BIOS 700: Research Skills in Biostatistics (1 credit)
Fall 2008

Professor: Amy H. Herring
Office: 3104-D McGavran-Greenberg, e-mail: aherring@bios.unc.edu

Class Location and Time: 2:00-2:50 Fridays (2:00-3:50 on some Fridays)

BIOS 700 will introduce doctoral students in biostatistics to research skills necessary for writing a dissertation and for a career in research. Format and course topics will vary from week to week, as described below. Grading will be pass/fail. Students will be given assignments to reinforce skills presented in class. Because the assignments are important in skill reinforcement, all students must complete all assignments in order to earn a grade of P, and no auditors will be allowed. Lectures will be given by faculty (and sometimes students!) in biostatistics as well as by UNC graduate school resource personnel. Note: this course will not count toward BIOS requirements for graduation.

Prerequisite:
Either (1) completion of BIOS core: BIOS 760 and 761 (or 758), 762, 763, and 767; or (2) successful passing grade on either doctoral qualifying examination in biostatistics

Learning Objective: Students will become familiar with research skills and resources necessary for a career in biostatistical research.

Course Content:

1. August 22: Introduction; survival tips and strategies for success

2. August 29: How to choose a dissertation advisor (faculty and student panel discussion)
3. September 5: Using LaTeX for word processing: basics

4. September 12: Using LaTeX for word processing: advanced topics
   (importing graphics, Beamer, dissertation proposal format)

5. September 19: Researching a statistical topic and identifying major papers in a research area; determining influence of statistical papers over time
   
   Assignment: Identify ten very important papers in a research area, providing the criteria used to determine the papers are important. Prepare a typed summary in LaTeX.

6. September 26: Designing and conducting simulation studies in R

7. October 3: Designing and conducting simulation studies in Matlab

   Assignment: Conduct a simple simulation study in R or Matlab. Topics will be provided by the instructor. Summarize simulation results in a short LaTeX document.

8. October 10: Designing and conducting simulation studies in SAS

9. October 17: Fall break

10. October 24: Oral presentation skills
    
    Assignment: Prepare a 5 minute oral presentation for next week using LaTeX to describe your simulation study and assigned topic.

11. October 31: In-class presentations (class may last longer than one hour)

12. November 7: Writing skills; preparing a dissertation proposal (class will last two hours)
    
    Assignment: Write a mini dissertation proposal based on your simulation study. The proposal should include a short literature review, a proposal for the work you did in the simulation study, simulation results, and application of the methods to a dataset of your own choosing. Maximum length is 5 pages.

13. November 14: No class (make-up November 7)

14. November 21: Preparing your CV
    
    Assignment: Create your CV in LaTeX
15. November 28: Thanksgiving holiday

16. December 5: Manuscript submission and review (faculty panel of editors and associate editors of journals)