Statistics 101L – Homework 1

Due Wednesday, January 21, 2009

Homework is due on the due date at the end of the lecture.

Reading:  January 12 – January 14  Chapters 1, 2, & 3
          January 16 – January 23  Chapters 4 & 5

Assignment:

1. For each of the following situations answer the questions Who? and What? When answering the question What? be sure to indicate whether the variable is categorical (include categories) or quantitative (include units where appropriate).
   a. The proportion of registered voters in the U.S. who favor withdrawal of U.S. troops from Iraq.
   b. The median assessed value of residential homes in the state of Iowa.
   c. The average size of the high school graduating class for students attending Iowa State University.
   d. The proportion of Stat 101 students (all sections) who live on campus.
   e. The average height of students in this section of Stat 101.

1. A sample of 327 students in grades 4 – 6 in selected schools in Michigan were asked the following question about their school goals, specifically “What would you most like to do at school?” The students could choose either “make good grades,” “be good at sports” or “be popular.” It was also noted whether the student was from a rural school or an urban school. A summary of how many students from each type of school and their answers to the question is given in the table below.

<table>
<thead>
<tr>
<th>What would you most like to do at school?</th>
<th>Grades</th>
<th>Popular</th>
<th>Sports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>57</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>Urban</td>
<td>103</td>
<td>49</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>160</td>
<td>99</td>
<td>68</td>
</tr>
</tbody>
</table>

   b) Combining rural and urban together, create an appropriately labeled bar chart for the percentage of students who answered the question “What would you most like to do at school?” What does the bar chart indicate about school goals for students in grades 4 – 6?
   c) Find row percentages for rural and urban schools. What do these percentages indicate about the difference between rural and urban schools in terms of school goals for students in grades 4 – 6?
   d) Create a graphical display of the row percentages you found in c).
   e) Extra Credit: Use JMP to make a segmented bar chart (mosaic plot) that displays the percentages in c). Turn in the JMP output.