List of potential courses in statistical design and evaluation for FDN MS and PhD Students

Course Number	Course Title	Credit Hours	Note
BIOS7010	Introductory Biostatistics I	3	Introductory statistics with applications to medical and biological problems. Topics to be covered include biostatistical design in health research, data collection and management, and introductory concepts and methods of statistical data analysis
BIOS 7020	Introductory Biostatistics II	3	Introduction to a variety of statistical tools with applications in public health and the biological sciences, including survey sampling, multiple regression, experimental design, categorical data analysis, logistic regression, and survival analysis. Motivating examples will be drawn directly from the literature in the health, biological, medical, and behavioral science
ERSH6300	Applied Statistical Methods in Education	3	Techniques for describing and summarizing data for educational research studies. Applications of the standard normal distribution and the use and interpretation of standard scores. Inferential statistics for one and two population studies including means, proportions, and correlations
ERSH8310	Applied Analysis of Variance Methods in Education	3	Experimental design and the analysis of data from experiments, including orthogonal analysis of variance for single and multifactor designs, randomized block, repeated measures, and mixed models. Computer applications and reporting results using APA style
ERSH 8320	Applied Correlation and Regression Methods in Education	3	Nonexperimental and quasi-experimental research studies, including simple and multiple regression techniques, nonorthogonal analysis of variances, correlation techniques, and analysis of covariance
ERSH 8350	Multivariate Methods in Education	3	Discriminant analysis, multivariate analysis of variance, canonical correlation analysis, and cluster analysis. Relating research questions to methods, conducting computer analyses, interpreting computer printouts, and critiquing analysis reports
ERSH 8360	Categorical Data Analysis in Education	3	Categorical data analysis with emphasis on practical applications in educational research and on the use of computing packages for analysis of such data. Topics

			include contingency table analyses, generalized linear models, logistic regression, and loglinear models. These techniques are applied to data sets from educational research
STAT6210	Introduction to Statistical Methods I	3	First course on statistics emphasizing applications in social, behavioral sciences. Covers elementary topics, one and two sample inference, simple linear regression, some categorical data analysis. Uses point-and-click statistical software. Provides preparation for Introduction to Statistical Methods I
STAT 6230	Applied Regression Analysis	3	Applied methods in regression analysis. Topics include univariate linear regression, techniques of multiple regression and model building, ANOVA as regression analysis, analysis of covariance, model selection and diagnostic checking techniques, nonlinear regression, and logistic regression.
STAT 6240	Sampling and Survey Methods	3	Design of finite population sample surveys. Stratified, systematic, and multistage cluster sampling designs. Sampling with probability proportional to size. Auxiliary variables, ratio and regression estimators, non-response bias.
STAT 6315	Statistical Methods for Researchers	4	Basic statistical methods through one- and two-sample inference, regression, correlation, one-way analysis of variance, analysis of covariance, and simple methods of categorical data analysis. Course emphasizes implementation and interpretation of statistical methods. Statistical software (SAS) is integrated into the course
STAT 6430	Design and Analysis of Experiments	3	Theory and methods for constructing and analyzing designed experiments are considered. Basic concepts in design of experiments, analysis of covariance, completely randomized designs, randomized complete and incomplete block designs, row-column designs, repeated measures designs, factorial designs, split-plot experiments will be covered. Additional topics may include response surface modeling, mixture designs
STAT 8090	Statistical Analysis of Genetic Data	3	Methods for analysis of genetic data, with an emphasis on gene mapping. Topics include quantitative genetics, covariance between relatives, estimation of genetic

			parameters, detection of genetic linkage in crosses and natural populations, association mapping, and QTL mapping. Emphasis on fitting models, estimating parameters, and making inferences based on genetic data.
STAT 8200	Design of Experiments for Research Workers	3	Methods for constructing and analyzing designed experiments are considered. Concepts of experimental unit, randomization, blocking, replication, and orthogonal contrasts are introduced. Designs include completely randomized design, randomized complete block design, Latin squares design, split-plot design, repeated measures design, and factorial and fractional factorial designs.
STAT 8220	Clinical trials	3	Drug development and FDA approval procedures; randomization; blindness; phase I-IV clinical trials; multicenter trials; bioequivalency; sample size determination; design and analysis; cross-over design; repeated measurements design; survival analysis; meta analysis.
HDFS 8730	Quantitative Analysis in Human Development and Family Science II	3	Focuses on multivariate statistical analytical techniques. Topics include multiple regression, factor analysis, logistic regression, and structural equation modeling. Students will learn appropriate use of these techniques as they apply to the study of family across the life course. They will learn statistical packages such as Mplus and Amos
HDFS 8800	Quantitative Methods in Human Development and Family Science	3	Quantitative research processes, conceptualization of research problems, research designs, selection of appropriate methods of data collection, consideration of alternative data analysis strategies, interpretation of findings, and research writing. Research on marital and family therapy included
HDFS 8820	Evaluation Methods in Human Development and Family Science	3	Evaluation research processes; prevention/intervention settings; research problems; research designs; selection of appropriate methods of data collection; alternative data analysis strategies, including measurement of change; interpretation of findings; and research/evaluation report writing. Research in marital and family therapy included
HDFS 8840	Advanced Quantitative	3	Multilevel regression models. Multilevel

	Analysis in Human Development and Family Science I		models are used in studies where individuals are nested within communities and/or where individuals are measured repeatedly over time. The course emphasizes application of multilevel regression models in family/community research and introduces statistical modeling using several software packages, including HLM, SAS, AMOS, and Mplus
HDFS 8850	Advanced Quantitative Analysis in Human Development and Family Science II	3	Focuses on dyadic data analysis and categorical data analysis. Topics include dyadic data analysis and survival analysis. Students will learn appropriate use of these techniques as they apply to the study of family across the life course. They will learn statistical software packages, such as Mplus and SAS
HPRB 7470	Program Evaluation in Health Promotion and Health Education	3	Introduction to strategies for evaluating health promotion and health education programs in community, worksite, school and health care settings
Qualitative Research Design and evaluation courses			