School of Economic, Political and Policy Sciences

Master of Science in Social Data Analytics and Research

36 semester credit hours minimum

Faculty

Professors: Kurt J. Beron, Patrick T. Brandt, Harold D. Clarke, Euel W. Elliott, Daniel A. Griffith, Donald A. Hicks, Dong Li, Robert C. Lowry, Alex R. Piquero, Fang Qiu, Donggyu Sul

Associate Professors: Bobby C. Alexander, Simon M. Fass, Seth Giertz, Dohyeong Kim, Tomislav Kovandzic, Meghna Sabharwal, Michael Tiefelsdorf

Clinical Associate Professor: Karl K. Ho

Assistant Professors: Rodney Andrews, Vito D’Orazio, Evgenia Gorina, Asli Leblebicioglu

Clinical Assistant Professor: Timothy M. Bray

Mission

The mission of the Master of Science (MS) in Social Data Analytics and Research is to equip individuals with rigorous multi-disciplinary proficiency in methods of social data production, collection and investigation for which there is strong and increasing career demand by the public, nonprofit, and private sectors, and by doctoral programs and other advanced research organizations.

The MS in Social Data Analytics and Research endows students with a clear understanding of the contributions that rigor makes to creation, assembly, interpretation and analysis of social science data. It encourages reflection on core methods, theories and philosophical dimensions of social science practice. It fosters appreciation of the importance of applied social science in helping to shape public policy and action through participation in formation of new policies and programs or evaluation of strategies and interventions underway.

The MS in Social Data Analytics and Research orients itself to students wanting to apply social science concepts, principles, and methods to a broad range of questions in research-related and other professional engagements in government, nonprofit, and private sector settings that rely on social data for answers.
Objectives

Graduates of the program will:

- Rigorously apply methods of social science research design and evaluation, including quantitative (e.g., experimental, quasi-experimental, and naturalistic) and qualitative approaches in varied public, non-profit, and private sector settings;
- Skillfully employ quantitative and qualitative analysis methods for social science data used in research by different types of public, non-profit, and private sector organizations, and as appropriate understand and analyze large data sets;
- Harness acquired skills and capabilities in practice to sustain public, nonprofit, and private sector organizations as they address pressing societal issues on both local and global scales;
- Interpret core theories and philosophical dimensions of social science practice, and promote ethical use of social science methodology;
- Justify the importance of applied social science in helping to shape public policy and action;
- Successfully build career paths in fields applying social data analytics and research.

Facilities

Students have full access to four state-of-the-art computer laboratories housed in the School of Economic, Political and Policy Sciences. Open for extended hours including evenings and weekends, each laboratory is equipped with full multimedia systems and contains 24 to 30 computers. All computers are network linked and hold full suites of leading survey, qualitative, spatial and statistical analysis software, including Qualtrics, NVivo, ArcGis, ENVI, EViews, R, STATA, and SAS. The University's computer labs also provide desktop computers and UNIX workstations for student use throughout the campus. These include computing facilities in the Erik Jonsson School of Engineering and Computer Science and in the NASA Center for Excellence in Remote Sensing in the Department of Geosciences. Key data sources and reference materials are readily available online through the University library and the School's memberships in various professional organizations.

Admissions Requirement

The University's general admission requirements are discussed on the Graduate Admission page.

The MS in Social Data Analytics and Research invites applications from students with a baccalaureate degree from an accredited higher education institution. Every application receives an all-inclusive review. In general, entering students should have earned a minimum 3.0 undergraduate Grade Point Average (GPA) on a 4.0-point scale, a verbal score of 150 and a quantitative score of 150 on the Graduate Record Examination (GRE). In addition to standardized test scores, which are only one of several factors taken into account in determining admission, students should submit all transcripts, three letters of recommendation, and a one-page essay outlining the applicant's background, education, and professional objectives.
Prerequisites

There are no specific prerequisites for admission to the MS in Social Data Analytics and Research. Several required courses, however, demand satisfactory prior completion of undergraduate college algebra and/or calculus.

