Spanish—SPN

874 Seminar in Hispanic Literary Genres
Spring of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Hispanic literary genres, including prose, poetry, theater, and essays. Topics vary.

875 Seminar in Popular Culture in the Hispanic World
Fall of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: M.A. in Spanish or Hispanic cultural studies or the equivalent.
Popular Hispanic cultures. Topics vary.

876 Seminar in Gender Studies in the Hispanic World
Fall of even years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: M.A. in Spanish or Hispanic cultural studies or the equivalent.
Gender studies including feminism and masculine identities.

877 Seminar in Visual Arts/Performance Studies in the Hispanic World
Spring of even years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: M.A. in Spanish or Hispanic cultural studies or the equivalent.
Visual arts and performance studies, including theater, television, cinema. Topics vary.

878 Seminar in Hispanic Cinema
Spring of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Hispanic cinema. Topics vary.

879 Seminar in Literature and Culture of the Borderlands
Fall of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Literatures and cultures of the Hispanic borderlands, including Latin America, Catalan, Basque. Topics vary.

880 Seminar in Colonial and Post-Colonial Studies
Spring of even years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Colonial and post-colonial studies. Topics vary.

890 Independent Study
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.
Special projects, directed reading, and research arranged by an individual graduate student and a faculty member in areas supplementing regular course offerings.

891 Special Topics in Spanish
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course. R: Approval of department.
Special topics supplementing regular course offerings proposed by faculty on a group study basis.

893 Interdisciplinary Seminar
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with German, English, French. Administered by Department of Linguistics and Germanic, Slavic, Asian and African Languages. R: Approval of department.
Examination of a theme, topic, or genre from several different national and disciplinary perspectives in the appropriate cultural and socio-historical context. Significant texts and important critical analysis selected from Great Britain, Spain, France, Germany, the Americas, and others.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Approval of department.
Doctoral dissertation research.

STATISTICS AND PROBABILITY

200 Statistical Methods
Fall, Spring, Summer. 3(4-0) P:M: (MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or LBS 117 or LBS 118) or designated score on Mathematics placement test. Not open to students with credit in STT 201 or STT 315 or STT 421.
Data analysis, probability models, random variables, estimation, tests of hypotheses, confidence intervals, and simple linear regression.

201 Statistical Methods
Fall, Spring, Summer. 4(3-2) P:M: (MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or LBS 117 or LBS 118) or designated score on Mathematics placement test. Not open to students with credit in STT 200 or STT 315 or STT 421.
Probability and statistics with computer applications. Data analysis, probability models, random variables, tests of hypotheses, confidence intervals, simple linear regression. Weekly lab using statistical software.

231 Statistics for Scientists
Fall, Spring. 3(3-0) P:M: (MTH 124 or MTH 132 or MTH 152H or LBS 118) R: Open only to students in College of Natural Science. SA: STT 331
Calculus based course in probability and statistics. Probability models, random variables. Estimation, confidence intervals, tests of hypotheses, simple linear regression with applications in sciences.

290 Topics in Statistics and Probability
Fall, Spring, Summer. 1 to 3 credits. RB: (MTH 103) R: Approval of department.
Individualized study of selected topics.
STT—Statistics and Probability

430 Introduction to Probability and Statistics
Fall, Spring. 3(3-0) RB: (MTH 234 or concurrently) Not open to students with credit in STT 351.
Calculus-based probability and statistics with applications. Discrete and continuous random variables and their expectations. Point and interval estimation, tests of hypotheses, simple linear regression.

441 Probability and Statistics I: Probability
Fall, Spring, Summer. 3(3-0) RB: (MTH 234 or MTH 254H or LBS 220)

442 Probability and Statistics II: Statistics
Spring, 3(3-0) RB: (STT 441 and MTH 314)
Estimation, tests of hypotheses, confidence intervals. Goodness of fit, non-parametric methods. Linear models, multiple regression, ANOVA.

