

Ph.D. in Education – Research, Statistics, and Evaluation

General Doctoral Program Information

Enrollment Requirements

Students must be enrolled continuously at the University during the fall and spring semesters while working toward the Ph.D. degree. If students are not taking courses or working with a committee, they may maintain enrollment by paying a University non-resident fee through the Office of Admission in the Curry School. Failure to maintain continuous enrollment will require students to reapply for admission. Students must be enrolled for dissertation hours during any semester in which they are working with their committee.

Goals of the PhD program:

All Ph.D. programs in the Curry School are designed to prepare professors and scholars with demonstrated ability to conduct research in their field of study. Students in the program develop an understanding of and expertise in specific inquiry methods and analytic tools. By working with program faculty members, students learn to apply these methods to actual research problems in education. Students in the program will: (a) develop an understanding of research design in education, (b) obtain expertise in quantitative and qualitative research methodology, (c) gain hands-on research experience with all phases of the process that leads to the publication of research findings and presentations at professional research conferences, and (d) acquire professional traits and communication skills for academic and professional jobs. Our graduates are employed as faculty members, state education departments, testing companies, and research organizations.

Faculty Mentors:

All entering Ph.D. students will be assigned a faculty advisor who serves as a mentor.

Coursework and Residency:

The PhD program requires a minimum of 72 credits, although programs may require more. Students must complete at least 54 credits of coursework. This includes content courses and research methodology courses, and up to 3 credits of research apprenticeship per semester but does not include internship and dissertation credits. At least 36 course and apprenticeship credits must be completed after admission to the program. Students can apply up to 12 credits of dissertation work towards the total of 72. Students entering the doctoral program with a master's degree can apply up to 24 hours of credit to their doctoral program, provided that the program area and Associate Dean for Academic Affairs agree that the courses are comparable to substitute for specific courses required in the doctoral program. Students will ordinarily complete the program in 4 years of full-time study.

Research Apprenticeship:

Ph.D. students will participate in a research apprenticeship with their faculty advisors. This apprenticeship will occupy approximately 10 hours of each student's week during the first and second years of study and may increase during the third and fourth years. During this apprenticeship, the student will assist with the advisor's research and scholarship, which may include data collection, data analysis, library research, presentations, writing for publication, and other related activities.

Research, Statistics, and Evaluation Doctoral Program Information

The student desiring to pursue a Doctor of Philosophy degree with emphasis in Research, Statistics, and Evaluation should submit an online application and supporting materials to the Curry School of Education. The applicant must:

- hold a baccalaureate degree or its equivalent;
- have an outstanding record as a student;
- upload unofficial transcripts showing undergraduate and graduate work to the online application;
- submit via the application form two (2) references strongly endorsing him/her for doctoral work;
- submit official Graduate Record Examination scores to the University of Virginia; and
- meet any additional department or area of specialization requirements.

Degree Requirements

To earn a Doctor of Philosophy degree in Education the following minimum requirements must be met:

- The student must successfully complete a program of study determined by the Program Committee in one of three strands (quantitative methods, qualitative research, or program evaluation).
- All students must successfully complete 21 foundational course units in RSE (listed below) in addition to course work specified by the program committee.

EDLF 7300 Foundations of Educational Research, 3 credit hours

EDLF 5330 Quantitative Methods and Data Analysis I, 3 credit hours

EDLF 7402 Introduction to Program Evaluation, 3 credit hours

EDLF 7404 Qualitative Analysis I: Introduction, 3 credit hours

EDLF 7420 Quantitative Methods and Data Analysis II: General Linear Models, 3 credit hours

