COURSE	TITLE	DESCRIPTION
COMM 506	Research Methods in Communications	The scientific method; survey of basic concepts of theoretical and empirical research; variety of methodology; criteria for adequate research.
COMM 511	Qualitative Research Methods in Mass Communications	This course focuses on the nature of qualitative research methodology for studying mass/mediated communication topics and to relevant research techniques. There is special emphasis on qualitative epistemology, ethnographic approaches, interviews, focus group, textual analysis, and mixed-method approaches.
COMM 516	Introduction to Data Analysis in Communications	To understand and be able to use data analysis techniques common to research in communications.
COMM 517	Psychological Aspects of Communication Technology	Investigation of psychological aspects of human-computer interaction (HCI) and computer-mediated communication (CMC).
CSE 543	Computer Security	Specification and design of secure systems; security models, architectural issues, verification and validation, and applications in secure database management systems.
CSE 555 (MATH 555)	Numerical Optimization Techniques	Unconstrained and constrained optimization methods, linear and quadratic programming, software issues, ellipsoid and Karmarkar's algorithm, global optimization, parallelism in optimization.
CSE 557	Concurrent Matrix Computation	This course discusses matrix computations on architectures that exploit concurrency. It will draw upon recent research in the field.
CSE 565	Algorithm Design & Analysis	An introduction to algorithmic design and analysis.
CSE 586	Topics in Computer Vision	Discussion of recent advances and current research trends in computer vision theory, algorithms, and their applications.
CSE 597	Special Topics	Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.
EDLDR 586	Qualitative Methods in Education Research	EDTHP 586/HI ED 586; Exploration of the theoretical framework undergirding qualitative research and its attendant practices and techniques.
EDLDR 588/ EDTHP 588/ HI ED 588 Pre-req: EDLDR/EDTHP/ HI ED 586	Qualitative Methods in Educational Research II (3)	Advanced study of methods involved in executing and analyzing qualitative research in education.
EDSGN 548	Interaction Design	Strategies in user-centered design, ergonomic product analysis, statistical data analysis, low and high fidelity prototyping, and innovative design techniques.

COURSE	TITLE	DESCRIPTION
EE 556	Graphs, Algorithms, and Neural Networks	Examine neural networks by exploiting graph theory for offering alternate solutions to classical problems in signal processing and control.
IST 503 (for PhD)	Foundations for IST Research	Study of major methodological, normative, and theoretical issues in philosophy of science related to research in information sciences and technology.
IST 504	Foundations of Theories and Methods of Information Sciences and Technology Research	Provides the foundation to the research and theories of how technologies are used to meet society's, groups' and individuals' information needs.
IST 505	Foundations of Research Design in Information Sciences and Technology	Provides the foundations on research design and methods used in information sciences and technology.
IST 525	Computer-Supported Cooperative Work	Introduces theories, empirical findings, evaluation methods, and design frameworks in computer-supported cooperative work.
IST 526	Development Tools & Visualizations for Human-Computer Interaction	Addresses concepts and tools for developing working user interface software and prototypes to provide effective information visualizations.
IST 541 Pre-req: IST 501	Qualitative Research in IST (3)	Assists IST researchers in their efforts to learn about and employ appropriate qualitative methods in their research.
IST 554	Network Management & Security	Essential skills and knowledge for effectively utilizing networks and Internet technologies to facilitate, manage and secure data communications and applications.
IST 557	Data Mining: Techniques and Applications	This course will introduce data mining techniques, including frequent pattern and association rule mining, some basic background on classification and clustering, and applications of data mining techniques in specific domains. The emphasis will be on applications in specific domains rather than fundamental methodologies.
IST 597	Special Topics	Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.
IST 815	Foundations of Information Security and Assurance	This course provides theoretical and applied foundations of information security and assurance.
STAT 500	Applied Statistics	Descriptive statistics, hypothesis testing, power, estimation, confidence intervals, regression, one- and 2-way ANOVA, Chi-square tests, diagnostics.
STAT 501	Regression Methods	Analysis of research data through simple and multiple regression and correlation; polynomial models; indicator variables; step-wise, piece-wise, and logistic regression.

COURSE	TITLE	DESCRIPTION
STAT 502	Analysis of Variance & Design of Experiments	Analysis of variance and design concepts; factorial, nested, and unbalanced data; ANCOVA; blocked, Latin square, split-plot, repeated measures designs.
STAT 503	Design of Experiments	Design principles; optimality; confounding in split-plot, repeated measures, fractional factorial, response surface, and balanced/partially balanced incomplete block designs.
STAT 506	Sampling Theory & Methods	Theory and application of sampling from finite populations.
STAT 509	Design and Analysis of Clinical Trials	An introduction to the design and statistical analysis of randomized and observational studies in biomedical research.
STAT 512	Design & Analysis of Experiments	AOV, unbalanced, nested factors; CRD, RCBD, Latin squares, split-plot, and repeated measures; incomplete block, fractional factorial, response surface designs; confounding.
STAT 513	Theory of Statistics I	Probability models, random variables, expectation, generating functions, distribution theory, limit theorems, parametric families, exponential families, sampling distributions.
STAT 514	Theory of Statistics II	Sufficiency, completeness, likelihood, estimation, testing, decision theory, Bayesian inference, sequential procedures, multivariate distributions and inference, nonparametric inference.
STAT 515	Stochastic Processes and Monte Carlo Methods	Conditional probability and expectation, Markov chains, Poisson processes, Continuous-time Markov chains, Monte Carlo methods, Markov chain Monte Carlo.
STAT 518	Probability Theory	Measure theoretic foundation of probability, distribution functions and laws, types of convergence, central limit problem, conditional probability, special topics.
STAT 540	Statistical Computing	Computational foundations of statistics; algorithms for linear and nonlinear models, discrete algorithms in statistics, graphics, missing data, Monte Carlo techniques.
STAT 544	Categorical Data Analysis I	Two-way tables; generalized linear models; logistic and conditional logistic models; log linear models; fitting strategies; model selection; residual analysis.
STAT 557	Data Mining I	This course introduces data mining and statistical/machine learning, and their applications in information retrieval, database management, and image analysis.
STAT 561	Statistical Inference I	Classical optimal hypothesis test and confidence regions, Bayesian inference, Bayesian computation, large sample relationship between Bayesian and classical procedures.
Other courses can be selected to fulfill the Methods Course requirement with prior approval from your advisor.		

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