Purpose of Study
This study investigates whether two different pedagogical techniques make a difference on a student’s statistical anxiety, statistical self-efficacy, and performance in an Introduction to Social Statistics course.
• Fall Semester: taught in the traditional face-to-face lecture format, with problems assigned
• Spring Semester: taught with a flipped classroom format, with lectures watched prior to class, and classroom time spent engaging in problems

Review of Literature
✦ In a flipped classroom students are more likely to engage with each other, explain concepts, and an increased willingness to ask each other questions as well as the professor (Strayer 2012).
✦ Self-Efficacy in a statistics class is influenced through cooperative learning groups (Bandura 1986).
✦ Math Anxiety negatively effects students academic success. Thus, teaching approaches that offset anxiety have clear educational benefits (Gundy, Kline, Liu, and Mortan 2006).

Traditional Class: Preliminary Hypotheses
✦ Student’s statistical anxiety will decrease from the beginning to the end of the semester.
✦ Student’s self-efficacy towards statistics will increase from the beginning to the end of the semester.
✦ Statistical anxiety will be negatively correlated with a student’s performance in class.
✦ Statistical self-efficacy will be positively correlated with a student’s performance in class.

Preliminary Results
Table 1: Descriptive Statistics & t-test Results for Anxiety & Self-Efficacy towards Statistics in the Traditional Class

<table>
<thead>
<tr>
<th></th>
<th>Pretest M</th>
<th>Pretest SD</th>
<th>Posttest M</th>
<th>Posttest SD</th>
<th>95% CI for Mean Difference</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>99.06</td>
<td>30.51</td>
<td>98.06</td>
<td>26.94</td>
<td>-9.91, 11.91</td>
<td>.195</td>
<td>15</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>3.96</td>
<td>.87</td>
<td>4.7</td>
<td>.61</td>
<td>-1.20, -0.31</td>
<td>-3.59*</td>
<td>17</td>
</tr>
</tbody>
</table>

• There was not a statistically significant difference for the student’s statistical anxiety from the beginning to the end of the semester.
• There was a statistically significant difference, p<.01, for student’s self-efficacy towards statistics. Self-efficacy towards statistics increased from the beginning to the end of the semester.

Correlations
• Statistical anxiety and performance have a strong negative correlation, $r(15) = -.750, p < .001$. Meaning students who have lower levels of statistical anxiety have higher performance scores.
• Statistical self-efficacy and performance have a strong positive correlation, $r(17) = .820, p < .000$. Meaning students who have higher levels of statistical self-efficacy have higher performance scores.

Next Step: Final data collection Spring 2014.
Hypothesis to be examined:
✦ Statistical anxiety for students in the flipped class will be significantly lower at the end of the semester than students in the traditional class.
✦ Statistical self-efficacy for students in the flipped class will be significantly higher at the end of the semester than students in the traditional class.
✦ Students in the flipped classroom will have significantly higher performance scores than students in the traditional class.

Special thanks to the UWRF Faculty and Academic Staff Development Board for supporting this project through the Excellence in Teaching & Learning program.