

BOOK ERRATA –

Foundational and Applied Statistics for Biologists using R

2nd printing, 1st edition

updated 1/12/2026

Chapter 1

1. Page 19, Q 10. *reduction ad absurdum*

Chapter 2

1. Page 31. The upper bound to the probability of an intersection occurs under independence will equal the probability of the event with the smallest marginal probability: $\min(P(A), P(B), \dots, P(k))$.
2. Page 47, Q 31d. Given results in (be) and (cd)

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Chapter 3

1. Page 70, Example 3.7. Recently, 88-120 goats were randomly sampled from the GYE...
2. Pg. 93. The mean of a geometric distribution is $(1 - \pi)/\pi$, not $1/\pi$ (Thanks to Dr. Brian Parker, New York University)
3. Pg. 98, Q. 13.
... for negative binomial dispersion parameter m-k and mean k/m.
4. Pg. 98, Q. 13 part e.
`Lambda.hat <- mean(Leaf.obs) * mean(rep(Mites.per.leaf, Leaf.obs))`

Chapter 4

1. Pg. 144. Q. 8. In the table, X should be replaced with x .
2. Pg. 146 Q. 29. “Let $X \sim N(2,4)$, and let $Y \sim N(3,2)$, and assume that X and Y are independent.”
3. Pg. 146. Q. 30. To the end of the paragraph describing the problem, the following statement should be added: “Assume J and B are independent.”

Chapter 5

1. Pg. 193. Q. 1. To the end of the paragraph describing the problem, the following statement should be added: “Assume J and B are independent.”
2. Pg. 194. Q. 7. To the end of the sentence describing the problem, the following statement should be added: “Assume random variables are independent, and that H_0 is true for (d) and (e).”

Chapter 6

1. Page 216. An error occurs in the worked example for MSE and t^* .
The example *currently* reads:

$$t^* = \frac{(0.114 - 0.099) - 0}{0.0171\sqrt{2/34}} = 2.4607$$

It should be changed to read:

$$t^* = \frac{(0.114 - 0.099) - 0}{0.0171\sqrt{3/34}} = 2.4607$$

2. Page 223. She wants to use $\alpha = 0.05$ and $1 - \beta = 0.8$.
3. Page 223.

Replace:

$$n = \frac{(1.645 - 0.842)^2 100}{(-5 - 0)^2} = 24.7$$

With:

$$n = \frac{(1.645 + 0.842)^2 100}{(-5 - 0)^2} = 24.7$$

4. Page 223. Given $\alpha = 0.05$, $1 - \beta = 0.8, \dots$
5. Page 234.
In a lower tailed test, the test statistic W^* will also be $W_2 W_1$.
6. Page 241, Question 4. Last sentence in the Question 4 introduction should have the following corrections.
“With this in mind, I take a random sample of 20 female freshmen honors students and find that the mean height is 61 inches.”
7. Page 243, Question 9. By typing book.mneumenu()

Chapter 7

1. Page 261. ...area is $\{(61.59, 94.34)\}$
2. Page 281. ...blockrandomize what you can randomize-block what you cannot
3. Page 291. Question 12. A sample represents a 5 km^2 area.
4. Page 291. Question 12b and 12c. Change the order of these questions.
5. Page 291. Question 12d. Replace the symbol $S_{\bar{Y}_{str}}$ with $\hat{\sigma}_{\bar{Y}_{str}}$
6. Page 291. Question 12e. Replace the symbol $S_{\hat{T}}$ with $\hat{\sigma}_{\hat{T}}$

Chapter 8

1. Page 306. Missing right parenthesis in code:

```
with(crab.weight, cor.test(gill.wt, body.wt, method = "pearson"))
```

Chapter 9

1. Page 346. Eq. 9.39. For notational consistency, replace TSS with $SSTO$ in denominators of ratios.
That is, replace:

$$R^2 = 1 - \frac{SSE}{TSS} = \frac{SSR}{TSS}$$

with

$$R^2 = 1 - \frac{SSE}{SSTO} = \frac{SSR}{SSTO}$$

2. Page 347. Eq. 9.40 is incorrect.
Replace:

$$R_{adj}^2 = 1 - \frac{SSE}{SSTO} \times \frac{n-1}{n-p}$$

with

$$\begin{aligned} R_{adj}^2 &= 1 - \left(\left(1 - \frac{SSR}{SSTO} \right) \left(\frac{n-1}{n-p} \right) \right) \\ &= 1 - \left((1 - R^2) \left(\frac{n-1}{n-p} \right) \right) \end{aligned}$$

3. Page 358. Text above Eq. 9.54. The reciprocal of the denominator of 9.53 is the k th VIF. This is
4. Page 358. Text below Eq. 9.53. Note that as R_k^2 increases, $1 - R_k^2$ approaches 0, ...
5. Page 368. Text above Example 9.21. ...then the two-tailed P -value is calculated as $2P(T \geq |t^*|)$...
6. Page 389. Eq. 9.86. Use of λ is for log-likelihood is confusing. Replace occurrences of λ with ℓ .
7. Page 392. Last sentence of section 9.20.5.2

The *sensitivity* (i.e. *true positive rate*) is the number of true positives divided by the number of observed true positives and false negatives: $14/15 = 0.93$. The *specificity* (i.e., *true negative rate*) is the number of true negatives divided by the number of observed-true negatives and false positives: $6/9 = 0.67$ (also see Example 2.11).

8. Page 403. 1st sentence of section 9.22. We calculate estimates of parameters for a ...
9. Page 417. Question 10.

bc. Adjust the slider widgets, or simply click *Refresh* repeatedly (> 30 times). Are MSE and MSR consistently greatly greater than or less than $E(MSE)$ and $E(MSR)$. Why?

Chapter 10

1. Page 497. Question 1 “Described in [Exercise Example 10.2](#)”.
2. Page 500. Question 13. To allow adequate replication use the following data:

```
scores <- data.frame(APscores = c(4.6, 4.8, 4, 3.4, 3.4, 2.1, 4.1, 3.9, 4, 4.1, 3.8, 1.2, 4.5, 4.9, 4.3, 3.5, 3.6, 3.2, 3.9, 4.3, 3.8, 4.2, 4.4, 2.4), school = factor(rep(c(1,2), each = 6)), town = c("Burley", "Pocatello", "Boise"), instructor = factor(rep(c(rep(1, 3), rep(2, 3)), 2)), class = factor(rep(c(1,2), each=12)))
```
3. Page 500. Question 16a. Analyze the data correctly ([with block in hybrid as a random effect](#)) using aov.
4. Page 500. Question 16c. Reanalyze the data, and repeat the hypothesis tests using lmer. [Define block and hybrid as random effects.](#)

Appendices

1. Page 549, A.4 Set Theory and Probability $P(A) - 1 = 1 - P(A) = P(A')$