

Advanced Quantitative Social Science Minor [Revised April 16, 2026]

The Advanced Quantitative Social Science Minor (AQSSM) is open to all graduate students at the University of Notre Dame. The program is designed to provide in-depth training in quantitative methodology that are broadly applicable in the social sciences, with a particular emphasis on statistical/quantitative methods that are most widely used in psychology, sociology, economics, and political science.

The AQSSM involves the successful completion of **six approved courses** and attending two semesters of Quantitative Studies Group (QSG). The list of approved courses is given below.

- Psychology 60100: Quantitative Methods in Psychology I
- Psychology 60101: Quantitative Methods in Psychology II
- Psychology 60108: Bayesian Statistics
- Psychology 60109: R for Data Science
- Psychology 60121: Psychological Measurement and Test Development
- Psychology 60122: Introduction to Machine Learning
- Psychology 60123: Intro to Linear Modeling
- Psychology 60125: Multivariate Analysis
- Psychology 60130: Structural Equation Modeling
- Psychology 60131: Statistical Mediation Analysis
- Psychology 60139: Missing Data Analysis
- Psychology 60143: Applied Time Series Analysis
- Psychology 60148: Advanced Structural Equation Modeling
- Psychology 60152: Item Response Theory
- Psychology 60155: Longitudinal Data Analysis
- Psychology 60156: Advanced Longitudinal Methods
- Psychology 60157: Categorical Data Analysis
- ITAO 80860: Human-centered Analytics: Design, Measurement, and Analysis

Two Semesters of QSG. Students must also enroll in the one-credit course – Quantitative Studies Group (QSG), PSY 63199, and attend weekly colloquia, for two semesters. PSY 63199 is listed for one-credit per semester, and is graded S/U.

Courses that meet the requirements for the minor are reviewed yearly and may change. However, students will always be expected to meet the course requirements when they declare.

More requirements and opportunities of the AQSSM can be found at the website (<https://psychology.nd.edu/graduate-programs/areas-of-study/quantitative/minor/>).

For additional information or questions about the minor, students should contact the program director for the quantitative psychology PhD program, (2025- ; Prof. Ke-Hai Yuan: kyuan@nd.edu).

Course Plan for Students in the Sociology Department

For students in the Department of Sociology, the AQSSM involves the successful completion of four required courses and two elective courses as well as attending two semesters of Quantitative Studies Group (QSG).

REQUIRED COURSES (4)

- Sociology 63997: Linear Regression
- Sociology 73994: Categorical Data Analysis
- Sociology 63913: Research Methods
- Sociology 73997: Causal Inference

ELECTIVE COURSES (Any 2, with at least one of the two courses from the following list of Psychology courses)

- Psychology 60130: Structural Equation Modeling
- Psychology 60108: Bayesian Statistics
- Psychology 60109: R for Data Science
- Psychology 60125: Multivariate Analysis
- Psychology 60155: Longitudinal Data Analysis
- Psychology 60148: Advanced Structural Equation Modeling
- Psychology 60139: Missing Data Analysis
- Psychology 60143: Applied Time Series Analysis
- Psychology 60121: Psychological Measurement and Test Development
- Psychology 60152: Item Response Theory
- Psychology 60156: Advanced Longitudinal Methods
- Psychology 60123: Intro to Linear Modeling
- Psychology 60122: Introduction to Machine Learning
- Economics 60650: Designing and Analyzing Experiments
- Sociology 63999: Data Management and Visualization

Successful completion of the AQSSM will serve the equivalent of passing one area exam in the sociology department's graduate program. Students are expected to complete the AQSSM by the end of their third year in the program.

Students in the sociology department should contact Prof. Bill Carbonaro for additional information or questions about the minor.