

School of Education - Statistics Background Requirement

Statistics Background Requirement

It is expected that SOE Ph.D. applicants will have some background in statistics. In many cases, this may be long before entering the program. In order to understand the material in the quantitative research courses, it is necessary that students have a basic grasp of statistics. Therefore, Ph.D. students are required, as a background requirement, to take and pass (B or better) EDRM 606, a three-credit statistics course, within two years of taking EDRM 700 and EDRM 706.

Exceptions:

1. Another statistics course can be substituted for EDRM 606 if it covers the topics listed below. Such a course can be graduate or undergraduate and taken at any accredited college. Submit documentation concerning the substitute course for review to the SOE Research Methodology Program Chair or an appointed representative.
2. If a student has taken a course in statistics greater than two years ago and can show proficiency in statistics through a practical means, such as on-the-job projects, work assignments, or as an instructor in math or statistics course, then they can be exempted from taking another background statistics course, by submitting documentation for review to the SOE Research Methodology Program Chair or an appointed representative.

EDRM 606 is a prerequisite for EDRM 706. However, EDRM 606 can be taken concurrently with EDRM 700.

Contact Don Quick at don.quick@colostate.edu, (970)491-4683, for further information:

Prerequisite Statistical Topics

For help in reviewing your past statistical experience or a course that is a substitute for EDRM 606, please consider the following topical areas:

Descriptive statistics design and measurement

- Population, parameter, sample, statistic
- Scales of Measure: Nominal, Ordinal, Interval, Ratio
- Independent, dependent, extraneous variables
- Measures of central tendency: Mean, median, mode
- Skewness
- Variability: Standard deviation, variance, range
- Normal distribution
- z scores, percentile ranks
- Probability sampling

Graphing data

- Frequency distribution
- Bar chart
- Histogram
- Scatterplot
- Boxplots

Inferential statistics

- Pearson product moment correlation (r)
 - Positive and negative correlations
 - Perfect correlation, zero correlation
 - Coefficient of determination (r^2)
- Simple linear regression
- Hypothesis testing
 - Alpha and p values, degrees of freedom
 - Type I and Type II errors, power
- Comparing means (t test) and proportions
 - Sampling distribution
 - Correlated or paired vs independent samples vs one sample
 - Confidence intervals
- Chi-square