

7301-8301. Research Design and Methodology. (3). Emphasis on mathematical and nonmathematical analyses of psychological data, theoretical and experimental implications of different analyses, various data collection techniques, and types of experimental and statistical control; ethical issues and ethical principles of research conduct.

7302-8302. Advanced Statistics in Psychology I. (3). Introduction to general linear model; multiple regression analysis, and single- and multiple-factor analysis of variance; emphasis on using software programs to perform statistical analyses. PREREQUISITE: PSYC 3001 or equivalent.

7303-8303. Advanced Statistics in Psychology II. (3). Intermediate and advanced topics related to analysis of variance, including fixed and random effects, repeated measures, non-orthogonal designs, and the analysis of covariance; traditional analysis of variance concerns within framework of general linear model; scales of measurement, planned and post hoc comparisons, power analysis and concept of effect size. PREREQUISITE: PSYC 7302 or equivalent.

7304-8304. Measurement Theory and Psychometrics. (3). Measurement theory involved in the construction and evaluation of psychological measuring instruments will be stressed. Particular emphasis will be placed on scaling methods and their use in psychological research and evaluation.

7305-8305. Quantitative Methods for Reviewing Research. (3). Quantitative procedures (meta-analysis) for reviewing research findings in psychology and other social sciences; techniques for locating and coding research studies, calculating effect sizes, and analyzing study findings. PREREQUISITE: Permission of instructor.

7306-8306. Linear Structural Modeling. (3). Path models, path analysis, cross-lagged panel studies, confirmatory factor analysis, and complete latent variable causal models, including applications of latter to experimental and non-experimental data.

7307-8307. Models of Program Evaluation. (3). History and nature of program evaluation, review of different approaches taken to evaluation by variety of major theorists in the field; practice in evaluation.

7308-8308. Applied Multivariate Statistics. (3). Multivariate analysis of variance (MANOVA) with independent designs and its extension to repeated measures ANOVA.

Goals include review conceptual bases, learn SPSS procedures, analyze simple and complex designs, and learn special post hoc procedures. PREREQUISITE: PSYC 7302 or equivalent.

7309-8309. Focus Group Research in Psychology. (3). Examination of the general logic of focus group research, including strengths and weaknesses of this approach. Methodology will be covered in depth, including how to plan a project, development of questions for a focus group, moderating the group, and analyzing and reporting data. Completion of a semester project is required.

7310-8310. Mixed-Model Regression Analysis. (3). Instruction in the use of mixed-model regression with a focus on design and analysis of group-randomized trials; attention also given to analysis of data from surveys based on cluster sampling, longitudinal studies, and studies involving matching. PREREQUISITE: PSYC 7301, 7302, and 7303 and permission of instructor.

7311-8311. Applied Categorical Data Analysis. (3). Instruction includes tabular, logistic, and Poisson and Cox regression, as well as interpretation of SAS output. For advanced students in psychology, education, and public health pursuing a career in research. PREREQUISITES: PSYC 7301, 7302, 7303, and permission of instructor.

7312-8312. Qualitative Research Methods in Psychology. (3). Examines history and current practice of research stemming from a human science philosophy, introducing a variety of qualitative methodologies. Through examining differences and similarities in human and natural sciences, students learn to appreciate the significance of philosophy on research practice. PREREQUISITE/COREQUISITE: PSYC 7301 or permission of instructor.

PSYC 7313-8313. Computational Models for Cognitive Science. (3). A survey of popular techniques used to model mental processes and experimental data. Both computational and mathematical models will be considered. Examples include: artificial neural networks for psycholinguistics, Bayesian methods for learning and categorization, general processing tree models for reaction time studies, diffusion and random walk processes of memory, and knowledge representation. The seminar will focus on conceptual issues while providing a brief mathematical introduction to the models for a general behavioral science audience.

PSYC 7315-8315. Randomized Clinical Trials. (3). The purpose of this course is to provide students with a thorough grounding in planning and executing randomized clinical trials (RCTs) including design, management, evaluation, and resource acquisition. PREREQUISITES: PSYC 7301 and 7302. [Cross-listed as PUBH 7450-8450.]