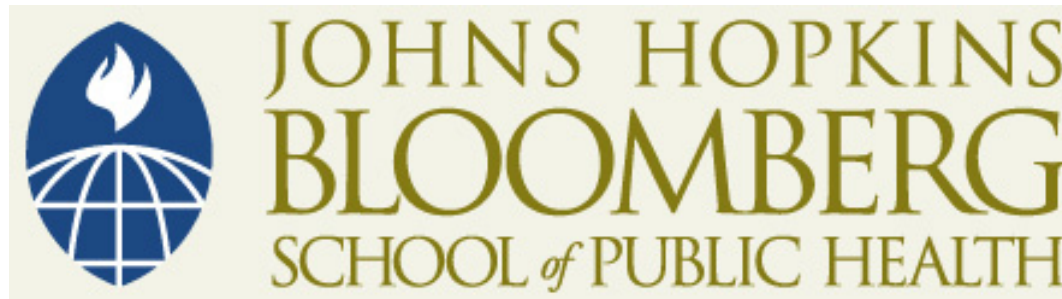


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# Statistics for laboratory scientists II

## Homework problems for lecture 6

1. Consider the following data on the responses of mice to two treatments.

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**Ttt A:** 159 190 204 206 222 223

**Ttt B:** 370 376 418 488 490 503 512 532 587 605 637

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2. Assume that these data are independent samples from two normal distributions.
  - a. Perform a statistical test of whether the two underlying populations have the same variance. **What do you conclude?**
  - b. Calculate a 95% confidence interval for the ratio of the underlying population **SDs**.

3. Consider the following (fictitious) data on the weight-gain of lambs on three different diets (from example 11.2 in Samuels and Witmer, pg 468).

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<b>Diet 1</b>	<b>Diet 2</b>	<b>Diet 3</b>
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8	9	15
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16	16	10
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9	21	17
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	11	6
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	18	
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4. A file containing these data is available here: [data\\_hw07-1.csv](#).
- Use **R** to calculate the ANOVA table and test the hypothesis that the average weight gain for the three diets is the same.
  - What do you conclude?**

5. We consider data on the stem length of daffodils from four sides of a building and from an open area nearby. (Problem 11.12 in Samuels and Witmer, pg 482). Here are some summary statistics:

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<b>Area</b>	<b>Ave</b>	<b>SD</b>	<b>n</b>
<b>North</b>	41.4	9.3	13
<b>East</b>	43.8	6.1	13
<b>South</b>	46.5	6.6	13
<b>West</b>	43.2	10.4	13
<b>Open</b>	35.5	4.7	13

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6. A file containing the data is available here: [data\\_hw07-2.csv](#).
- Plot the data.
  - Use **R** to calculate the ANOVA table and test the hypothesis that the average weight gain for the three diets is the same.
  - What do you conclude?**