

Biomathematics 170A – class outline & schedule

Fall, 2012 – Lecture Monday, Wednesday 2:00-3:30 pm, 17-187 CHS

Discussion – Wed 4:00-4:50 pm LS 5230 (tentative)

Web site (Moodle): <http://ccle.ucla.edu/course/view/10F-BIOMATH170A-1>

Instructor: Jeff Gornbein LS 5202, 310-825-4193, gornbein@ucla.edu

Suggested texts: Petrie, A Sabin C Medical Statistics at a Glance 3rd ed Wiley-Blackwell 2009

Moye L, Statistical Reasoning in Medicine, Springer, 2000

Grading: Assignments & final exam. Schedule below is subject to change

<u>Week</u>	<u>Topic (all times are approximate)</u>
1	Study design (Petrie & Sabin section 12-16)
Notes Sec I	Experiment vs observational, confounding & bias, clinical trial designs
2	Descriptive statistics (Petrie & Sabin section 4-9, section 31)
Notes Sec II	Continuous data summaries, survival curve (simple case) Binary data-Risk ratio, risk difference, odds ratio, hazard rate, Number needed to treat (NNT), sensitivity, specificity, ROC curve
3	Probability distributions: Gaussian, Binomial, Poisson (Petrie & Sabin, sections, 7,8 & 10)
Notes Sec III	Sampling distribution & Gaussian theory, elementary probability Transformations and outliers (Petrie & Sabin, Sec 9)
4-6	Confidence intervals, hypothesis testing, power, sample size (Petrie & Sabin sections 11,17,18,21)
Notes Sec IV, V	Confidence intervals Hypothesis testing (& <u>equivalence</u> hypothesis testing) Power and sample size (Petrie & Sabin sec 36) Planning a clinical trial- accrual and dropouts
7	Linear Regression –an introduction (Petrie & Sabin sec 26-29)
Notes Sec VI	Basic bivariate linear regression & prediction, Measures of fit & error Overview of multiple linear & logistic regression
8	Comparing groups:t tests, one way analysis of variance & chi-square
Notes Sec VII & VIII	Comparing means & analysis of variance (P & S, sec 20-22), effect code Comparing proportions – chi-square & Fisher (P & S, sec 24-25)
9	Non parametric hypothesis testing – (Petrie & Sabin, sec 19, 20, 21)
Notes Sec IX	When Gaussian theory is not appropriate Statistical Reporting in Scientific Papers (slides only)
10	Wrap up and review, Final exam

Attendance restricted to MDs in the MS in clinical research program or the K30 program.