

Statistics 5303 — Exam 1
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This exam is open book, open notes; you may use a calculator and you may use your computer to read the pdf form of the text and the notes. **Do your own work! You may not use your computer to communicate with anyone else during the exam or to use R.** Use the back if more space is needed. There are seven questions, each worth 10 points. Please attach your data analysis notes for these data sets to your exam with the paper clips provided in the front of the room. **Provide justification for your answers and reference specific pages in your notes!**

Questions 1 through 3 relate to the wings data.

1. Describe how you checked assumptions and what you decided. Tell me about nonnormality, nonconstant variance, outliers, and so on. Were there any problems that required fixing? If so, how did you fix them?

2. How would you describe the effects of temperature and time on the degree of doneness for the wings?

3. Which factor/level combination (or combinations) should be used to obtain the correct degree of done-ness?

Questions 4 through 6 relate to the glue data.

4. How many experimental units does this experiment have? Justify your answer.

5. Which type of glue (liquid versus stick) should we use for a strong bond? Which quality of glue (brand name versus generic) should we use?

6. Should we use a weight to hold the pieces of material together to achieve a strong bond?

7. We have an unbalanced three-way factorial design with factors A, B, and C. I compute both Type II and Type III ANOVAs. Which of the following mean squares will be the same in the two tables (be sure to explain why)?

a. MS_{AB}

b. MS_{ABC}

c. MS_E