
 Errata Sheet

Abbreviations: P=page; L=Line; Q=Question; E=Example; S=Solution

P159, L20: Replace the sentence “As expected, ...” with “Consistent with our previous findings with this data set, we see negative coefficients for **sex** (-1.34) and **minority** (-7.87) indicating that the mathgain score was lower for both girls and minority students in this data set.”

P445, L9: Replace “severity” with “pure premium”

P447, Q9: Replace “the first treatment” with “the second treatment”

P472, Q15: Replace

$$\text{Var}(Y_{ti}) = \text{Var}(u_{0i}) + X_{ti}^{(3)}\text{Var}(u_{3i}) + \text{Var}(\epsilon_{ti}) = \sigma^2 + \sigma_{in}^2 + \sigma_{tr}^2. \quad (\text{Answer: D})$$

with

$$\begin{aligned} \text{Var}(Y_{ti}) &= \text{Var}[u_{0i} + X_{ti}^{(3)}\text{Var}(u_{3i}) + \text{Var}(\epsilon_{ti})] \\ &= \text{Var}(u_{0i}) + \text{Var}(u_{3i}) + 2\text{Cov}(u_{0i}, u_{3i}) + \text{Var}(\epsilon_{ti}) \\ &= \sigma_{in}^2 + \sigma_{tr}^2 + 2\rho\sigma_{in}\sigma_{tr} + \sigma^2. \end{aligned} \quad (\text{Answer: E})$$

P475, Q30: Replace the two equations with

$$V = \frac{n-1}{n}W + B = \frac{2000-1}{2000}(35) + 57 = 91.9825$$

$$\hat{R} = \sqrt{V/W} = \sqrt{91.9825/35} = 1.62 \quad (\text{Answer: B})$$

P466: Revised answer keys: #12 C, #15 E, #30 B, #35 A, #36 B.

P471, Q12: Replace “The covariance of outcomes from different doctor ...” with: The covariance of outcomes from different doctor and different patient is given as 18. Hence, for $j \neq j'$ and $k \neq k'$,

$$\text{Cov}(Y_{ijk}, Y_{ij'k'}) = \text{Cov}(u_i + v_j + \epsilon_{ijk}, u_i + v_{j'} + \epsilon_{ij'k'}) = \sigma_u^2 = 18.$$

The value given in the diagonal is the variance of the outcomes Y_{ijk} :

$$\text{Var}(Y_{ijk}) = \sigma_u^2 + \sigma_v^2 + \sigma^2 = 72.$$

The Intraclass Correlation of Coefficient (Study Manual, Sec. 6.4) for patients with the same clinic is

$$\frac{\sigma_u^2}{\sigma_u^2 + \sigma_v^2 + \sigma^2} = \frac{18}{72} = 0.25 \quad (\text{Answer: C})$$