

# EDMS - MEASUREMENT, STATISTICS, AND EVALUATION

## EDMS410 Classroom Assessment (3 Credits)

Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.

**Restriction:** Junior standing or higher.

## EDMS451 Introduction to Educational Statistics (3 Credits)

Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

**Restriction:** Sophomore standing or higher.

## EDMS489 Field Experiences in Measurement and Statistics (1-4 Credits)

Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**Repeatable to:** 4 credits.

## EDMS498 Special Problems in Measurement and Statistics (1-3 Credits)

Available only to education majors who have formal plans for individual study of approved problems.

**Prerequisite:** Available only to education majors who have formal plans for individual study of approved problems.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**Repeatable to:** 6 credits.

## EDMS610 Classroom Assessment and Evaluation (3 Credits)

Develop the understandings and skills needed to validly, reliably, and accurately assess student learning and to provide focused leadership in the area of classroom assessment.

## EDMS623 Applied Measurement: Issues and Practices (3 Credits)

Measurement theory and its application at an intermediate level; test development, validation and interpretation; issues and recent developments in measurement.

**Prerequisite:** EDMS410. And EDMS645; or students who have taken courses with comparable content may contact the department.

## EDMS626 Instrumentation (3 Credits)

Theory, development, and applications of various affective, cognitive, or behavioral measurement instruments and procedures, including questionnaire and test items, observational protocols, and cutting-edge innovative game and scenario-based assessments.

**Prerequisite:** EDMS623.

## EDMS645 Quantitative Research Methods I (3 Credits)

Research design and statistical applications in educational research: data representation; descriptive statistics; estimation and hypothesis testing. Application of statistical computer packages is emphasized.

## EDMS646 General Linear Models I (3 Credits)

A first post-introductory inferential statistics course, with emphasis on analysis of variance procedures and designs from within the general linear modeling framework. Assignments include student analysis of education and related data; application of statistical software packages is emphasized.

**Prerequisite:** EDMS645; or an equivalent introductory statistics course.

## EDMS647 Causal Inference and Evaluation Methods (3 Credits)

Counterfactual (potential outcomes) framework for causal inference, design/analysis strategies for confounder control, and specific best-practice applications to the evaluation of programs.

**Prerequisite:** Must have completed or be concurrently enrolled in EDMS651.

## EDMS651 General Linear Models II (3 Credits)

Multiple regression and correlation analysis; trend analysis; hierarchical and stepwise procedures; logistic regression; software for regression analysis.

**Prerequisite:** EDMS646; or students who have taken courses with comparable content may contact the department.

## EDMS655 Introduction to Multilevel Modeling (3 Credits)

Introduction to multilevel models and methodology as strategies for modeling change and organizational effects.

**Prerequisite:** EDMS651; or students who have taken courses with comparable content may contact the department.

## EDMS657 Exploratory Latent and Composite Variable Methods (3 Credits)

Development of models for exploratory factor analysis and their practical applications. Additional topics will draw from latent class analysis, cluster analysis, mixture models, canonical correlation, multidimensional scaling, and configural frequency analysis.

**Prerequisite:** EDMS651.

## EDMS665 Data Analysis and Statistical Consulting (3 Credits)

Advanced data analysis procedures applied to real-world clients' problems arising in a wide variety of substantive research settings within and beyond education.

**Prerequisite:** EDMS651; or students who have taken courses with comparable content may contact the department.

## EDMS722 Structural Modeling (3 Credits)

Statistical theory and methods of estimation used in structural modeling; computer program applications; multisample models; mean structure models; structural models with multilevel data (e.g., sampling weights, growth models, multilevel latent variable models).

**Prerequisite:** EDMS657.

## EDMS724 Modern Measurement Theory (3 Credits)

Theoretical formulations of measurement from a latent trait theory perspective.

**Prerequisite:** EDMS623 and EDMS651.

## EDMS738 Seminar in Special Problems in Measurement (1-3 Credits)

An opportunity for students with special interests to focus in depth on contemporary topics in measurement. Topics to be announced, but will typically be related to applied and theoretical measurement.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**Repeatable to:** 3 credits.

**EDMS747 Design of Program Evaluations (3 Credits)**

Analysis of measurement and design problems in program evaluations.

**Prerequisite:** EDMS626, EDMS651, and EDMS647. Or permission of instructor; and permission of EDUC-Human Development and Quantitative Methodology department.

**EDMS769 Special Topics in Applied Statistics in Education (1-4 Credits)**

Designed primarily for students majoring or minoring in measurement, statistics or evaluation.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**EDMS771 Multivariate Data Analysis (3 Credits)**

Principal components, canonical correlation, discriminant functions, multivariate analysis of variance/covariance and other multivariate techniques.

**Prerequisite:** EDMS651.

**EDMS779 Seminar in Applied Statistics (1-3 Credits)**

Enrollment restricted to students with a major or minor in measurement, statistics or evaluation. Seminar topics will be chosen by individual student interest.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department. And must be in Measurement, Statistics and Evaluation (Master's) program; or must be in Measurement, Statistics and Evaluation (Doctoral) program.

**Repeatable to:** 3 credits if content differs.

**EDMS787 Bayesian Inference and Analysis (3 Credits)**

Models and model fitting methods commonly used in Bayesian Inference, such as Markov Chain Monte Carlo methods (e.g., Gibbs, Metropolis Sampling), with applications within and beyond the social and behavioral sciences. Analytical and philosophical differences between Frequentist and Bayesian statistics will also be highlighted.

**Prerequisite:** EDMS779 or permission of the instructor.

**Credit Only Granted for:** EDMS769B or EDMS787.

**Formerly:** EDMS769B.

**EDMS798 Special Problems in Education (1-6 Credits)**

Master's, EDMS majors, or doctoral candidates who desire to pursue special research problems under the direction of their advisors may register for credit under this number.

**Restriction:** Must be in Measurement, Statistics and Evaluation (Master's) program; or must be in Measurement, Statistics and Evaluation (Doctoral) program.

**EDMS799 Master's Thesis Research (1-6 Credits)**

Registration required to the extent of 6 credits.

**Restriction:** Must be in a major within the EDUC-Human Development and Quantitative Methodology department.

**EDMS879 Doctoral Seminar (1-3 Credits)**

Seminar that supports analysis of doctoral projects and theses, and of other on-going research projects.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**EDMS889 Internship in Measurement and Statistics (3-12 Credits)**

Provides internship experiences at a professional level of competence in a particular role with appropriate supervision. Credit not to be granted for experience accrued prior to registration. Open only to students advanced to candidacy for doctoral degree.

**Prerequisite:** Open only to students advanced to candidacy for doctoral degree.

**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**EDMS898 Pre-Candidacy Research (1-8 Credits)**

**EDMS899 Doctoral Dissertation Research (1-8 Credits)**

Registration required to the extent of 12 credits.