 + \beta_1 x^*$ to $\beta_1 + \beta_2 x^*$.

[5/17/2018] On page 416, in the solution to exercise 29, replace the fifth and sixth lines with

$$\left(\frac{\theta}{1.82}\right)^{\tau} = -\ln 0.4$$
$$\left(\frac{\theta}{12.66}\right)^{\tau} = -\ln 0.8$$

[5/17/2018] On page 418, replace the solution to Quiz 28-2 with the following:

$$e^{-(\theta/20)^{\tau}} = 0.2$$
$$e^{-(\theta/560)^{\tau}} = 0.7$$
$$\left(\frac{\theta}{20}\right)^{\tau} = -\ln 0.2$$
$$\left(\frac{\theta}{560}\right)^{\tau} = -\ln 0.7$$
$$28^{\tau} = \frac{\ln 0.2}{\ln 0.7}$$
$$\tau \ln 28 = \ln\left(\frac{\ln 0.2}{\ln 0.7}\right)$$

$$\hat{\tau} = \frac{\ln\big((\ln 0.2)/(\ln 0.7)\big)}{\ln 28} = \frac{1.506815}{\ln 28} = 0.452198$$
$$\hat{\theta} = \frac{20}{(-\ln 0.2)^{-1/0.452198}} = \boxed{\mathbf{57.289}}$$

[5/15/2018] On page 412, in the solution to exercise 28.18, on the second to last line, $\left(\frac{6}{9}\right)^{\tau} = \frac{\ln 0.75}{\ln 0.25} = 0.20752$ should be moved to a separate line.

[5/15/2018] On page 412, in the solution to exercise 28.19, on the last line of the page, change $\ln 0.2$ to $\ln 0.4$.

[5/10/2018] On page 359, in the solution to exercise 26.18, on the second line, change -1.33 to -0.67. On the third line, change 0.0159 to 0.1587. On the last line, change 0.1067 to 0.1047.

[3/13/2018] On page 780, 2–3 lines from the bottom of the page, change "at 1% significance but not at 2% significance" to "at 2% significance but not at 1% significance".

[3/4/2018] On page 841, replace the solution to exercise 54.2 with

We need 4 variables for AGE, 1 for SEX, 1 for BLOOD PRESSURE, and 1 for CHILDREN, a total of 7 variables. We start with 1 model with just the intercept, then consider 7 models for the first variable to add, 6 for the second, and so on. Total number of models considered is

$$1 + \sum_{k=0}^{6}(7-k) = 1 + \frac{(7)(8)}{2} = \boxed{\mathbf{29}}$$

[2/19/2018] On page 295, in the solution to exercise 23.9, on the second line, replace 2.51 with 2.52. Replace the sixth line with

$$x_2 = e^{0.75(2.52)+5.6} = 1790.05$$

Replace the last line with

$$\frac{241.21 + 1690.05 + 526.41 + 0}{4} = \boxed{\mathbf{614.42}} \qquad \textbf{(A)}$$

[2/19/2018] On page 780 in the table at the top of the page, and in the corresponding table on page 786, change the second column of the D_A and D_B lines to match the following table:

Model	Sum of Squares	Deviance
$Y = \mu + \varepsilon_{ij}$	SST	D_M
$Y = \mu + \alpha_i + \varepsilon_{ij}$	SST – SSTR	D_A
$Y = \mu + \beta_j + \varepsilon_{ij}$	SST – SSB	D_B
$Y = \mu + \alpha_i + \beta_j + \varepsilon_{ij}$	SSE	D_I

Interchange formulas (51.9) and (51.10) on pages 780 and 786; in other words, change D_B to D_A in formula (51.9) and D_A to D_B in formula (51.10)

[2/19/2018] On page 805, in the solution to exercise 51.26, change D_A to D_B all three times it appears, and change D_B to D_A all two times it appears.

[2/19/2018] On page 806, in the solution to exercise 51.29, on the second and last lines, replace 2.361 with 3.056. Replace the final answer with 2970.43.

[1/28/2018] On page 771, in the solution to exercise 50.3, change the first displayed line to

$$s = \sqrt{\frac{\text{SSE}}{n-2}} = \sqrt{\frac{5245}{23}} = 15.101$$

Change the third displayed line to

$$15.101\sqrt{1 + \frac{1}{25} + \frac{(100-223)^2}{958{,}356.8}} = 15.517$$

Change the last line to $547.26 + 2.069(15.517) = \boxed{\mathbf{579.4}}$.

[1/27/2018] On page 649, in the solution to exercise 43.2, on the last line, remove the negative signs before the two $\ln x$s: $a(x) = \ln x$ and $a(x) = (\ln x)/\sigma^2$.

[1/27/2018] On page 650, replace the solution to exercise 43.5 with

The linear component is $22 + 15 + 0 = 37$. Inverting the link, $\mu = 37^2 = \boxed{\mathbf{1369}}$.

[1/27/2018] On page 747, in exercise 48.20, in the table, change II on the last line to III. On the line below the table, change $\beta_1 + \beta_2 = 1$ to $\beta_2 + \beta_3 = 1$.

[12/27/2017] On page 302, in exercises 24.4 (line 3) and 24.5 (line 4), change $U_1 < cq(x)$ to $U_2 < cg(x)$.

[12/27/2017] On page 302, in exercise 24.9, delete the second sentence.

[12/27/2017] On page 303, in the solution to exercise 24.2, replace the last two sentences with

The first and second numbers are accepted. The other two are rejected because $0.44 > 0.4224$ and $0.34 > 0.2944$. The average of the accepted numbers is $(1.28 + 0.76)/2 = \boxed{\mathbf{1.02}}$.