mathematical models to water quality management.

7100 Environmental Toxicology (3) Prereq.: CBS 4003. Genetic toxicology of major organ systems to include the dermal, pulmonary, hepatic, cardiovascular, renal, neural with both CNS and PNS, immune, gastrointestinal, and reproductive systems. Includes the study of toxicology with mechanistic study of the pathophysiology of classic and prototype toxins.

7260 Toxicology IV: Genetic Toxicology (3) Prereq.: ENS 4772 or consent of instructor. Includes the study of toxicology and teratogenesis; testing and screening agents for genotoxic activities; molecular genetic approaches to human and environmental toxicology.

7699 Toxicology Seminar I (See CBS 7699).

7700 Integrated Environmental Issues (3) Multidisciplinary seminar to examine a current environmental issue. Discussion of topics from the perspectives of natural science, economics, social science, and political science. Integration and synthesis of information to develop a science-based approach to environmental issues. Core course for the major in environmental studies.

7800 Special Problems in Environmental Sciences (1-4) May be taken for a max. of 4 hrs. credit. Individual study of a specific environmental problem. Only one of the following: 7004, 7005, 7009. Basic concepts of statistical models and use of samples; measures of variation and central tendency; normal, t, chi-square, and F distributions; test of significance, analysis of variance, regression, and correlation; emphasis on laboratory-oriented sciences research problems; computer applications.

7805 Statistical Techniques I (4) F 3 hrs. lecture; 2 hrs. lab. Prereq.: MATH 1021 or equivalent. Credit will be given for only one of the following: 7004, 7005, 7009. Core course for the major in environmental studies. Detection of environmental toxicants; their biological effects on human and mammalian species; reproductive inactivation. Evaluation of induced heritable and/or phenotypic changes of the pathophysiology of classic and prototype toxicants. Focus on current and future trends in agribusiness and the chemical and transport, and power industries.

7110 Toxicology of Aquatic Environments (3) Prereq.: ENSYS 7700 or consent of instructor. Aquatic pollution and toxicology of industrial materials related to environmental risk assessment in coastal areas; physical, chemical and biological factors affecting the fate of toxicants in marine and freshwater coastal areas.

7112 Concepts in Marine Ecotoxicology (3) Prereq.: ENSYS 7100 or consent of instructor. A selection of topics from the perspectives of natural science, environmental policy (utility) and interactive (game theory) decision theory, and applications for management; basic modeling concepts, principles of hypothesis testing; modeling; emphasis on links between theory, methodology and application emphasized. Written and oral presentation of a literature review on a selected environmental issue, as approved by the departmental non-thesis committee. Written and oral presentation of a literature review on a selected environmental issue, as approved by the departmental non-thesis committee.

8000 Thesis Research (1-12 per sem.) "S/U" grading. EXPERIMENTAL STATISTICS • EXST

General education courses are marked with stars (*). 2000 Introduction to Microcomputers (3) F 2 hrs. lecture; 2 hrs. lab. Credit will not be given for this course and CSC 1100, IDS 1100, and LIS 2001. A user-oriented introduction to microcomputers and related applications software: terminology; hardware; software: the operating system, word processing, spreadsheets, data management, graphics, communications.

★ 2201 Introduction to Statistical Analysis (4) F 3 hrs. lecture; 2 hrs. lab. Prereq.: MATH 1021 or equivalent. Descriptive statistics, statistical methods including confidence interval estimation and hypothesis testing for one and two population means and proportions; one-way analysis of variance, simple and multiple regression and correlation; analysis of categorical data.

2215 Exploratory Statistical Data Analysis (3) Prereq.: EXST 2001 or equivalent. 3 hrs. lecture; 2 hrs. lab. Credit will be given for only one of the following: 7003, 7004 or 7005. Simple and stratified random sampling; ratio and regression estimation; cluster, multistage, and multivariate sampling procedures; systematic sampling; probability sampling; variance estimation; links between methodology and application emphasized.

7013 Statistical Inference II (4) Prereq.: EXST 7003 or consent of instructor. Credit will be given for only one of the following: 7013, 7014, 7015, 7019. Analyses of variance and experimental designs; completely randomized and blocked designs; Latin square designs; split plot; arrangements of treatments; multiple comparisons; covariance analysis; multiple and curvilinear regression techniques; emphasis on social and behavioral sciences research problems.

7014 Experimental Statistics II (4) F Prereq.: EXST 7004 or equivalent. 3 hrs. lecture; 2 hrs. lab. Credit will be given for only one of the following: 7013, 7014, 7015, 7019. Multiple classification analysis of variance and covariance, individual differences; formal multiple arrangement of treatments, and multiple regression; emphasis on science/labatory research problems.

