Quantitative Social Analysis

Department Website: https://voices.uchicago.edu/qrmeth/the-minor-in-quantitative-social-analysis (https://voices.uchicago.edu/qrmeth/the-minor-in-quantitative-social-analysis/)

Minor Program in Quantitative Social Analysis

The minor in Quantitative Social Analysis explores social statistics and mathematics to describe, understand, and predict the behavior and experiences of individuals, groups, and organizations of groups. These statistical and mathematical methods focus on measurement, analysis, or both, using techniques and strategies that are widely useful, for example, in understanding thoughts and behaviors of individuals, as well as the cultures of societies, fluctuations of markets, actions of governments, spread of disease, dynamics of migration, causes of war, and the diffusion of knowledge. The minor in Quantitative Social Analysis develops strong statistical foundations for the purpose of learning how to draw valid inferences from quantifiable data and critically evaluate empirical evidence in the social and behavioral sciences.

A minor in Quantitative Social Analysis provides an excellent foundation for application to graduate study at all levels and in many disciplines, ranging from economics, psychology, political science, public policy, and sociology, as well as non–social science disciplines such as medical school, public health, education, social services, applied mathematics, and applied computer science. The minor in Quantitative Social Analysis aims to train students in ways that are more immediately attractive to employers in industry, government, the military, environmental studies, journalism, and public interest and advocacy groups, as well as to University of Chicago faculty seeking research assistance.

Program Requirements

Course Work

Students take five (5) courses that cover three levels: Basic Skills (one course), Advanced Skills (two courses), and Quantitative Applications (two courses). **Or**, if the student has already completed a Basic Skills course for the major, then three Advanced Skills courses and two Quantitative Applications courses.

- Students who are taking Basic Skills courses should primarily focus on developing theoretical understanding of statistics and building up quantitative skills (rather than simply utilizing quantitative skills as part of the course).
- Students who are taking Advanced Skills courses will further develop their statistical skills with broad usefulness in social scientific research.
- Students who are prepared with more advanced statistical training are then able to more deeply understand the Quantitative Applications in courses throughout the social sciences and engage in research appropriate to those courses in solo activity or as part of research teams.

In order to ensure that the minor in Quantitative Social Analysis represents the diversity of training across the social sciences, no more than three courses may be taken in any one department, and the Quantitative Applications courses must be drawn from at least two departments. In all cases, students should be aware that some approved courses have explicit prerequisites which may not count toward the Quantitative Social Analysis minor.

Summary of Requirements

One Basic Skills course	100
Two Advanced Skills courses	200
Two Quantitative Applications courses	200
Total Units	500

Approved Courses

The following courses have been approved by the Committee on Quantitative Methods in Social, Behavioral, and Health Sciences as appropriate for the minor in Quantitative Social Analysis and are listed by the three levels stipulated above (Basic Skills, Advanced Skills, and Quantitative Applications).

Basic Skills

One course; may not be satisfied with AP credit.

Students who have already taken SOSC 13100-13200-13300 Social Science Inquiry I-II-III or previously completed any of the Basic Skills courses as part of their majors may substitute an additional Advanced Skills course in place of the Basic Skills course.

BIOS 20172	Mathematical Modeling for Pre-Med Students	100
GISC 25900	Introduction to Location Analysis	100
GISC 27104	Transportation and Urban Mobility Analysis	100

GISC 28100	Introduction to Geocomputation	100
GISC 28200	Spatial Analysis Methods in Geographic Information Systems	100
GISC 28702	Introduction to GIS and Spatial Analysis	100
MACS 30500	Computing for the Social Sciences	100
MAPS 36006	Foundations for Statistical Theory	100
PBHS 32100	Introduction to Biostatistics	100
PBPL 26400	Quantitative Methods in Public Policy	100
PLSC 26969	Quantitative Methods for Political Science	100
PLSC 30500	Introduction to Quantitative Social Science	100
PSYC 20100	Psychological Statistics	100
PSYC 20200	Psychological Research Methods	100
PSYC 20250	Introduction to Statistical Concepts and Methods	100
SOCI 20004	Introduction to Statistical Methods and Models	100
SOCI 20157	Mathematical Models	100
SOCI 30004	Introduction to Statistical Methods and Models	100
SOSC 20112	Introductory Statistical Methods and Applications for the Social Sciences	100
SOSC 26009	Introductory Statistical Methods	100
STAT 22000	Statistical Methods and Applications	100
STAT 23400	Statistical Models and Methods	100

Advanced Skills

Two courses; or three courses if a Basic Skills course has already been completed for the student's major.