EDLF 8310 Generalized Linear Models, 3 credit hours

EDLF 8440 Qualitative Analysis II: Advanced, credit hours

Additional course options to be selected with advisement (21 credit minimum)¹

EDLF 5310 Data Management for Social Science Research, 3 credit hours

EDLF 5500 Field Experiments, 3 credit hours

EDLF 7060 Theoretical Perspectives on Educational Policy , 3 credit hours

EDLF 7080 Educational Policy: Professional Seminar, 3 credit hours

EDLF 7180 Tests and Measurements, 3 credit hours

EDLF 7410 Mixed Methods Research Design

EDLF 8350 Educational Statistics IV: Multivariate, 3 credit hours

EDLF 8340 Measurement Theory, 3 credit hours

EDLF 8361 Structural Equation Modeling, 3 credit hours

EDLF 7350 Seminar in Educational Research, 3 credit hours

EDLF 7403 Survey Design and Instrument Construction, 3 credit hours

EDLF 8310 Generalized Linear Models, 3 credits

EDLF 8311 Field Experiments, 3 credits

EDLF 8315 Causal Inference in Educational Policy

EDLF 8360 Multilevel Modeling in Education Research

EDLF 8361 Structural Equation Modeling

EDLF 8400 Program Evaluation Design, 3 credit hours

EDLF 8410 Advanced Seminar in Program Evaluation, 3 credit hours

EDLF 8450 Computer Assisted Qualitative Analysis, 3 credit hours

¹ Students may elect to substitute or augment these with method courses offered in other departments (e.g., psychology, economics, policy, mathematics)

- The student must successfully complete at least 72 credit hours of course work (which may include work completed for the master's degree, not to exceed 24 transfer credits). A minimum of 36 credits must be earned on grounds excluding internship, independent study, practica, and dissertation credit.
- The student must complete successfully written comprehensive examinations in the major and supporting areas, and an oral examination as described in the RSE Comprehensive Exam Document. This should be completed prior to the start of a student's third year in the program.
- The student must successfully complete all dissertation requirements including (a) defending a dissertation proposal before the student's full doctoral committee, (b) the planning and carrying out of a research study (dissertation) appropriate to the field of specialization, and (c) passing an oral final examination on the conduct and conclusions of the dissertation.
- The student must complete all additional requirements as specified by the Graduate School of Education Record, his/her department in the School of Education, doctoral committee, and advisor. View the Curry School Dissertation Guidelines.

Course Overview (Illustrative Examples)

QUANTITATIVE METHODS

First Year

Semester One: (12 credits)

Quantitative Methods II
 Foundations of Educational Research
 Survey Design & Instrument Construction
 Data Management for SS Research
 Introduction to Qualitative Analysis

Second Year

Semester Three: (15 credits)

Field Experiments
 Seminar in Educational Research
 Introduction to Program Evaluation
 Single Subject Research
 Area of Interest

Third Year

Semester Five: (12 credits)

Dissertation Hours

Semester Two: (12 credits)

Generalized Linear Models
 Advanced Qualitative Analysis
 Multilevel Modeling
 Area of Interest

Semester Four: (15 credits)

Causal Inference
 Structural Equation Modeling
 Measurement Theory
 Seminar in Program Evaluation
 Area of Interest

Semester Six

Dissertation Hours

QUALITATIVE RESEARCH

First Year

Semester One: (12 credits)

Quantitative Methods II
Foundations of Educational Research
Introduction to Qualitative Analysis
Survey Design & Instrument Construction

Second Year

Semester Three (15 credits)

Introduction to Program Evaluation

Field Experiments
Seminar in Research, Statistics and Evaluation
Area of Interest

Third Year

Semester Five: (12 credits)

Dissertation Hours
Additional course possibilities for areas of interest in qualitative strand:
Ethnographics of Education
Classroom Assessment
Survey Construction
Sociology of Education
Single Subject Research

Semester Two: (12 credits)

Generalized Linear Models
Advanced Qualitative Analysis
Area of Interest
Mixed Methods

Semester Four: (15 credits)

Qualitative Analysis with Computers
Single Subject Research
Program Evaluation Design
Area of Interest

Semester Six: (12 credits)

Dissertation Hours

PROGRAM EVALUATION

First Year

Semester One: (12 credits)