7019 Multiple Classification Analysis of Variance and Covariance, sampling design, parameter estimation, multiple regression and correlation, tests of specific hypotheses, and factorial experiments; emphasis on field-oriented life sciences research problems.

7019 Statistical Methods II—Web-Based (3) Prereq.: MATH 1021 or equivalent and SAS statistical analysis software. Credit will be given for only one of the following: 7013, 7014, 7015, 7019. Multiple classification analysis of variance and covariance, individual differences; formal multiple arrangement of treatments, and multiple regression; emphasis on science/labatory research problems.

7022 Statistical Aspects of Quantitative Genetics (3) Prereq.: EXST 7014 or equivalent and AGRI 2072 or equivalent. Statistical aspects of quantitative inheritance, partitioning of variance; covariance among relatives; theory of inbreeding; estimation and testing of genetic parameters; basic linear and multiple regression techniques; emphasis on model application; selection theory.

7023 Advanced Topics in Statistical Genetics (3) Prereq.: EXST 7014 or equivalent. Topics not covered in other experimental statistics courses, such as best linear unbiased prediction of genetic merit; Marker assisted selection; variance component estimation; analysis of selected populations; methods for quantitative genetic analysis of discrete data.
estimation of plant and animal population parameters including density and abundance, survival, recruitment, space-use, and population processes; line transects, plotless sampling techniques, change-in-ratio estimators including capture-recapture and exploitation or catch-per-unit-effort, and mark-recapture models, and model constraints to unbalanced cross classified and nested data; emphasis on analysis of variance and covariance for fixed or random effects models.

7036 Categorical Data Analysis (3) S Prereq.: EXST 7013 or 7014 or 7015 or equivalent. Statistical techniques used in analyzing data from categorical variables: contingency tables, loglinear models, maximum likelihood estimation; repeated measures for nominal and ordinal data; emphasis on computer assistance and interpretation.

7037 Multivariate Analysis (3) F Prereq.: EXST 7013 or 7014 or 7015 or equivalent; and knowledge of matrix algebra. Comparison of multivariate techniques and analyses; emphasis on discriminant analysis, factor analysis and principal component analysis, canonical correlation, cluster analysis, and analysis of variance.

7038 Statistical Methods for Spatial Data (3) F Prereq.: EXST 7013, 7014, 7015 or 7019. Overview of statistical methods for analyzing and interpreting data in space and time, including both traditional and more modern techniques. Reliability and root mean square error for Kriging and non-Kriging spatial predictions will be examined. Prerequisites for any course may be waived in exceptional cases with consent of the instructor and approval of the department chair.

7060 Probability and Statistics (3) F Prereq.: MATH 2057 or equivalent. Probability, random variables, discrete and continuous random variables, moment generating functions; functions of random variables.

7061 Statistical Theory (3) S Prereq.: EXST 7010 or equivalent. Probability theory and hypothesis testing; simple random sampling and random sampling; applications from other disciplines are encouraged, course work includes relevant statistical software and term project.

7062 Advanced Topics in Statistical Theory (3) V Prereq.: EXST 7061. May be repeated for credit when topics vary. Topics of current interest; emphasis on theoretical development of statistical methodology.

7083 Practicum in Statistical Consulting I (2) V Prereq.: EXST 7013 or 7014 or 7015, and permission of instructor. 4 hrs. independent study. Pass-fail grading. Supervised application of statistical techniques to research problems; readings, oral presentations, and discussions on statistical consulting; problem-solving; mock consulting sessions; participation in active statistical consulting situations under faculty supervision.

7084 Practicum in Statistical Consulting II (2) F,S,Su Prereq.: EXST 7013 or 7014 or 7015, and permission of instructor. 4 hrs. independent study. Pass-fail grading. May be taken for a max. of 6 sem. hrs. credit. Primary responsibility for statistical consulting is to the supervising graduate faculty.

7085 Special Problems in Statistical Theory (1-3) F,S,Su Prereq.: permission of department. 1-3 hrs. independent study. Pass-fail grading. May be taken for a max. of 6 sem. hrs. credit. May be repeated for credit when topics vary. Pass-fail grading. May present a 50-minute seminar on an advanced topic in statistics as a part of the department's seminar series.

7087 Advanced Topics in Statistics (1-3) V Prereq.: consent of instructor. May be repeated for credit when topics vary. Lectures on advanced topics in statistics not covered in other experimental statistics courses.

7142 Mathematical and Statistical Methods (3) Prereq.: EXST 7103, 7104, 7105, 7109, or equivalent. Data preparation tools; model prediction; objects grouping; and variables apposites. 7151 Bayesian Data Analysis (3) V Prereq.: EXST 7013 or 7014 or 7015 and EXST 7060; or consent of department head. Introduction to Bayesian statistical methods and their application in fields such as agriculture, biology, engineering, and medicine; topics include non-informative, conjugate and non-conjugate models; common and multiple parameter models such as binomial, normal, Poisson, and hierarchical models; hypothesis testing and credible sets; posterior simulation via Markov Chain Monte Carlo; and performance of Bayesian procedures.