BIOS 21216	Introduction to Statistical Genetics	100
BUSN 20820	Financial Econometrics	100
CHDV 30102	Introduction to Causal Inference	100
CHDV 32411	Mediation, Moderation, and Spillover Effects	100
ECMA 31000	Introduction to Empirical Analysis	100
ECMA 31130	Topics in Microeconometrics	100
ECMA 31340	Big Data Tools in Economics	100
ECMA 31360	Causal Inference	100
ECON 11020	Introduction to Econometrics	100
ECON 21020	Econometrics	100
ECON 21030	Econometrics - Honors	100
ECON 21300	Data Construction and Interpretation in Economic Applications	100
ECON 21800	Experimental Economics	100
MACS 31300	AI Applications in the Social Sciences	100
MAPS 36007	Overview of Quantitative Methods in the Social and Behavioral Sciences	100
MAPS 36008	Principles and Methods of Measurement	100
MAPS 36011	Fundamentals of Item Response Theory	100
PBHS 30910	Epidemiology and Population Health	100
PBHS 31100	Introduction to Mathematical Modeling in Public Health	100
PBHS 32400	Applied Regression Analysis	100
PBHS 32600	Analysis of Categorical Data	100
PBHS 32700	Biostatistical Methods	100
PBHS 32901	Introduction to Clinical Trials	100
PBHS 33300	Applied Longitudinal Data Analysis	100
PBHS 33500	Statistical Applications	100
PBHS 34500	Machine Learning for Public Health	100
PBPL 28430	International Trade, Banking and Capital Markets	100
PBPL 28550	Methods of Data Collection: Social Experiments, Quasi-Experiments and Surveys	100
PLSC 30700	Estimation I	100
PPHA 30545	Machine Learning for Public Policy	100
SOCI 20112	Applications of Hierarchical Linear Models	100

SOCI 20253	Introduction to Spatial Data Science	100
SOCI 20519	Spatial Cluster Analysis	100
SOCI 20559	Spatial Regression Analysis	100
SOCI 30005	Regression and Generalized Linear Models	100
STAT 22600	Analysis of Categorical Data	100
STAT 24400	Statistical Theory and Methods I	100
STAT 24500	Statistical Theory and Methods II	100
STAT 24630	Causal Inference Methods and Case Studies	100
STAT 27855	Hypothesis Testing with Empirical Bayes Methodology	100
STAT 35920	Applied Bayesian Modeling and Inference	100

Quantitative Applications

Two courses

BIOS 21216	Introduction to Statistical Genetics	100
BUSN 20400	Investments	100
ECMA 36700	Economics of Education	100
ECON 11850	Behavioral Economics and Welfare Analysis	100
ECON 23410	Economic Growth	100
ECON 24000	Labor Economics	100
ECON 24450	Inequality and the Social Safety Net: Theory, Empirics, and Policies	100
ECON 25000	Introduction To Finance	100
ECON 25100	Financial Economics; Speculative Markets	100
ECON 25520	Development Economics and Data Analysis	100
ECON 27000	International Economics	100
ECON 27700	Health Economics and Public Policy	100
ECON 28000	Industrial Organization	100
ECON 31750	Topics on the Analysis of Randomized Experiments	100
ECON 35550	The Practicalities of Running Randomized Control Trials	100
HLTH 24900/PBHS 34900	GIS and Spatial Analysis for Public Health	100
PBHS 35100	Health Services Research Methods	100
PBPL 28350	Education and Economic Development	100
PBPL 28425	Strategic Behavior and Regulation of Firms	100
PBPL 28750	Conflict: Root Causes, Consequences and Solutions for the Future	100
PBPL 28765	The Politics of Authoritarian Regimes	100
PBPL 28829	Artificial Intelligence for Public Policy	100
PLSC 22400	Public Opinion	100
PLSC 23501	International Political Economy	100
PLSC 28110	Lab and Field Experiments in Comparative Politics and Policy	100
PLSC 31510	Introduction to Text as Data for Social Science	100
PPHA 35577	Big Data and Development	100
PPHA 38520	GIS Applications in the Social Sciences	100
PSYC 26010	Big Data in the Psychological Sciences	100
SOCI 20612	Introduction to Demographic Methods: an application to Latin America	100

Approved, eligible courses for the Education and Society minor will be listed each year on the Quantitative Social Analysis minor website (https://voices.uchicago.edu/qrmeth/the-minor-in-quantitative-social-analysis/).

Advising and Grading

Courses in the minor may not be double-counted with the student's major(s), other minors, or general education requirements. Courses in the minor must be taken for quality grades, and more than half of the requirements for the minor must be met by registering for courses bearing University of Chicago course numbers.

College students majoring in any field may complete the minor in Quantitative Social Analysis. Students who elect the minor program in Quantitative Social Analysis must contact the program administrator before the end of Spring Quarter of their third year to declare their intention to complete the minor. The program administrator must submit approval on the Consent to Complete a Minor Program (https://humanities-

web.s3.us-east-2.amazonaws.com/college-prod/s3fs-public/documents/Consent_Minor_Program.pdf) form provided by the College for the minor to the student's College adviser by the Spring Quarter of the student's third year.

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