Quantitative Methods II
Introduction to Educational Research

Introduction to Program Evaluation

Introduction to Qualitative Analysis

Second Year

Semester Three: (15 credits)

Measurement Theory I
Field Experiments
Seminar in Research, Statistics, and Evaluation

Semester Two: (12 credits)

Generalized Linear Models
Seminar in Program Evaluation
Survey Design and Instrument Construction
Area of Interest

Semester Four: (15 credits)

Advanced Qualitative Analysis
Survey Research
Program Evaluation Design

Theoretical Perspectives on Educational Policy

Area of Interest

Third Year

Semester Five: (12 credits)

Semester Six: (12 credits)

Dissertation Hours

Dissertation Hours

Additional course possibilities for area of interest in Program

Evaluation:

Ethnography of Education

Classroom Assessment

Sociology of Education

Single Subject Research

Policy Implementation

Overview of Planning and Annual Review Process for PhD Students

Planning and Review Documents

1. RSE Annual Research Table (Appendix A)
2. RSE Annual Review Meeting Document (Appendix B)
3. RSE Comprehensive Exam (Appendix C)

Schedule for Completing Planning and Annual Review Documents

	First year students	Second, Third, Fourth Year Students
Annual Research Table	May	Updates in May or June
Comprehensive Exam	Part 1 (end of first year) Part 2 (summer prior to second year)	Part 3 (end of second year) Part 4 (summer prior to third year)
Annual Review Meeting Preparation Document	May	May or June

Annual Review Process

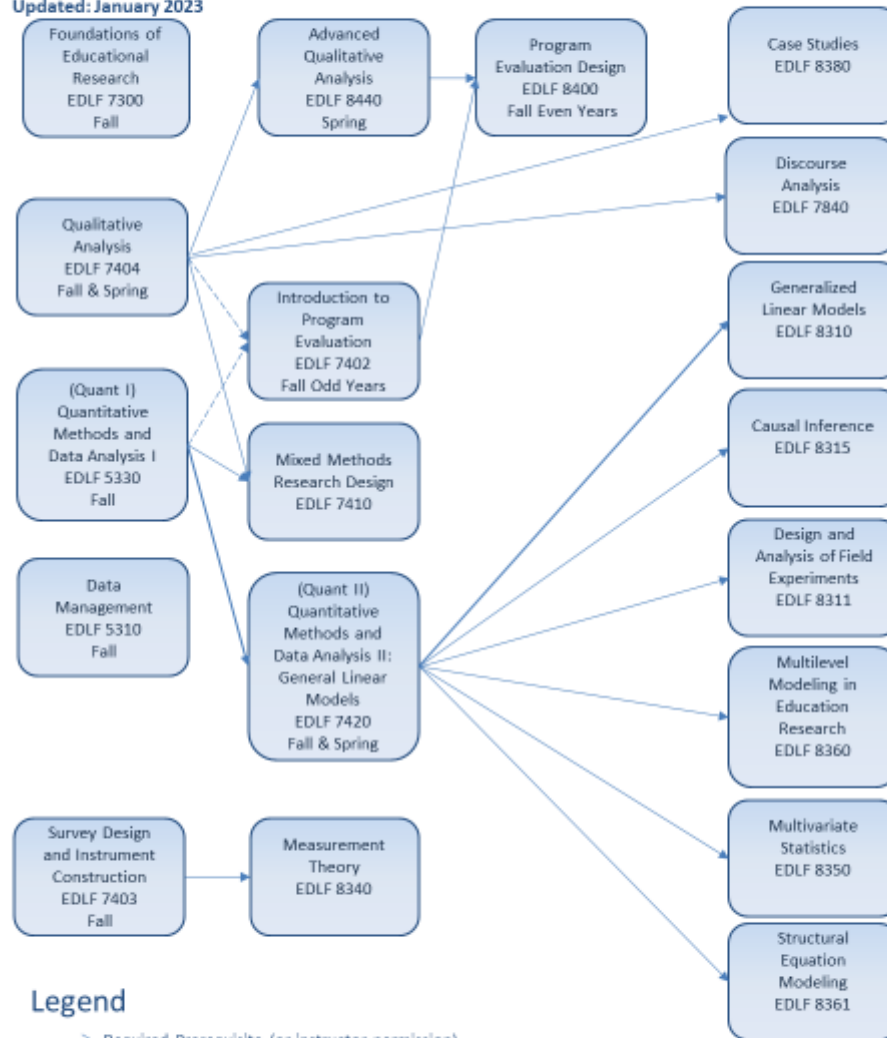
1. First year students work with their advisors to complete the Annual Research Table document by May of their first year.
2. In May, all students (first year and beyond) update their Annual Research Table (using track changes so modifications to the original plan are clear). Students complete the Annual Review Meeting Preparation Document. The student schedules a meeting with their advisor and one other faculty member. The student sends the Annual Review Meeting Preparation Document and their Annual Research Table to the two faculty members with whom they will be meeting. The student leads the meeting, reviews his/her progress, and seeks advice from the faculty members. The student and faculty discuss courses, current research, and other program requirements as they reflect on the Annual Review Meeting Preparation Document. Faculty use the Annual Research Table to detect strengths and challenges and to make recommendations.
3. Based on the conversation, the student updates their Annual Research Table in a way that reflects the advice that they have received within one month of their annual meeting. They bring this to their advisor at one of their regular meetings to affirm their plans.
4. The faculty advisor reflects on the student's progress and produces written comments on the Annual Review Meeting Preparation Document. The advisor shares these comments with the student and the other faculty member present. The advisor rates the student on content