455 Actuarial Models
Spring. 3(3-0) Interdepartmental with Mathematics. RB: (STT 441)
Stochastic models used in insurance. Survival distributions, life insurance, life annuities, benefit premiums, benefit reserves, analysis of benefit reserves.

461 Computations in Probability and Statistics
Spring. 3(3-0) RB: (CSE 131 or CSE 230) and (MTH 314 and STT 441)
Computer algorithms for evaluation, simulation and visualization. Sampling and prescribed distributions. Robustness and error analysis of procedures used by statistical packages. Graphics for data display, computation of probabilities and percentiles.

464 Statistics for Biologists
Fall. 3(3-0) Interdepartmental with Animal Science; Crop and Soil Sciences. RB: (STT 421)
Biological random variables. Estimation of population parameters. Testing hypotheses. Linear correlation and regression. Analyses of counted and measured data to compare several biological groups including contingency tables and analysis of variance.

471 Statistics for Quality and Productivity
Fall of even years. 3(3-0) RB: (STT 351 or STT 422 or STT 442)
Scientific context of quality: Box, Deming, Taguchi. Graphical techniques, control charts. Design of experiments: factorials and fractional factorials, confounding and aliasing. Engineering parameter design through experimentation.

481 Issues in Statistical Practice
Spring. 1(1-0) P-M: Completion of Tier I writing requirement. R: Open only to seniors in the Department of Statistics.
Selected readings and projects illustrating special problems encountered by professional statisticians in their roles as consultants, educators, and analysts.

490 Directed Study of Statistical Problems
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to juniors or seniors in the Department of Mathematics or Department of Statistics and Probability. Approval of department. Individualized study of selected topics.
Statistics and Probability—STT

871 Theory of Statistics I
Fall. 3(3-0) RB: (MTH 828 or concurrently and STT 881 or concurrently) Empirical distributions, quantiles, Glivenko-Cantelli Theorem. Important distributions and families. Convergence. Slutsky Theorem, asymptotics of differentiable functions. Basic concepts of decision theory. Confidence sets. Some basic statistical methods.

872 Theory of Statistics II
Spring. 3(3-0) RB: (STT 871 and STT 882 or concurrently) Theory of Neyman Pearson tests and extensions. Convex loss estimation, best unbiased estimates, sufficient statistics, information lower bounds. Extensive application to linear models. LAN families and applications to estimation and tests.

881 Theory of Probability I
Fall. 3(3-0) RB: (MTH 828 or concurrently) Measures and their extensions, integration, and convergence theorems. Product measures, Lebesgue decomposition, transition probabilities, Kolmogorov consistency theorem. Independence. Classical limit theorems for partial sums.

882 Theory of Probability II
Spring. 3(3-0) RB: (STT 881) Conditional expectation, martingales, stationary processes. Brownian motion, convergence in distribution, and the invariance principle.

886 Stochastic Processes and Applications
Fall. 3(3-0) RB: (STT 441 or STT 861) Markov chains and their applications in both discrete and continuous time, including classification of states, recurrence, limiting probabilities. Queuing theory, Poisson process and renewal theory.

888 Stochastic Models in Finance
Spring. 3(3-0) RB: (STT 441 or STT 861) SA: STT 887 Stochastic models used in pricing financial derivatives. Discrete-time models, Brownian motion, stochastic integrals and Ito's formula, the basic Black-Scholes model, risk neutral distribution, European and American options, exotic options, the interest rate market, futures and interest rate options.

890 Statistical Problems
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course. R: Approval of department. Individualized study on selected problems.

899 Master's Thesis Research
Fall, Spring. 1 to 6 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Approval of department. Master's thesis research.

914 Applied Regression Models in Business Research
Spring. 3(3-0) Interdepartmental with Management. Administered by Department of Management. RB: (STT 430 or STT 441) or equivalent R: Open only to doctoral students in Business Administration. Seminar on design and analysis of regression-based statistical models. Modeling issues arising in business research.

