

This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike License](https://creativecommons.org/licenses/by-nc-sa/4.0/). Your use of this material constitutes acceptance of that license and the conditions of use of materials on this site.



Copyright 2006, The Johns Hopkins University and Karl W. Broman. All rights reserved. Use of these materials permitted only in accordance with license rights granted. Materials provided "AS IS"; no representations or warranties provided. User assumes all responsibility for use, and all liability related thereto, and must independently review all materials for accuracy and efficacy. May contain materials owned by others. User is responsible for obtaining permissions for use from third parties as needed.

# Statistics for laboratory scientists II

## Homework problems for lecture 3

1. [Like problem 10.35, pg 421, in Samuels & Witmer]

An ecologist studied the spatial distribution of tree species in a wooded area. From a total area of 21 acres, he randomly selected 144 plots, each 38 feet square, and noted the presence of absence of maples and hickories in each plot. The results are shown in the following table.

---

<b>Maples</b>		
<b>Hickories</b>	<i>Present</i>	<i>Absent</i>
<i>Present</i>	26	63
<i>Absent</i>	29	26

---

To test whether the presence of maples is independent of the presence of hickories:

- a. Calculate the chi-square test statistic and a corresponding P-value.
- b. Calculate the likelihood ratio test statistic and a corresponding P-value.
- c. Use R to perform Fisher's exact test
- d. **What do you conclude?**