Errata and updates for ASM Exam SRM Study Manual (First Edition) sorted by date

Practice Exam 5:27 and 6:25 are defective in that none of the answer choices is correct.

[11/4/2020] On page 12, on the last line of the solution to Example 2B, change "$\bar{y} - \hat{\beta}_0 \bar{x}$" to "$\bar{y} - \hat{\beta}_1 \bar{x}$".

[9/9/2020] On page 202, in equation (14.15), add a pair of parentheses to the denominator so that it is $1 - \left(\exp(l_0/n)\right)^2$.

[9/9/2020] On page 205, in equation (14.15), add a pair of parentheses to the denominator so that it is $1 - \left(\exp(l_0/n)\right)^2$.

[9/7/2020] On page 176, in the box before exercise 12.26, on the displayed line, replace the left side with $\ln \dfrac{\sum_{i \le j} \hat{\pi}_i}{1 - \sum_{i \le j} \hat{\pi}_i}$.

[9/2/2020] On page 64, in exercise 4.23, on the first line, change "experience (x_2)" to "experience (x_1)". On the second line, change $(x_3 = 1)$ to $(x_2 = 1)$ and change $(x_3 = 0)$ to $(x_2 = 0)$.

[8/30/2020] On page 139, on the second to last line, change $b(\theta) = \theta$ to $b'(\theta) = \theta$.

[8/13/2020] On page 126, in exercise 9.4(i), change $\bar{x}_2$ to $\bar{x}$.

[8/10/2020] On page 291, in the solution to exercise 20.4, every $t - 20$ should be t, and the final answer is 5. Replace the solution with

The mean of the series is 50 and the current value $y_{20} = 60$, which is 10 higher than the mean. In the forecast of an AR(1) series, each excess of a term over the mean is β_1 times the excess of the previous term over the mean. Here, $\beta_1 = 0.75$. We want the t such that $y_t = 53$, an excess of 3 over the mean, so we want $10(0.75^t) < 3$. Solving for t,

$$10(0.75^t) < 3$$
$$0.75^t < 0.3$$
$$t \ln 0.75 < \ln 0.3$$
$$t > \frac{\ln 0.3}{\ln 0.75} = 4.185$$

The smallest t with $\hat{y}_{20+t} < 53$ is $\boxed{5}$.

[6/16/2020] On page 189, in exercise 13.1, the last four lines of the table should be:

Family size	2	
1 or 2	0	0.000
3 or 4	1	0.137
5 or more	1	0.355

[11/21/2019] On pages 87–88, change the solution to Quiz 5-3, starting with the third line, to

$$\frac{6.42}{9} = \frac{R^2}{1 - R^2}$$
$$0.713333 - 0.713333R^2 = R^2$$
$$R^2_{(3)} = \frac{0.713333}{1.713333}$$

The VIF is

$$\text{VIF}_3 = \frac{1}{1 - 0.713333/1.713333} = \boxed{\textbf{1.713333}}$$

[11/18/2019] On pages 278–279 in each of the four formulas of Section 19.6, change the lower limit of the summation from $t = T_1$ to $t = T_1 + 1$.

[10/29/2019] On page 218, in the solution to exercise 14.30, change the last 4 lines to

With $\hat{y}_i = y_i$,

$$l_{\max} = -\ln(1 \cdot 2 \cdot 3 \cdot 4 \cdot 5) - 5 = -9.7875$$

The pseudo-R^2 statistic is

$$\frac{10.4931 - 10.0002}{10.4931 - 9.7875} = \boxed{\textbf{0.6985}}$$

[10/29/2019] On page 218, in the solution to exercise 14.33, change the final answer -0.44548 to -0.63000.

[9/1/2019] On page 283, in exercise 19.15, on the second line, replace $\mu_c \ne 0$ with $\mu_c > 0$.

