ICPSR Summer Program

Maximum Likelihood Estimation for Generalised Linear Models

August 20-22, 2018

- **Instructor:**
  Niccole M. Pamphilis

- **Duration:**
  3-day short-course

- **Software:**
  SPSS, R, and Stata code will be provided

- **Class format:**
  Mixture of lecture and hands on lab sessions.

- **Primary Text:**
  Scott Long *Regression Models for Categorical and Limited Dependent Variables (Advanced Quantitative Techniques in the Social Sciences)*

- **Pre-requisites:**
  Understanding of OLS Regression Analysis and basic training and understanding of SPSS, R, or Stata

- **Description:**
  This course offers participants an introduction to a range of statistical models beyond those available using standard linear regression analysis. The course will teach students about logit and probit models for dependent variables with binary outcomes as well as ordered models and multinomial models for categorical dependent variables. Participants will learn about the assumptions of each model and how to properly test if the model assumptions hold in addition to expressing model results graphically. Background knowledge of OLS Regression and basic training and understanding of SPSS, R, or Stata are expected.
• **Topics:**

  o **Monday:**
    - *Morning:* Review of Regression Analysis
    - *Afternoon:* Introduction to Maximum Likelihood Estimation Approach

  o **Tuesday:**
    - *Morning:* Logit and Probit Models
      - Estimation Approach
      - Differences Between Models
      - Interpretation of Results
      - Graphing Results
      - Model Diagnostics
    - *Afternoon:* Ordered Models Session
      - Approach
      - Interpretation
      - Tests

  o **Wednesday:**
    - *Morning:* Multinominal Models
      - Approach
      - Interpretation
      - Tests
    - *Afternoon:* Count Models
      - Approach
      - Interpretation
      - Tests