

POSSIBLE DESIGN AND STATISTICS COURSE FOR GGNB STUDENTS

STATS 100	<u>Applied Stats for Biomedical Science</u> : Descriptive statistics, probability, sampling distributions, estimation, hypothesis testing, contingency tables, ANOVA, regression; implementation of statistical methods using computer package.
STATS 102	<u>Intro Probability Modeling and Statistical Inference</u> : Rigorous precalculus introduction to probability and parametric/nonparametric statistical inference with computing; binomial, Poisson, geometric, normal, and sampling distributions; exploratory data analysis; regression analysis; ANOVA.
STATS 106	<u>Applied Statistical Methods – Analysis of Variance</u> : One-way and two-way fixed effects analysis of variance models. Randomized complete and incomplete block design, Latin squares. Multiple comparisons procedures. One-way random effects model.
STATS 108	<u>Applied Statistical Methods: Regression Analysis</u> : Simple linear regression, variable selection techniques, stepwise regression, analysis of covariance, influence measures, computing packages.
STAT 130A	<u>Mathematical Statistics: Brief Course</u> : Basic probability, densities and distributions, mean, variance, covariance, Chebyshev's inequality, some special distributions, sampling distributions, central limit theorem and law of large numbers, point estimation, some methods of estimation, interval estimation, confidence intervals for certain quantities, computing sample sizes.
STAT 130B	<u>Mathematical Statistics: Brief Course</u> : Transformed random variables, large sample properties of estimates. Basic ideas of hypotheses testing, likelihood ratio tests, goodness-of-fit tests. General linear model, least squares estimates, Gauss-Markov theorem. Analysis of variance, F-test. Regression and correlation, multiple regression.
STAT 135	<u>Multivariate Data Analysis</u> : Prerequisite course 130B, and preferably course 131B. Multivariate normal distribution; Mahalanobis distance; sampling distributions of the mean vector and covariance matrix; Hotelling's T ₂ ; simultaneous inference; one-way MANOVA; discriminant analysis; principal components; canonical correlation; factor analysis. Intensive use of computer analyses and real data sets.
ARE 106	<u>Quantitative Methods in Agricultural Economics</u> : Prerequisite: course 100A, Statistics 103. Statistical methods for analyzing quantitative agricultural economics data: linear and multiple correlation and regression analysis.
PLS 120	<u>Applied Statistics in Agricultural Science</u> : Application of statistical methods to design and analysis of research trials for plant, animal, behavioral, nutritional, and consumer sciences. Basic concepts and statistical methods are presented in lectures, laboratories emphasize data processing techniques, problem solving, and interpretation in specialized fields.
PLS 205	<u>Experimental Design and Analysis</u> : Prerequisite: course 120 or equivalent. Introduction to the research process and statistical methods to plan, conduct and interpret experiments.
PLS 206	<u>Applied Multivariate Analysis in Ag and Envir. Sci.</u> : Prerequisite: one of course 120, Statistics 106, 108, course 205 or equivalent. Multivariate linear and nonlinear models. Model selection and parameter estimation. Analysis of manipulative and observational agroecological experiments. Discriminant, principal component, and path analyses. Logistic and biased regression. Bootstrapping. Exercises based on actual research by UC Davis students.
MPM 402	<u>Medical Statistics I</u> : Statistics in clinical, laboratory and population medicine: graphical and tabular presentation of data; probability; binomial, Poisson, normal, t-, F-, and Chi-square distributions; elementary nonparametric methods; simple linear regression and correlation; life tables. Microcomputer applications of statistical procedures in population medicine.
MPM 403	<u>Medical Statistics II</u> : Prerequisite: course 402 or the equivalent. Continuation of course 402. Analysis of variance in biomedical sciences; nonparametric methods; multiple regression; biomedical applications of statistical methods. Microcomputer applications to reinforce principles that are taught in lecture.
MPM 404	<u>Medical Statistics III</u> : Prerequisite: course 403 or the equivalent, consent of instructor. Analysis of

	time dependent variation and trends, analysis of multiway frequency tables; logistic regression; survival analysis selecting the best regression equation; biomedical applications.
EPI 204	<u>Statistical Models, Methods, and Data Analysis for Scientists</u> : Prerequisite: Statistics 130B or 131B, or 133; Statistics 108 recommended. Development of broad statistical skills useful for the analysis of scientific data. Special emphasis given to determining factors associated with characteristics like disease and time-to-event. Analysis of data that can be modeled as generalized linear and generalized linear mixed models, parametric and non-parametric survival models, and models for correlated, clustered, longitudinal data.
EPI 205A	<u>Principals of Epidemiology</u> : Basic epidemiologic concepts and approaches to epidemiologic research, with examples from veterinary and human medicine, including outbreak investigation, infectious disease epidemiology, properties of tests, and an introduction to epidemiologic study design and surveillance.
EDU 204A	<u>Quantitative Methods in Educational Research: Analysis of Correlational Designs</u> : Prerequisite: course 114 or the equivalent. Methods for analysis of correlation data in educational research. Topics include multiple correlation and regression, discriminant analysis, logistic regression, and canonical correlation. Emphasis on conceptual understanding of the techniques and use of statistical software. Offered in alternate years.
EDU 204B	<u>Quantitative Methods in Educational Research: Experimental Designs</u> : Prerequisite: course 114 or the equivalent. Methods for analysis of experimental data in educational research. Topics include ANOVA, fixed v. random effects models, repeated measures ANOVA, analysis of co-variance, MANOVA, chi square tests, small sample solutions to t and ANOVA.
SOC 106	<u>Intermediate Social Statistics</u> : Prerequisite: course 46B or Statistics 13 or the equivalent. Intermediate level course in statistical analysis of social data, emphasizing the logic and use of statistical measures, procedures, and mathematical models especially relevant to sociological analysis.