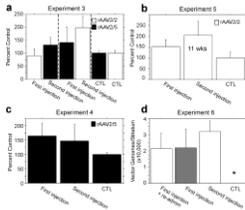Tentative Syllabus (negotiable)

GMS 6029 Experimental Design and Analyses

9:30-10:30am on Thursdays in LG-110A

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In the first phase of the class, students will be required to bring in 2 papers, 1 that they consider to be well designed and analyzed, and 1 that they consider not so well done. They will present the results section with whatever methods are germane and the class will evaluate the design and statistical analysis. In the second phase of the class, students will bring their own data and it will be analyzed in front of the class to teach a practical way to do statistics. The content of the class can be very much influenced by the subjects that are interesting or important to the students.

Potential subjects that can be covered:

1. Standard deviation vs. standard error of the mean (SEM) in graphs (5 min)
2. Sampling distributions and its implications for statistics (sort of goes with #1)
3. Power analysis for IACUC (or whatever)
4. How to write about statistics in YOUR results section
5. Are you an electrophysiologist and do you think each cell you record from is an experimental subject?
6. Outlier data or "damn I hate this data point, can I get rid of it? " (no)
7. Here are my data, what stats do I do? (the game show)
8. If it doesn't look statistically significant by eye it probably isn't or, even if it is statistically significant, is it biologically relevant (otherwise called: we only care about big effects)?
9. What the heck is transformation of data for?
10. Let's design your next experiment!
11. T-tests? Really? T-tests? Are you nuts????
12. Stereology anyone?

The grading is Satisfactory/Unsatisfactory. The first requirement for a satisfactory grade is class attendance. Poor class attendance will lead to an unsatisfactory grade. Students who miss class will be warned prior to receiving an U. The second criterion for grading is class participation. Failure to ask questions, present papers, or bring data will lead to a designation of poor class participation and could lead to an unsatisfactory grade.