

EDUCATIONAL RESEARCH METHODOLOGY (ERM)

ERM 401 Assessment I: Accountability in Our Nation's Schools 1

Students will examine Federal, State, and classroom accountability systems. Enrollment is limited to students who are pursuing initial teaching licensure.

Prerequisites: Admission to the Teacher Education Program.

ERM 402 Assessment II: Standardized Tests 1

Students will examine standardized testing, key statistical terms, and the application of testing data to instructional planning. Enrollment is limited to students who are pursuing initial teaching licensure.

Prerequisites: Admission to the Teacher Education Program.

ERM 403 Assessment III: Classroom Assessment 1

Development, monitoring, and evaluation of student progress through classroom assessments. Enrollment is limited to students who are pursuing initial teaching licensure in B–K, K–12, and secondary programs.

Prerequisites: Admission to the Teacher Education Program.

ERM 405 Measurement and Assessment in Teaching 3

The fundamentals of measurement and assessment used in teaching middle and secondary grades, including the concepts of assessment types, assessment development, reliability, validity, interpreting test results.

ERM 517 Statistical Methods in Education 3

Introductory course in applied descriptive statistics, correlational methods, and linear regression that provides a conceptual and theoretical foundation for more advanced work and a thorough grounding in the use of computers for descriptive statistical analysis, and interpretation of results.

Prerequisites: Elementary Algebra.

ERM 600 Validity and Validation 3

Validity is fundamental to all testing operations. The course covers seminal theories, critical perspectives, as well as prominent validation research of critical importance to professionals working in diverse industry settings.

ERM 604 Methods of Educational Research 3

Techniques and uses of research in education. Designed to provide the student with the ability to read, understand, and critically evaluate published empirical research.

Notes: Students who took this course as EAR 593 are not eligible to take ERM 604 and receive credit.

ERM 605 Educational Measurement and Evaluation 3

For teachers, counselors, and administrators. Principles of measurement and evaluation, methods of scoring and interpreting tests. Construction and use of teacher-made tests. Statistical concepts basic to understanding and interpreting test data.

Notes: Students who took this course as EAR or ERM 670 are not eligible to take ERM 605 and receive credit.

ERM 633 Second Language Assessment and Testing 3

Theoretical and practical issues related to second language testing with special attention paid to the assessment of English as a second language, world Englishes, and foreign languages.

ERM 636 Advanced Studies in Second Language Testing 3

Language testing for English and foreign language learners, as well as the World Englishes domain. It investigates policies, theories, research, and tools employed to measure different language modalities.

ERM 642 Evaluation of Educational Programs 3

Existing and emerging formulations of educational evaluation. Developing operational guidelines for conducting evaluations in educational settings.

Prerequisites: Permission of instructor and ERM 517 or equivalent.

ERM 643 Applied Educational Evaluation 3

An application course that uses modern evaluation models, data collection, statistical analyses, and interpretation of findings to establish the effectiveness and utility of an educational program.

Prerequisites: ERM 642.

ERM 644 Approaches to Collaborative Research and Evaluation in Education 3

This course provides a comprehensive overview of collaborative and participatory approaches to evaluation and research in educational settings and how these approaches are differentiated from other methodological approaches.

Prerequisites: ERM 604.

ERM 645 Culturally Responsive Approaches to Research and Evaluation 3

This course provides a comprehensive overview of culturally responsive approaches to evaluation and research in educational settings and includes both theoretical and practical applications.

Prerequisites: ERM 604.

ERM 650 Foundations of Qualitative Research Methods 3

This course will provide graduate students with a theoretical understanding of qualitative research and practical, hands-on experience conducting a small-scale study.

ERM 667 Foundations of Educational Measurement Theory 3

Statistical foundations, classical test theory, reliability, validity, item analysis, and norms; selected topics in modern test theory. Designed for those who will develop, evaluate, and select measurement instruments in their professional roles.

Prerequisites: ERM 680 or equivalent course.

Notes: Credit may not be obtained for PSY 437.

ERM 668 Survey Research Methods in Education 3

Theory, methods, and procedures of survey research as this methodology is applied to problems in education. Sampling from finite populations.

Prerequisites: ERM 517 and ERM 680 or equivalent.

ERM 669 Item Response Theory 3

Conceptual and mathematical foundations, parameter estimation, tests of model assumptions and goodness of fit, and practical applications of IRT.

Prerequisites: ERM 667 and either ERM 681 or STA 662 or equivalent courses and permission of instructor.

ERM 675 Data Presentation and Reporting 3

Modern techniques for summarizing and visualizing univariate and multivariate data using various statistical and graphical software packages. Covers theories and research on graphics and the perception of visual data.

Prerequisites: ERM 680.

ERM 680 Intermediate Statistical Methods in Education 3

Applied descriptive and inferential statistics. Topics include applied probability, power analysis, chi-square distributions, hypothesis testing for a variety of applications, and correlation and regression. Concept learning, applications, and computer analyses are stressed.

Prerequisites: Elementary algebra.

Notes: Students who took this course as ERM 618 are not eligible to take ERM 680 and receive credit.

ERM 681 Design and Analysis of Educational Experiments 3

Advanced inferential statistics including factorial ANOVA, repeated measures design, multiple regression, ANCOVA, log-linear analysis. Applications in education and the social sciences.

Prerequisites: ERM 680 or equivalent, or permission of instructor.