[9/1/2019] On page 287, replace the solution to Example 20A with

First calculate r_1. The mean of the six terms is 45. After subtracting 45 from each term, the remainders of the time series terms are $\{10, -10, 7, -5, 1, -3\}$. The autocorrelation at lag 1 is

$$r_1 = \frac{(10)(-10) + (-10)(7) + (7)(-5) + (-5)(1) + (1)(-3)}{10^2 + (-10)^2 + 7^2 + (-5)^2 + 1^2 + (-3)^2} = -0.75$$

Then $\hat{\beta}_0 = 45 + 0.75(45) = 78.75$. The estimated values of the time series are $\hat{y}_t = 78.75 - 0.75y_{t-1}$, and the error is

$$\varepsilon_i = \hat{y}_t - y_t = 78.75 - y_t - 0.75y_{t-1}$$

We cannot calculate $\hat{y}_1$, so we can't calculate the first error. The other errors are 2.5, 0.5, -0.25, 2.75, and 2.25. The mean error is 1.55. The variance of the error is

$$\frac{1}{6-3}\left((2.5 - 1.55)^2 + (0.5 - 1.55)^2 + (-0.25 - 1.55)^2 + (2.75 - 1.55)^2 + (2.25 - 1.55)^2\right) = \boxed{\textbf{2.391667}}$$

[8/30/2019] On page 165, on the last line, change $\Pr(Y \le j)$ to $\Pr(Y \le m)$.

[8/30/2019] On page 265, in Figure 18.4, in the table, replace the lines for Sequence 4 and 5 with

Sequence	Link	Distance
4	{9}—{8,10}	4.924
5	{5}—{8,9,10}	7.008

In other words, interchange 5 and 9.

[8/29/2019] On page 253, in Table 17.1, on the eighth line, the one starting with "1.", change $\sum_{i=1}^p \sigma_{jm}^2$ to $\sum_{j=1}^p \phi_{jm}^2$.

[8/20/2019] On page 235, on the second line from the end of the page, change $f^{*b}(x)$ to $\hat{f}^{*b}(x)$ (add a hat on top of the f).

[8/20/2019] On page 237, on the first line of step 1 of the algorithm (the line after "The algorithm works as follows:"), delete "be".

[8/18/2019] On page 225, in the solution to Example 15C, on the fifth line, change XY to X:

$$4.5 < X < 6Y = 50$$

[8/15/2019] On page 208, in exercise 14.10(D), change "All by III" to "All but III".

[8/13/2019] On page 194, in the solution to exercise 13.5, replace the last sentence with

Thus the systematic component for males is the systematic component for females minus $-1.200 + 0.012(60) = -0.48$, and the ratio we want is $e^{0.48} = \boxed{\textbf{1.6161}}$.

[8/13/2019] On page 234, in formula (16.5), insert a 2 before the fraction:

$$\text{Residual mean deviance} = -2\left(\frac{\sum_m \sum_k n_{mk} \ln \hat{p}_{mk}}{n - |T|}\right)$$

[8/8/2019] On page 162, in the second displayed equation, change the second to last denominator from $1 + e^{-\eta_i}$ to $1 + e^{\eta_i}$.

[8/6/2019] On page 142, on the seventh line, change X_i to x_i.

[8/6/2019] On page 146, in exercise 11.8, in the table, change $\hat{\beta}$ for the intercept from -2.633 to -2.663.

[8/2/2019] On page 94, in the solution to exercise 6.6 statement II, on the first line, change "the higher the variance" to "the lower the variance".

[8/2/2019] On page 95, in the second bullet, on the second to third lines, change "cannot decrease the RSS and will almost surely increase it" to "cannot increase the RSS and will almost surely decrease it".

[8/1/2019] On page 123, in the solution to exercise 8.16(2), change "the latter" to "partial least squares".

[7/17/2019] On page 51, in the solution to exercise 3.26, on the fifth line, change s_{b_1} to s_{b_0}.

[5/16/2019] On page 250, on the sixth line, change x_{20} to p_{20}.