knowledge, research skills, writing, teaching and career development using the Annual Review Meeting Document.

- Students will complete all 4 parts of their comprehensive exam prior to the start of their third year in the program. Students that are unsuccessful with their first attempt, will have one month to successfully address the concerns raised by the committee at each stage. Students not meeting the standard set by the committee on this second attempt will be unable to continue in the program.

M.Ed./Ph.D. Research Methods Course Sequence Guide

Updated: January 2023



Course Descriptions

EDLF 5310 Data Management for Social Science Research

This course introduces strategies for effectively working with large-scale quantitative data for social science research. Topics covered include: data cleaning, recoding and checking; merging data from multiple sources; reshaping data; documenting processes; writing programs and macros to reduce errors; and presenting descriptive data through tables and graphs. Students will utilize Stata, a statistical software package. This course is usually offered in fall semester of every year.

EDLF 5330 Quantitative Methods and Data Analysis I

This introductory statistics course covers descriptive and inferential statistics. Students learn to identify the type of data, select appropriate statistic and graphical methods, analyze data, and interpret the results. Specific methods include the t-test, chi-square test, correlation, simple linear regression, one-way ANOVA, and repeated measures ANOVA. Calculations are done by hand and with statistical software.

EDLF 5500 Field Experiments

This course has three purposes. The first is to introduce students to recent methodological advances in the design and analysis of field experiments, particularly in school settings. The second is for students to read and discuss well-known field experiments that have important implications for policy, and/or our understanding of science. The third is to demonstrate that although the course is about field experiments, many of the issues that are addressed extend easily to the design and analysis of observational studies. Students will learn to use Stata for the analysis of field experiments. Prerequisite: EDLF 7420 or equivalent. This course is usually offered in spring semester of odd-numbered years.

EDLF 5985 Internship

Students apply academic experiences in professional and/or research settings; reflect and critically and constructively analyze experiences from multiple perspectives; and view the work as connecting course content authentic contexts. Students work as professionals with site supervisors and instructors to complete related assignments and relevant background research on the professional and academic resources available.

EDLF 5993 Independent Study

EDLF 6080 Education Policy

An introductory course in which principles of assessing educational policies are applied to the evidence currently available across a range of policies. Areas of education policy may include early childhood education, charter schools, accountability, teacher recruitment, retention and assessment, and bridging from K-12 to high education. Discussions focus on linking policies to outcomes for students.

