STAT 501. Intermediate Probability and Statistics. 3 Credits. (3 Lec) F
PREREQUISITE: STAT 422 or consent of instructor. Families of probability distributions, distributions of functions of random variables, limiting distributions, order statistics. Cross-listed with M 501.

STAT 502. Intermediate Mathematical Statistics. 3 Credits. (3 Lec) S

STAT 505. Linear Models. 3 Credits. (3 Lec) F
PREREQUISITE: STAT 412 or STAT 512. Special matrix theory for statistics, multivariate normal distribution, distributions of quadratic forms, estimation and testing for the general linear model, one-way and two-way classification models, contrasts (main effect, simple effect and interaction), multiple comparison techniques.

STAT 506. Advanced Regression Analysis. 3 Credits. (3 Lec) S
PREREQUISITE: STAT 505. Applications of linear models using statistical packages; detecting and dealing with violations of assumptions including nonconstant variance, nonnormality, and collinearity; mixed effects models.

STAT 509. Stochastic Processes. 3 Credits. (3 Lec) S alternate years, to be offered even years.
PREREQUISITE: STAT 421. Conditional probability theory, discrete and continuous time markov chains including birth and death processes and long run behavior; Poisson processes; queueing systems; system reliability. Cross-listed with M 509.

STAT 510. Statistical Consulting Seminar. 1 Credit. (1 Sem; 6 cr max) F,S
PREREQUISITE: Graduate standing in statistics. Seminar discussions of issues and cases in statistical consulting. Supervised practice in consulting with researchers from various disciplines.

STAT 511. Methods of Data Analysis I. 3 Credits. (2 Lec, 1 Lab) F,S
PREREQUISITE: Graduate standing, STAT 216Q or STAT 401, and consent of instructor. This course targets non-statistics graduate students. Introduction to statistical inference and design, t-tools, non-parametric alternatives, one-way ANOVA, simple linear regression and multiple linear regression, with an emphasis on statistical thinking, appropriate inference, interpretation of results and writing. Semester project required. Con-convened with STAT 411.

STAT 512. Methods of Data Analysis II. 3 Credits. (2 Lec, 1 Lab) F,S
PREREQUISITE: STAT 411/STAT 511 (co-convened). Continuation of STAT 411/STAT 511 to cover principles of experimental design, multi-factor ANOVA, repeated measures, logistic regression, Poisson log-linear regression, and introductions to multivariate and time series analyses, with an emphasis on statistical thinking, appropriate inference and interpretation, and writing. A semester project is required. Con-convened with STAT 412.

STAT 520. Topics in Applied Statistics. 3 Credits. (3 Lec) F
PREREQUISITE: STAT 422 and consent of instructor. Current topics selected from computational statistics, time series and spatial statistics, decision theory, sampling, linear and mixed models, and multivariate statistics.

STAT 525. Biostatistics. 3 Credits. (3 Lec) F alternate years to be offered even years PREREQUISITE: STAT 411 or STAT 511. Statistical methodology applicable to vital statistics, life tables and survival curves, clinical trials, epidemiologic investigations, and cause-effect studies. Co-convened with STAT 425.

STAT 528. Statistical Quality Control. 3 Credits. (3 Lec) F alternate years, to be offered odd years.
PREREQUISITE: STAT 421 or an equivalent transfer course in probability theory. Modeling process quality, traditional SQC tools, control charts for variable and attribute data, CUSUM and WMA charts, process capability analysis, reliability statistics, accelerated testing.

STAT 532. Bayesian Data Analysis. 3 Credits. (3 Lec) F
PREREQUISITE: STAT 422 or STAT 502 or M 502 and STAT 506 recommended. Fundamentals of Bayesian inference, methods of Bayesian data analysis, computational methods for posterior simulation, fundamentals of hierarchical modeling.

STAT 534. Spatial Data Analysis. 3 Credits. (3 Lec) S alternate years, to be offered odd years.
PREREQUISITE: STAT 512, STAT 512, and STAT 422, or equivalent, or consent of the instructor. Statistical methods of spatial data analysis, stationary and nonstationary random fields, covariance structures, geostatistical models and analysis, spatial point process models and analysis, spatial lattice models and analysis.

STAT 536. Time Series Analysis. 3 Credits. (3 Lec) F alternate years, to be offered even years.
PREREQUISITE: STAT 411, STAT 511, or consent of the instructor. An introduction to time series analysis considering time series regression, autoregressive, moving average, and ARIMA models, time series model building, estimation, and forecasting, and basic frequency domain methods. Co-convened with STAT 436.

