

MS Module 14: Two-factor ANOVA, interaction effects homework assignment

(The attached PDF file has better formatting.)

*Homework assignment:*

Solve one of the following end of chapter problems, showing all work. The numerical answers are in the appendix to the textbook; for the homework assignment, show how the answer is derived.

- ! Problem 49, parts a, b, c, and d, on page 593 (1<sup>st</sup> ed) / page 606 (2<sup>nd</sup> ed), which is problem 61 on page 695 (3<sup>rd</sup> ed).
  - " Part (a): The problem gives SSA, SSB, SSE, and SST. Use the appropriate degrees of freedom for each to construct the ANOVA table.
  - " Part (b) tests if any interaction effect is significant at a 5% level. Show the  $F$  test and the  $p$  value.
  - " Part (c) tests factor A; part (d) tests factor B. Show the  $F$  test and the  $p$  value.
- ! Problem 51, parts a, b, and c, on page 594 (1<sup>st</sup> ed) / page 607 (2<sup>nd</sup> ed), which is problem 63 on page 696 (3<sup>rd</sup> ed).
- ! Problem 53 on page 594 (1<sup>st</sup> ed) / page 607 (2<sup>nd</sup> ed), which is problem 67 on page 698 (3<sup>rd</sup> ed).
  - " The problem gives the observed values, not the summary statistics. The totals in the last column and the last row simplify the arithmetic somewhat. Show how to construct the ANOVA table.
  - " Test the interaction effects and the two major effects, showing the  $F$  test and the  $p$  value. See problem 49 parts (b), (c), and (d) for the items you should address.