WSU Educational Psychology Courses
Assessment, Measurement, & Psychometrics

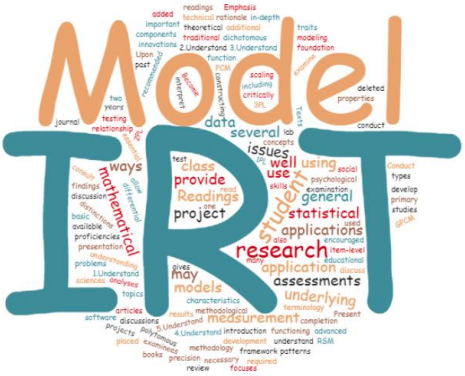
ED PSYCH 509
Educational Measurement:
Test Development & Assessment

- Foundations of testing and assessment
- Roles & responsibilities of stakeholders
- Test use across settings (educational, clinical, and organizational, etc.)
- Test/Assessment development & item writing
- Reliability and validity
- Test reviews, accommodation, adaptation, & decision-making

ED PSYCH 511
Classical & Modern Test Theory

- Reliability, new standards on reliability
- Classical test theory & item analysis
- Validity standards & validation
- Norms & standard scores, standard setting
- Item response theory
- Measurement invariance, differential item functioning, Linking and equating
- Intro to large-scale assessment & surveys

ED PSYCH 577
Item Response Theory



- IRT and assumptions
- IRT models for binary & polytomous data
- Parameter estimation & model-data fit
- Reliability & measurement error in IRT
- Applications of IRT across contexts
- Dimensionality assessment & local dependence
- Computerized Adaptive Testing

ED PSYCH 578
Advanced Item Response Theory

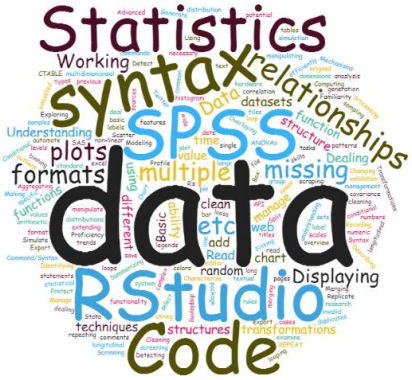
- Missing data in measurement & assessment
- Dimensionality & validity
- Multidimensional IRT models
- Cognitive diagnostic models
- Methods for subscore reporting
- Parameter estimations and model-data fit
- Bayesian, nonparametric, and mixture IRT
- Simulation studies in IRT

For more information, contact Brian French (frenchb@wsu.edu) or Shenghai Dai (s.dai@wsu.edu).

College of Education, Sport, and Human Sciences

WSU Educational Psychology Courses
Data Analytics, Statistics, & Quantitative Methods I

ED PSYCH 512
Data Management & Visualization
(with SPSS & R)



- Coding, computing, and transforming data
- Splitting, merging, and aggregating data
- Screening and handling missing data & outliers
- Tables, plots, and charts with ggplot2
- Identifying patterns, trends, and distributions
- Displaying and summarizing relationships
- Managing and visualizing longitudinal data

ED PSYCH 508
Educational Statistics

- Descriptive statistics, measures of central tendency/variability
- Research questions, data structure & nature of variables, missing data
- Probability & sampling distribution
- Independent & dependent *t*-tests
- Analysis of variance (ANOVA)
- Correlation and regression

ED RES 565
Quantitative Research

- Multiple regressions
- Effect size; type I and II errors
- Power analysis
- Missing data
- Factorial ANOVAs
- Repeated & mixed effect ANOVAs
- Analysis of covariance (ANCOVA)
- Logistic regression

- (Hierarchical) multiple linear regression
- Mediation, moderation, and path analysis
- Multivariate analysis of variance (MANOVA)
- Discriminant function analysis
- Principle component analysis
- Exploratory factor analysis
- Confirmatory factor analysis
- Introduction to structural equation modeling

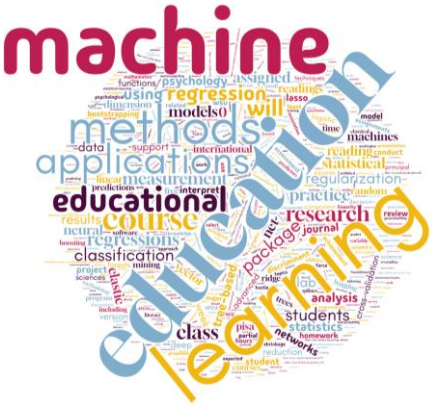
ED PSYCH 569
Multivariate Data Analysis

For more information, contact Brian French (frenchb@wsu.edu) or Shenghai Dai (s.dai@wsu.edu).

College of Education, Sport, and Human Sciences

WSU Educational Psychology Courses
Data Analytics, Statistics, & Quantitative Methods II

ED PSYCH 521
Machine Learning in Education
(with Python & R)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