EDLF 7060 Theoretical Perspectives on Educational Policy

This course introduces students to the use of theory in the educational research process by examining interpretive and critical theoretical approaches in educational policy research. It examines current theories including micro-macro theories, critical race theories, feminist and postmodern theories and their applications in research methods such as critical discourse analysis, critical ethnography, etc., as they pertain to policy research, policy analysis, and policy evaluation.

EDLF 7180 Tests and Measurements

This introductory course concentrates on the evaluation and interpretation of assessment tools. Topics include reliability and validity; social and ethical considerations of testing; summarizing and interpreting measurements; and the use of standardized tests, rating scales, and observational scales. This course is usually offered in fall semester of every year.

EDLF 7300 Foundations of Educational Research

Social and education science research encompasses a varied and challenging set of knowledge and skills to master. The nature of the research problems are complex and multifaceted; addressing these questions requires a diverse and strategic combination of research traditions, designs, and methods, so no single research design course exposes students to all that might be of relevance and interest. This course has two broad goals: (1) to build a foundation on which students can begin to development an understanding of social and education science research designs and methods; and (2) to develop students' basic competencies in specifying linkages among research questions, designs, methods, evidence, inference, and use. This course is offered every fall semester.

EDLF 7330 Single-Subject Research

Detailed examination of the design and interpretation of single-subject research. Foci for the course include rationale for single-subject research; methods for planning, implementing, and evaluating studies; and issues in the use of these methods.

EDLF 7402 Program Evaluation

An overview of current program evaluation approaches, this class is designed to provide an overview of the theories behind and approaches to evaluation as well as to begin to train students in evaluation design and methods. Theoretical, methodological, and empirical readings emphasize the terminology of educational evaluation and the variety of theoretical and design approaches to evaluation.

Consideration is also given to the application of evaluation approaches and designs to non-educational settings. This course is usually offered in fall of odd-numbered years.

EDLF 7403 Survey Design and Instrument Construction

This course provides students with practical experience in survey research. Topics focus on survey design, administration, analysis, and reporting. Specific topics include item writing guidelines, cognitive interviews and pilot testing, survey implementation and planning, sampling methods, data analysis, and presentation of survey results. Particular attention is given to strategies for ensuring reliable survey responses and valid inferences.

EDLF 7404 Qualitative Analysis

This class serves as an introduction to the central concepts of qualitative methods in research and evaluation. Primary emphasis is on the development of skills required to conduct qualitative research, with a focus on research design, specific methods of inquiry, and approaches to analysis. The philosophy and epistemology of qualitative approaches are also discussed. Empirical readings provide examples of qualitative research within education and related fields. This course is usually offered fall and spring semester of every year.

EDLF 7410 Mixed Methods Research Design

This course provides an introduction to mixed methods in social science/educational research. We will consider the types of questions that mixed methods can answer and discuss the benefits/challenges of

mixed methods research. We will cover research design, sampling, and analysis, including reading exemplars of mixed methods research. Students will apply the theoretical/methodological tenets learned by designing their own mixed methods study. This course is usually offered in fall semester of even-numbered years.

EDLF 7420 Quantitative Methods II: General Linear Models

The focus of this course is on quantitative methods within a general linear modeling (GLM) framework. Topics include multiple regression with continuous outcomes and predictors that are continuous, dichotomous and multi-category (i.e., analysis of variance (ANOVA) in a regression framework), and combinations of these predictor types. Emphasis will also be placed on moderation and mediation, as well as assumptions underlying the appropriate use of these procedures. Students will develop both a theoretical and applied understanding of the general linear model in the context of continuous outcomes. Prerequisite: EDLF 5330 or equivalent.