720 Independent Study (1-3) F,S,Su Prereq.: permission of instructor. May be taken for a max. of 6 hrs. of credit when topics vary. Independent study under the guidance of graduate faculty.

800 Thesis Research (1-2 per sem.) “S”/“U” grading.

FILM & MEDIA ARTS • FMA

2001 Introduction to Film and Media Arts (3) Study of film, television, and video.

3001 Special Topics in Film and Media Arts (3) May be taken for a max. of 6 hrs. of credit when topics vary. Selected topics relevant to the study of the film and media arts.

4001 Advanced Topics in Film and Media Arts (3) May be taken for a max. of 6 hrs. of credit when topics vary. Advanced topics relevant to the study of film and media arts.

FINANCE • FIN

In the Department of Finance, the second digit of the course number denotes the subject area of the course, as follows: 2 = Business law; 3 = Real estate; 4 = Risk and insurance; 5 = Finance (capital markets and financial institutions); 6 = Finance (management); 7 = Finance (investment analysis); 8 = Finance (capital market investments and commercial banking).

3350 Principles of Finance (3) Prereq.: FIN 3715 or 3716. Purchasing, owning, and operating real estate relative to leasing, purchase contracts, deeds, titles, leases, brokerage, management.

3352 Real Estate Valuation and Investment (3) Prereq.: consent of instructor. Focus on fixed income investment and the application of valuation to single-family and income-producing real property; techniques for making investment decisions in alternative types of real property; cash flow analysis considering income tax effects, financial leverage, risk return trade-offs, and alternative methods of disposition.

3353 Real Estate Finance (3) Prereq.: FIN 3351 or 3715 or 3716 or equivalent. Real estate financing decisions for residential and income-producing properties; risk-return analysis for varying conditions of financial leverage; decision making related to pricing, alternative finance methods, refinancing, mortgage portfolio management; financing methods; government involvement in mortgage market and housing finance.

3354 Topics in Real Estate (3) Prereq.: FIN 3352 or 3353 or consent of instructor. Topics vary.

3355 Real Estate Investments (3) Prereq.: FIN 3351 or 3353 or 3715 or 3716 or equivalent. Real estate investing decisions for residential and income-producing properties; risk-return analysis for varying conditions of financial leverage; decision making related to pricing, alternative finance methods, refinancing, mortgage portfolio management; financing methods; government involvement in mortgage market and housing finance.

3371 Advanced Business Finance (3) Prereq.: FIN 3716. Open only to finance majors; open to others with permission of department. Material presented in real-world cases. Hands on applications of financial tools introduced in FIN 3716; financial analysis, forecasting, capital budgeting, and business evaluation.

3716 Multinational Managerial Finance (3) Prereq.: FIN 3715 or 3716. Multinational financial management; nature of international financial system; financing, investment, and risk management of the multinational corporation.

3826 Investments (3) Prereq.: FIN 3715. Open only to finance majors; open to others with permission of the department. Characteristics and valuation of common stocks, bonds, options, function, and efficiency of U.S. securities markets; theory and practice of portfolio selection.

3840 Fixed Income Securities (3) Prereq.: FIN 3826. Open only to finance majors; open to others with permission of the department. Characteristics and valuation of fixed income securities and contingent claims; interest rate risk, term structure, product fundamentals, and bond portfolio strategies.

3845 Student Managed Investment Fund (3) Prereq.: FIN 3715 or 3716 or equivalent and permission of instructor. Course may be repeated for a max. of 9 sem. hrs. of credit. Analysis of equity investment opportunities in conjunction with the management of the Student Managed Investment Fund; emphasis on valuation techniques and fundamental analysis; operation of investment teams in the securities market.

3900 Directed Study and Research (1-6) Prereq.: consent of instructor. May be taken for a max. of 6 sem. hrs. of credit. Research under direction of faculty member; written proposal must be approved by faculty member and department chair prior to registration. May be taken for credit when topics vary. Topics vary.

3930 Undergraduate Internship in Finance (3) Prereq.: FIN 3715 or 3716, junior or senior standing, and consent of department. 3-6 hrs. Independent study. May be counted toward the 12 per sem. hrs. required for the B.S. degree. Field work includes related to the student's major discipline; supervised in the E. J. Ourso College of Business.

900 Directed Study and Research (1-6) Prereq.: consent of instructor. May be taken for a max. of 6 sem. hrs. of credit. Research under direction of faculty member; written proposal must be approved by faculty member and department chair prior to registration. May be repeated for credit. On-the-job experience in an approved...