Bios 532- Statistical Computing

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Lecture: Tuesday 10:00-11:50, Room 105

Textbooks: <u>**NONE**</u>

References: Numerical Recipes in C by W.H. Press, S.A. Teukolsky, W.T. Vetterling
and B.P. Flannery (2nd Edition)
Numerical Recipes in Fortran by W.H. Press, B.P. Flannery S.A.
Teukolsky, and W.T. Vetterling (2nd Edition)
Elements of Statistical Computing by Ronald A. Thisted
Elements of Computational Statistics by James E. Gentle
Numerical Analysis for Statisticians by Kenneth Lange
The Basics of S and S-Plus by Andreas Krause and Melvin Olson
ANY SAS book or manual
Tim Hesterberg, David S. Moore, Shaun Monaghan, Ashley Clipson, and
Rachel Epstein (2005), Bootstrap Methods and Permutation Tests,
2nd edition, W. H. Freeman, N.Y. (Free, available as a pdf)

Evaluation: Your grade will be based on three equally weighted projects.

Grading:
- 95 - 100 A
- 90 - 94 A-
- 85 - 89 B+
- 80 - 84 B
- 76 - 79 B-
- 66 - 75 C
- Below 66 F

Objectives: This course may include data management, numerical integration and differentiation, IMSL, weighted least squares, non-linear regression, random number generation, simulation from various distributions, bootstrap, jackknife, permutation tests, smoothing, graphics, matrix algorithms, and whatever else <u>**we**</u> can think of.

Bios532 (**Very Tentative**)

Date	Topic	
Jan 12	Game and review Bio531 final.	
Jan 19	Data management and rearrangement	**Project 1 Assigned**
Jan 26	Area under the curve	
Feb 2	?	
Feb 9	Random number generation, randomization, Monte Carlo Simulation	
Feb 16	Simulation, ODS, misc.	**Project 1 due**
Feb 23	R/S+ or ?	**Project 2 Assigned**
March 1	Re-sampling methods – Jackknife	
March 8	Spring Break	
March 15	Bootstrap and permutation tests	
March 22	Roots of equation(s)	
March 39	Maximum Likelihood Estimation	
April 5	?	**Project 3 Assigned**
April 12	Graphics and smoothing or ?	
April 19	SPSS and other packages or ?	