ERM 682 Multivariate Analysis 3

Multivariate normal distribution. Cluster analysis, discriminant analysis, canonical correlation, principal component analysis, factor analysis, multivariate analysis of variance. Use and interpretation of relevant statistical software.

Prerequisites: ERM 680 and ERM 681, or STA 573, or STA 662, or permission of instructor.

ERM 685 R for Education and the Social Sciences 3

Using R to learn about programming fundamentals, data management, automating large numbers of analyses, conducting simulation studies, conducting specialized analyses, and producing high quality graphics.

Prerequisites: ERM 680, ERM 681, or permission of instructor.

ERM 688 Contemporary Problems Seminar 1-3

Specific course title identified each semester by subscript, e.g., Contemporary Problems Seminar; Issues in Professional Negotiations.

Prerequisites: Advanced master's or doctoral standing or permission of instructor.

Notes: May be repeated for credit when topic varies.

ERM 688A Contemporary Problems Seminar 1-3**ERM 688B Cont Pr Sem:Hot Topics Ed Res 3****ERM 692 Independent Study 1-4**

Guided readings, research, and individual project work under direction of a staff member.

Prerequisites: Permission of instructor.

ERM 711B ExCr.Hierarchical Linear Mdlng 3**ERM 720 Evaluation and Public Policy 3**

This course will provide students with a critical understanding of the multiple connections (and disconnections) between public policy and evaluation.

Prerequisites: ERM 642 or equivalent.

ERM 725 Applied Methods of Educational Research 3

Investigates procedures and methodologies necessary to pursue research problems in measurement, evaluation, and applied statistics. Student work must demonstrate the ability to organize and conduct a research project.

ERM 726 Advanced Topics in Educational Measurement 3

Technical developments and applications in classical test theory, item response theory, generalizability theory, models of selection bias, differential item functioning, and test score equating.

ERM 727 Computer-Based Testing: Methods and Applications 3

Computer-based testing applications including automated test assembly, item banking, computer-adaptive and multistage testing, web-based testing, large scale assessment development and support systems, and computer-based performance assessments. Covers state-of-the-art research and developments.

Prerequisites: ERM 667.

ERM 728 Exploratory and Confirmatory Factor Analytic Methods for Scale Construction 3

Exploratory and confirmatory factor analysis methods for developing and validating measurement scales. Includes PCA, common factor models, and structural equation modeling applications using SPSS, SAS, Systate and LISREL statistical packages.

Prerequisites: ERM 682 or permission of instructor.

ERM 729 Advanced Item Response Theory 3

Estimation techniques for various unidimensional dichotomous and polytomous IRT models using various software packages. IRT applications such as computerized testing, equating, test construction, and differential item/test functioning are also covered.

Prerequisites: ERM 669 or equivalent.

ERM 730 Practicum in Educational Research and Evaluation 3

Field-based and mentored practicum.

Prerequisites: Permission of instructor.

Notes: Grade: Satisfactory/Unsatisfactory (S/U).

ERM 731 Structural Equation Modeling in Education 3

Formulation of structural models, estimation of structural coefficients using LISREL, estimation of model fit, confirmatory factor analysis models, practical applications.

Prerequisites: ERM 682 or permission of instructor.

ERM 732 Hierarchical Linear Modeling 3

Structure of hierarchical data, random intercepts, individual change/growth models, applications in meta-analysis, assessing hierarchical models, hierarchical generalized linear models, hierarchical models for latent variables, cross-classified random effects, estimation.

Prerequisites: ERM 682, STA 671, or permission of instructor.

ERM 734 Equating 3

Equating designs, equating and scaling assumptions, design of anchor sets, observed score equating methods, true-score equating methods, standard error of equating, use and interpretation of relevant statistical software.

Prerequisites: ERM 681, ERM 667, or permission of instructor.

ERM 735 Multidimensional Item Response Theory 3

Multidimensional item response theory models including their estimation, representation, and application. Use of relevant estimation and graphing software discussed.

Prerequisites: ERM 669 and ERM 729 or permission of instructor.

ERM 737 Diagnostic Classification Models 3

Philosophy of diagnostics models, DINA/DINO model, RUM, Log-Linear Cognitive Diagnosis Model, Test Construction, Estimation of Diagnostic Models, Application of Diagnostic Models.

Prerequisites: ERM 669.

ERM 742 Advanced Topics in the Evaluation of Educational Programs 3

Theoretical understanding of evaluation design and strengthening of practical program evaluation skills.

ERM 743 Advanced Theory in Program Evaluation 3

Advanced seminar of complex issues in program evaluation. Students will develop a deep synthesis of the major approaches and theories of evaluation. The purpose of evaluation in society will be examined.

Prerequisites: ERM 642 or equivalent.

ERM 750 Case Study Methods in Educational Research 3

Overview of the methodology of case study research; enhancement of students' skills in using case study methods.

Prerequisites: ERM 604, ERM 642, or equivalent.

ERM 775 Directed Doctoral Research 1-6

Individual work on dissertation research problems: collection and analysis of data; critical review, integration, and interpretation of research literature on a topic pertinent to the student's dissertation.

Prerequisites: Doctoral students in ERM and permission of instructor.

ERM 799 Dissertation 1-12

Individual direction in the development and execution of a doctoral dissertation.

ERM 801 Thesis Extension 1-3

Thesis Extension.

ERM 802 Dissertation Extension 1-3

Dissertation Extension.

ERM 803 Research Extension 1-3

Research Extension.