[5/9/2019] On page 405, replace the solution to question 25 with

First we have to back out the loglikelihood of the model. Using equation (14.15),

$$R^2 = (\text{max-scaled } R^2)(1 - \exp(l_0/n)^2) = 0.80(1 - (e^{-0.4588})^2) = 0.480419$$

Then using equation (14.14),

$$1 - R^2 = \left(\frac{\exp(l_0/n)}{\exp(l(\mathbf{b})/n)}\right)^2$$
$$\sqrt{1 - 0.480419} = \frac{e^{-0.4588}}{e^{l(\mathbf{b})/100}}$$
$$e^{l(\mathbf{b})/100} = \frac{0.632042}{0.720820} = 0.876837$$
$$l(\mathbf{b}) = 100 \ln 0.876837 = -13.1434$$

The AIC penalty is 2 times the number of parameters. The AIC is

$$\text{AIC} = -2l + 2p = -2(-13.1434) + 2(3) = \boxed{\textbf{32.29}}$$

None of the answer choices is correct.

[5/8/2019] On page 249, in the paragraph before Section 17.2, on the first line, change "minimizes" to "maximizes". On the third line, change "minimize" to "maximize".

[5/8/2019] On page 399, in the solution to question 27, replace the last line with

$$\frac{3.1371}{\sqrt{3.1371^2 + 28 - (2 + 1)}} = \boxed{\textbf{0.5315}}$$

None of the answer choices is correct.

[5/3/2019] On page 195, replace the solution to exercise 13.12 with

The systematic component is

$$1.5 + 0.4(0.5) + 0.2(0.7) = 1.84$$

The Poisson mean is $e^{1.84} = 6.296538$. We multiply the Poisson probabilities by

$$\frac{1 - \pi_0}{1 - e^{-\mu_i}} = \frac{1 - 0.25}{1 - e^{-6.296538}} = 0.751385$$

The probability of 2 is

$$\Pr(y_i = 2) = \frac{1 - \pi_0}{1 - e^{-\mu_i}} e^{-\mu_i} \frac{\mu_i^2}{2} = 0.751385 e^{-6.296538} \frac{6.296538^2}{2} = \boxed{0.027446}$$

[4/23/2019] On page 86, in the solution to exercise 5.19, replace 1.1080, 34.6021, and 3.5600 with 1.0526, 5.8824, and 1.8868 respectively.

[4/22/2019] On page 152, in exercise 11.19, on the second line of (i), change $S(y, \theta)$ to $S(y, \phi)$. In (ii), change $a(\theta)$ to $b(\theta)$.

[4/22/2019] On page 239, in Table 16.2, on the line for k-fold CV, reverse the two arrows; bias should have the down arrow, variance should have the up arrow.

[4/11/2019] On page 129, in the solution to exercise 9.6, 3 lines from the end, the 5141.2 in the denominator should not be squared. The line should read

$$\sqrt{6.993}\sqrt{1 + \frac{1}{30} + \frac{(50 - 66.6)^2}{5141.2}} = 2.7570$$

[4/11/2019] On page 283, in exercise 19.14, on the third line, change "variance" to "sample variance".

[4/7/2019] On page 178, in the paragraph starting "The textbook discusses", delete the second sentence. The latest errata list for the Frees textbook corrects the errors. Also delete footnotes 5 and 6.

[4/7/2019] On page 190, delete the line under equation (14.9). The latest errata list for the Free textbook corrects the textbook error. Also delete the last sentence of the solution to Example 14C, and the last sentence on the page.

[4/7/2019] On page 192, delete footnote 3; the latest errata list for the Frees textbook corrects the textbook error.

[3/12/2019] On page 49, in the solution to exercise 3.14, on the first and third lines, change s_{b_2} to s_{b_1}.

[12/30/2018] On page 249, in Figure 17.2, replace -9.01566 with -9.86072.

[10/24/2018] On page 33, on the first line of the solution to Example 3B, change "The residual standard error is s" to "The mean square error is s^2".

[9/25/2018] On page 76, one line above Quiz 5-3, change "sever" to "severe".

[9/25/2018] On page 78, in exercise 5.2, on the first line, change "3 variables" to "2 variables plus an intercept".

[9/20/2018] On page 33, on the first line of the solution to Example 3C, change b_3 to b_2.

[9/5/2018] On page 247, the subscripts of the third displayed formula on the page and the line after it are wrong. Replace those two lines with

$$z_{k1} = \sum_{j=1}^{p} \phi_{j1} x_{kj}$$

Since the means of the X_j are 0, the mean of Z_1 is also 0.