

STA 2453: Statistical Consulting

University of Toronto, Fall 2015 through Spring 2016

Instructor: Jerry Brunner

In the Fall, the class will meet Friday 12:10 - 2:00 in SS2115. In the Spring we are scheduled to meet 11:10-1:00.

Note: This page is under construction, and will be updated frequently throughout the year.

Descriptions of some potential projects for the course are posted [HERE](#). Likely you will be assigned one of these as your final project for the course, so please take a careful look. I believe Agnes will pay us a visit this coming Friday, and this will be a good opportunity to ask questions.

Assignment 6 is posted below.

- **Computing Resources:** Information and Links.

- **Assignments**

1. **Assignment One:** SAS exercise one, due at the beginning of class on Friday October 9th.
2. **Assignment Two:** Due at the beginning of class on Oct. 16th. Print the assignment and hand in the answers on the printed sheet.
 - [PDF](#) [OpenOffice.org](#) format
3. **Assignment Three:** SAS exercise two, due at the beginning of class on Friday Nov. 6th.
4. Let's say that the email to Nick was Assignment 4 (out of order)
5. **Assignment Five:** Due at the beginning of class Friday Nov. 20th. Using SAS, find out whether sex of fish is missing at random with respect to the other variables. I plan to do at least one logistic regression. I'll probably try `proc freq` too.
6. **Assignment Six:** Try some mixed model repeated measures with `proc mixed`, using Ana's accuracy data. The data are in the Excel spreadsheet [Accuracy.xls](#). Follow the pattern of the reaction time analysis, but limit it to the mixed model (don't bother with the covariance structure approach), and treat the full context data separately.

The best I think we can do with a normal model is to use the response (dependent) variable $2 * \arcsin(\sqrt{p})$, where p is the proportion right. Remember, the full context numbers correct (CQ, CE and CS) are out of 6, while the others are out of 10.

I did this and I'm really unhappy with the analysis. When you do it, perhaps you will see why. I am looking forward to the generalized mixed linear model, which Yuxin and Ruoyi are going to do with R. Then I'll try to replicate it with `proc nlmixed`, and we will have learned something.

It's due at the beginning of class on Dec. 4th. Please write conclusions on your printout. Try to avoid statistical terminology; assume you are writing for Ana, not me.

- **Lecture slides**

1. [Email from a client](#)
2. Introduction to SAS
 - [PDF](#) [View LaTeX](#) [Download LaTeX](#)
3. SAS Example One: The [SENIC data](#)

| | | |
|--------------------------------|-------------------------------------|---|
| senic0.sas | senic0-log.html | senic0-results.html |
| senic0.1.sas | senic0.1-log.html | senic0.1-results.html |
| senicread.sas | | |
| senicdescr.sas | senicdescr-log.html | senicdescr-results.html |
| basicsenic.sas | basicsenic-log.html | basicsenic-results.html |
| senicreq1.sas | senicreq1-log.html | senicreq1-results.html |
4. SAS Example Two: The [Hungry Mice data](#)
 - **Description of the data**

| | | |
|--------------------------------|-------------------------------------|---|
| hungrymice.sas | hungrymice-log.html | hungrymice-results.html |
|--------------------------------|-------------------------------------|---|

5. Old Slide Show on logistic regression
 6. SAS Example Three: The Bird Lung data
[birdlung.sas](#) [birdlung-log.html](#) [birdlung-results.html](#)
 7. Within-cases from an old class
 - a. Multivariate concepts: Multiple quantitative dependent variables
 - b. Multivariate with SAS: Illustrate multivariate regression and ANOVA on the math data.
 - c. Within Cases Concepts Part 1: Concept overview, classical univariate approach and multivariate approach, including Hotelling's T^2
 - d. More examples from that old class
 - e. Within Cases Concepts Part 2: The covariance structure approach.
 8. Within-cases using our clients' data
 - a. Ana's reaction time data: Multivariate approach
[ReactionTime1.sas](#) [ReactionTime1-log.html](#) [ReactionTime1-results.html](#)
 - b. Ana's reaction time data: Covariance structure approach and equivalent mixed model
[ReactionTime2.sas](#) [ReactionTime2-log.html](#) [ReactionTime2-results.html](#)
 - c. Gillian's Nasalance data: Covariance structure approach with some time series methods.
 - 9.
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