STAT 537. Multivariate Analysis I. 3 Credits. (3 Lec) S alternate years, to be offered even years.
PREREQUISITE: STAT 505. Multivariate regression, principal components analysis, exploratory and confirmatory factor analysis, discriminant and classification analysis, cluster analysis, classification and regression trees, basic structural equation modeling, along with bagging and boosting methods.

STAT 538. Multivariate Analysis II. 3 Credits. (3 Lec) F alternate years, to be offered even years.
PREREQUISITE: STAT 537. Special topics in multivariate analysis including general latent variable methods, analysis of covariance structures, common principle components, robust and distribution free multivariate analysis.

STAT 539. Generalized Linear Models. 3 Credits. (3 Lec) S alternate years, to be offered odd years.
PREREQUISITE: STAT 422 and STAT 411/STAT 511. Analysis of categorical data including logistic regression, log-linear models, analysis of deviance, extra-binomial variation, quasi-likelihood.

STAT 541. Experimental Design. 3 Credits. (3 Lec) S
PREREQUISITE: STAT 411/STAT 511 and M 221 or M 333 or M 441. An introduction to the design and analysis of experiments: topics include analysis of variance methods, matrix forms, multiple comparisons, fixed and random effects, factorial designs, balanced complete and incomplete blocking designs, designs with nested effects, and split plot designs. Co-convened with STAT 441.

STAT 550. Advanced Mathematical Statistics. 3 Credits. (3 Lec) S alternate years, to be offered even years.
PREREQUISITE: STAT 502 or M 502 and either M 384, M 505, or M 547. Sufficiency, completeness, ancillary statistics, invariance, likelihood-based inference, large sample theory, Edgeworth and saddlepoint approximations.

STAT 575. Professional Paper and Project. 1-4 Credits. (1-4 Lec; 6 cr max) F,S
PREREQUISITE: Graduate standing. A research or professional paper or project dealing with a topic in the field. The topic must have been mutually agreed upon by the student and his or her major advisor and graduate committee.

STAT 576. Internship. 1-12 Credits. (1-12 Ind; max cr unlimited) F,S,Su
PREREQUISITE: Graduate standing, consent of instructor and approval of department head. An individualized assignment arranged with an agency, business or other organization to provide guided experience in the field.

STAT 578. Response Surface Methodology. 3 Credits. (3 Lec) S alternate years, to be offered odd years.
PREREQUISITE: STAT 411 or STAT 501. Diagnostics; fractional-factorial designs; method of steepest ascent; canonical analysis; response optimization; ridge analysis; response surface design including central composite designs, orthogonal designs, rotatable designs, and optimal designs; mixture designs.

STAT 589. Graduate Consultation. 3 Credits. (3 Lec) F,S
PREREQUISITE: Master's standing. This course may be used only by students who have completed all of their coursework (and thesis, if on a thesis plan) but who need additional faculty or staff time.

STAT 590. Master's Thesis. 1-10 Credits. (1-10 Ind; max cr unlimited) F,S
PREREQUISITE: Master's standing.

STAT 591. Special Topics. 1-4 Credits. (1-4 Lec; 12 cr max) On Demand
PREREQUISITE: Upper division courses and others as determined for each offering. Courses not required in any curriculum for which there is a particular one time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.

STAT 592. Independent Study. 1-3 Credits. (1-3 Ind; 6 cr max) F,S,Su
PREREQUISITE: Graduate standing, consent of instructor, approval of department head and Dean of Graduate Studies. Directed research and study on an individual basis.

STAT 594. Seminar. 1 Credit. (1 Sem; 6 cr max) F,S,Su
PREREQUISITE: Graduate standing or seniors by petition. Course prerequisites as determined for each offering. Topics offered at the graduate level which are not covered in regular courses. Students participate in preparing and presenting discussion material.
STAT 689. Doc Reading & Research. 3-5 Credits. (3-5 Ind; 15 cr max) F,S,Su
PREREQUISITE: Doctoral standing. This course may be used by doctoral students who are reading research publications in the field in preparation for doctoral thesis research.

STAT 690. Doctoral Thesis. 1-10 Credits. (1-10 Ind; max unlimited) F,S,Su
PREREQUISITE: Doctoral standing.
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leepfrog for a draft with the correct fonts in place.