

BIOL 51a: Biostatistics
Summer 2009
MTWTh 11:00am – 1:00pm

Instructor: Jennifer James
Office: Goldsmith 111
e-mail address: jjames@brandeis.edu
Office hours: to be announced

Course Description: This course is a basic introduction to the methods of statistics and the mathematical analysis applied to problems in the life sciences. Topics include statistical analysis of experimental data, mathematical description of chemical reactions, and mathematical models in neuroscience, population biology, and epidemiology.

Textbook: Pagano & Gauvreau (2000), *Principles of Biostatistics*, 2nd Ed. Duxbury Thomson Learning, Pacific Grove, CA, USA.

LATTE: Course materials will be available online on LATTE. Log in at <http://latte.brandeis.edu> using your Unet username and password.

Grading Rubric:

- 30% Homework – Approximately 10 assignments consisting of 4-5 extended word problems. Grading will be on a coarse 4-point scale, 0-3, where 3 will be awarded if every problem was attempted honestly with sufficient level of detail. Late homework will be accepted, but reduced by one point for each day overdue.
- 30% Midterm – Multiple choice, short answer exam.
- 40% Final – 1:00 to 4:00PM on Thursday, July 2. Multiple choice, short answer exam.

Tentative Calendar:

Week	Subject	Textbook
1 (6/1-4)	Administrative introduction; introduction to Biostatistics; descriptive statistics, basics of probability, diagnostic tests and Bayes Theorem; probability distributions	Chs 2-3, 6-7
2 (6/8-11)	Probability distributions (continued); sampling distributions; inductive logic and statistical inference, confidence intervals and hypothesis testing, two-group comparisons, proportions	Chs 8-11
3 (6/15-18)	Categorical data (continued); MIDTERM, Linear models (ANOVA, regression)	Chs 14-15, 12, 19
4 (6/22-25)	Introduction to logistic regression, Rates and life tables, Introduction to survival analysis	Chs 20, 4-5, 21
5 (6/29-7/2)	Nonparametric methods, Introduction to statistical methods for bioinformatics (descriptive methods, multiple comparisons, false discovery rate)	Ch 13

Students with disabilities: If you are a student who needs academic accommodations because of a documented disability please present your letter of accommodation as soon as possible. If you have questions about documenting a disability or requesting academic accommodations you should contact Beth Rodgers-Kay in the Office of Academic Services at 6-3470. Letters of accommodations should be presented at the start of the semester to ensure provision of accommodations. Accommodations cannot be granted retroactively.