EDLF 8310 Generalized Linear Models

This course provides students with advanced quantitative skills in applying ordinary least squares (OLS) methods, as well as introduces students to the generalized linear model (GLM) for cases when variables have specific non-normal conditional distributions. The course will address common data analytic challenges that arise in real world settings, such as when outcomes are not normally distributed, when the independent and dependent variables have nonlinear relationships, and when outliers or discrepant data are present. We also examine statistical methods for addressing missing covariate data and bootstrapping methods for inference tests. Prerequisite: EDLF 7420 or equivalent.

EDLF 8315 Causal Inference in Educational Policy Research

An advanced methods course on quasi-experimental statistical techniques for generating unbiased effect estimates when random assignment is not feasible. Underlying theories, identifying assumptions, and applications are presented for techniques drawn from a variety of disciplines including economics, sociology, and psychology including regression discontinuity, instrumental variables, difference-in-difference, matching, and fixed effects. This course is usually offered in spring semester of every year. Prerequisite: EDLF 7420 or equivalent.

EDLF 8340 Measurement Theory

Fundamentals of item response theory and generalizability theory. Topics include the Rasch, two-parameter logistic, and three parameter logistic models for binary items and the partial credit, rating scale, and generalized partial credit models for polytomous items. Additional topics include scale linking and score equating, and multidimensional item response theory. Generalizability theory topics include estimation of variance components for generalizability studies, and estimation of reliability coefficients for decision studies. Application of these methods to educational and psychological testing and the use of statistical software is emphasized. Students will learn to use statistical software such as R, jMetrik, and flexMIRT. Prerequisites: EDLF 7180 and EDLF 7420 or instructor permission. This course is usually offered in spring semester of every year.

EDLF 8350 Stat IV Multivariate Statistics

Presents the theory and rationale of selected multivariate statistical techniques. Topics include multivariate analysis of variance, canonical correlation, discriminant analysis, exploratory factor analysis, and confirmatory factor analysis. Emphasizes computer-assisted analysis and the application of appropriate statistical methods to research data. Prerequisite: EDLF 7420 or instructor permission. This course is usually offered in spring semester of every year.

EDLF 8400 Program Evaluation Design

Explores problems of designing, conducting, and reporting evaluation research studies. Time is spent examining philosophies of science that underlie evaluation studies; conceptualizing a total evaluation study; planning for the use of time and resources in conducting an evaluation study; assembling the evidence for or against a particular proposition; analyzing costs; and learning how to avoid common pitfalls in working with clients and program participants to design and conduct an evaluation study. This course is usually offered in fall semester of odd-numbered years.

EDLF 8440 Advanced Qualitative Analysis

Advanced course in methods and practices of qualitative research. Students determine their own philosophy of inquiry and become increasingly proficient in the application of qualitative methods. Assumes an introductory course in qualitative methods. Focuses on research design and proposal development, data collection and analysis techniques, and presentation of findings. The course is field-based and guides students through the complete qualitative research cycle. This course is usually offered in spring semester of every year.

EDLF 8360 Multilevel Modeling in Education Research

This course is designed to familiarize students with the basics of multilevel modeling. Topics include random effects ANOVA models, means-as-outcomes models, random coefficients models, intercepts-and-slopes-as-outcomes models, contextual models, random effects ANCOVA models, linear growth models, nonlinear growth models and cross-classified models. Prerequisite: EDLF 7420 or equivalent. This course is usually offered in fall semester of odd-numbered years.

EDLF 8361 Structural Equation Modeling

The major topics include exploratory/confirmatory factor analysis models, a variety of structural equation models, growth curve models, and multi-sample modeling analysis. The major focus of the course is both on the conceptual understanding of latent variable modeling and on practical application of these models in research and measurement. Students will work with data sets and computer programs to gain practical research experience.

EDLF 8380 Case Study Research

This course is intended for graduate students who have used or plan to use case study methods in their own research. The course will examine the foundations, logic, design, and ethics of case study research in education and the social sciences. The class will explore single-, multiple-, and mixed-methods case study designs and methods of data collection, interpretation, and analysis.