

Educational Statistics and Research Methods (ESRM)

Courses

ESRM 5013. Research Methods in Education. 3 Hours.

General orientation course which considers the nature of research problems in education and the techniques used by investigators in solving those problems.

Prerequisite: Graduate standing.

ESRM 5393. Statistics in Education and Health Professions. 3 Hours.

Applied statistics course for Master's degree candidates. Includes concepts and operations for frequency distributions, graphing techniques, measures of central tendency and variation, sampling, hypothesis testing, and interpretation of statistical results.

ESRM 5653. Educational Assessment. 3 Hours.

Introduction to measurement issues and basic test theory. Focus on types and usage of assessment tools, data management, and analysis and interpretation of educational data. Practical training in the utilization and interpretation of academic achievement data in Arkansas.

ESRM 599V. Seminar. 1-6 Hour.

Seminar. May be repeated for up to 6 hours of degree credit.

ESRM 600V. Master's Thesis. 1-6 Hour.

Master's Thesis. May be repeated for degree credit.

ESRM 605V. Independent Study. 1-6 Hour.

Independent study.

ESRM 6403. Educational Statistics and Data Processing. 3 Hours.

Theory and application of frequency distributions, graphical methods, central tendency, variability, simple regression and correlation indexes, chi-square, sampling, and parameter estimation, and hypothesis testing. Use of the computer for the organization, reduction, and analysis of data (required of doctoral candidates).

Prerequisite: ESRM 5013 or equivalent.

ESRM 6413. Experimental Design in Education. 3 Hours.

Principles of experimental design as applied to educational situations. Special emphasis on analysis of variance techniques used in educational research.

Prerequisite: ESRM 6403 or equivalent.

ESRM 6423. Multiple Regression Techniques for Education. 3 Hours.

Introduction to multiple regression procedures for analyzing data as applied in educational settings, including multicollinearity, dummy variables, analysis of covariance, curvi-linear regression, and path analysis. Prerequisite: ESRM 6403.

ESRM 6453. Applied Multivariate Statistics. 3 Hours.

Multivariate statistical procedures as applied to educational research settings including discriminant analysis, principal components analysis, factor analysis, canonical correlation, and cluster analysis. Emphasis on use of existing computer statistical packages. Prerequisite: ESRM 6413.

ESRM 6513. Hierarchical Linear Modeling. 3 Hours.

This course covers the theory and applications of hierarchical linear modeling (HLM) also known as multilevel modeling. Both the conceptual and methodological issues for analyses of nested (clustered) data in using HLM will be reviewed, including linear models, non-linear models, growth models, and some alternative designs.

Prerequisite: ESRM 6413 and ESRM 6423.

ESRM 6523. Structural Equation Modeling. 3 Hours.

This course provides a detailed introduction to structural equation modeling (SEM) based on students' previous knowledge of multiple linear regression. Topics include path analysis, confirmatory factor analysis, full latent variable models, estimation techniques, data-model fit analysis, model comparison, and other topics, potentially equivalent models, specification searches, latent mean models, parameter invariance, multi-group models, and models of discrete data. Prerequisite: ESRM 6423.

ESRM 6533. Qualitative Research. 3 Hours.

Introduction of non-quantitative methods, including data collection through interviews, field observation, records research, internal and external validity problems in qualitative research. Prerequisite: ESRM 6403.

ESRM 6543. Advanced Qualitative Research. 3 Hours.

Preparation for the conduct of qualitative research, structuring, literature reviews, data collection and analysis, and reporting results. Prerequisite: ESRM 6533. May be repeated for up to 6 hours of degree credit.

ESRM 6553. Advanced Multivariate Statistics. 3 Hours.

Builds on the foundation provided in Multivariate and introduces techniques that extend methodological elements of canonical, discriminant, factor analytic, and longitudinal analyses, providing the mathematical and theoretical foundations necessary for these designs. Prerequisite: ESRM 6453.

ESRM 6613. Evaluation of Policies, Programs, and Projects. 3 Hours.

Introduction to evaluation in social science research, including why and how evaluations of programs, projects, and policies are conducted; includes analysis of actual evaluations in a variety of disciplines. Prerequisite: ESRM 6403.

This course is cross-listed with EDRE 6213.

ESRM 6623. Techniques of Research in Education. 3 Hours.

Use of scientific method in attacking educational problems. Emphasis placed on the planning and design of research studies, collection of reliable and valid data, sampling methods, and analysis and interpretation of data. Prerequisite: ESRM 6403.

ESRM 6633. Survey Research Methods. 3 Hours.

The course addresses all phases of conducting a survey research study, including conceptualization, sample selection, instrument development, and analysis and reporting of findings. Prerequisite: ESRM 6403.

ESRM 6653. Measurement and Evaluation. 3 Hours.

Fundamentals of measurement: scales, scores, norms, reliability, validity. Test and scale construction and item analysis. Standardized measures and program evaluation models in decision making. Prerequisite: ESRM 6403.

ESRM 668V. Practicum in Research. 1-6 Hour.

Practical experience in educational research on campus, in school systems, or in other agencies in educational program development.

ESRM 6753. Item Response Theory. 3 Hours.

Topics of measurement in the psychometric field focusing on item response theory; item level and test level analyses including differential item functioning, test dimensionality, computer adaptive testing, equating, and general evaluation and usage of measurement instruments. Prerequisite: ESRM 6653.

ESRM 699V. Seminar. 1-6 Hour.

Seminar. Prerequisite: Advanced graduate standing. May be repeated for up to 6 hours of degree credit.

ESRM 700V. Doctoral Dissertation. 1-18 Hour.

Doctoral dissertation. Prerequisite: Candidacy. May be repeated for degree credit.