915 Advanced Survival Analysis
Spring of odd years. 3(3-0) Interdepartmental with Epidemiology. Administered by Department of Epidemiology. RB: (EPI 810 and EPI 826 and EPI 852) Methods of analysis of time to event data parametric and nonparametric models, frailty models.

920 Advanced Methods in Epidemiology and Applied Statistics
Spring of even years. 3(3-0) Interdepartmental with Epidemiology. P:M: (EPI 826) Pattern recognition and cluster analysis, longitudinal data analysis, path analysis, repeated measures and time-series analysis.

953 Asymptotic Theory
Fall of odd years. 3(3-0) RB: (STT 872) Asymptotics of M- and R- estimators. Asymptotically efficient and adaptive procedures.

961 Convergence of Measures and Stochastic Processes
Fall of even years. 3(3-0) RB: (STT 882) Convergence of measures on metric spaces. Prohorov's theorem. Function spaces with the uniform and Skorokhod metric. Empirical processes. Weak convergence of Martingales. Applications.

964 Stochastic Analysis
Spring of even years. 3(3-0) RB: (STT 882) Stochastic integrals and semi-martingales, Ito formula, stochastic differential equations. Applications.

990 Problems in Statistics and Probability
Fall, Spring. Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Individual study on an advanced topic in statistics or probability.

996 Advanced Topics in Probability
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course. RB: (STT 882) R: Approval of department. Current topics in probability.

997 Advanced Topics in Statistics
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course. RB: (STT 872) R: Approval of department. Topics selected from non- and semi-parametric statistics, multivariate analysis, time series analysis, Bayesian statistics, regression and kernel estimation, and other topics in advanced statistics.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 120 credits in all enrollments for this course. R: Approval of department. Doctoral dissertation research.

STUDIO ART

Department of Art and Art History
College of Arts and Letters

110 Drawing I
Fall, Spring. 3(0-6) Fundamental concepts of drawing. Emphasis on observational, descriptive and analytical drawing. Practice of drawing skills using common drawing media.

111 Drawing II
Fall, Spring. 3(0-6) P:M: (STA 110) Development of imagery and expression; abstraction and the use of the human figure as subject matter.

113 Color and Design
Fall, Spring. 3(0-6) Basic elements of two-dimensional design. Principles of organization and the theory and practice of color as a basis for creative solutions for the problems of the artist and designer. Related practical experience with a variety of materials and processes.

300 Intermediate Drawing
Fall, Spring. 3(0-6) P:M: (STA 111 and STA 113 and STA 114) Observational and imaginative drawing including the human figure. Non-representational drawing. Contemporary drawing systems, concepts, and processes.

320 Painting I
Fall, Spring. 3(0-6) P:M: (STA 111 and STA 113 and STA 114) Representational painting of landscape, figure, and still life imagery. Painting concepts, materials, and techniques.

325 Painting II
Fall, Spring. 3(0-6) P:M: (STA 320) Continuation of representational painting, and introduction to non-representational painting and concepts.

340 Ceramics I
Fall, Spring. 3(0-6) P:M: (STA 111 and STA 113 and STA 114) Ceramic processes including handbuilding, glaze formulation, and kiln firing as a means of cultural expression.

345 Ceramics II
Fall, Spring. 3(0-6) P:M: (STA 340) Continued development of ceramic forming and kiln firing techniques including handbuilding, glaze formulation, mold making, casting, and wheel throwing for cultural and artistic expression.

350 Figure Modeling
Fall, Spring. 3(0-6) P:M: (STA 111 and STA 113 and STA 114) Modeling human and natural forms. The figure as a means of artistic and cultural expression.

351 Mixed Media and Installation
Fall, Spring. 3(0-6) P:M: (STA 111 and STA 113 and STA 114) Exploration of artistic expression using mixed media and assemblage techniques. Installation techniques.