Grading Policy

In order to qualify for graduation, students must maintain a minimum 3.0 grade point average in their degree program's core courses plus an aggregate grade point average of 3.0 for all graduate courses taken in the student's degree program at UT Dallas.

Degree Requirements

The University's general degree requirements are discussed on the Graduate Policies and Procedures page.

Students seeking the MS in Social Data Analytics and Research must complete at least 36 semester credit hours of graduate coursework in the program and maintain at least a 3.0 (B) grade point average in order to graduate.

The program has three components: Required Core Courses (15 semester credit hours), Prescribed Analytical Electives (12 semester credit hours) and Prescribed Disciplinary Electives (9 semester credit hours), as follows:

I. Required Core Courses: 15 semester credit hours

   EPPS 6302  Methods of Data Collection and Production
   EPPS 6311  Research Practice in the Social Sciences
   PPPE 6310  Research Design I
   EPPS 6313  Introduction to Quantitative Methods\(^1\)
      or EPPS 7313  Descriptive and Inferential Statistics\(^2\)
   EPPS 6316  Applied Regression\(^1\)
      or EPPS 7316  Regression and Multivariate Analysis\(^2\)

   In special circumstances, students may substitute alternative equivalent courses in the core with prior approval of the Program Director or the Associate Dean for Graduate Programs.

II. Prescribed Analytical Electives: 12 semester credit hours

   Students complete twelve semester credit hours in **ONE** of the following analytical modules (Data Collection, Production and Management; Quantitative Methods; Qualitative Methods; Design and Evaluation; and Spatial Analytics. The Program Director or the Associate Dean for Graduate Programs.

Programs must approve course selection within each module.

Module 1: Data Collection, Production and Management

**EPPS 6323** Knowledge Mining
**EPPS 6324** Data Management for Social Science Research
**EPPS 6354** Information Management
**EPPS 7386** Survey Research
**GISC 5322** GPS (Global Positioning System) Satellite Surveying Techniques
**GISC 5324** 3D Data Capture and Ground LiDAR
**GISC 6325** Remote Sensing Fundamentals
**GISC 6381** Geographic Information Systems Fundamentals
**GISC 6384** Advanced Geographic Information Systems
**GISC 7365** Advanced Remote Sensing
**PSCI 6364** Public Opinion and Survey Research

Module 2: Quantitative Methods

**ECON 6305** Mathematical Economics
**ECON 6306** Applied Econometrics
**ECON 6309** Econometrics I
**ECON 7309** Econometrics II
**ECON 7315** Econometrics III
**EPPS 7318** Structural Equation and Multilevel (Hierarchical) Modeling
**EPPS 7344** Categorical and Limited Dependent Variables
**EPPS 7370** Time Series Analysis I
**EPPS 7371** Time Series Analysis II
**EPPS 7390** Bayesian Analysis for Social and Behavioral Analysis

Module 3: Qualitative Methods

**CRIM 7342** Qualitative Criminology
**EPPS 6346** Qualitative Research Methods
**EPPS 6355** Qualitative Data Analysis
**EPPS 6356** Data Visualization
Module 4: Design and Evaluation

**CRIM 6301** Research Design I
**EPPS 6352** Evaluation Research Methods in the Social Sciences
**EPPS 7304** Cost-Benefit Analysis
**GISC 7387** GIS Research Design
**PA 6315** Evaluating Program and Organizational Performance
**PA 7330** Research Design in Public Affairs
**PPPE 6342** Research Design II

Module 5: Spatial Analytics

**GISC 6301** GIS Data Analysis Fundamentals
**GISC 6311** Statistics for Geospatial Science
**GISC 6317** GIS Programming Fundamentals
**GISC 6381** Geographic Information Systems Fundamentals
**GISC 6384** Advanced Geographic Information Systems
**GISC 7310** Advanced GIS Data Analysis
**GISC 7360** GIS Pattern Analysis
**GISC 7361** Spatial Statistics

III. Prescribed Disciplinary Electives: 9 semester credit hours

Students complete nine semester credit hours in **ONE** of the following disciplinary domains (Criminology, Geospatial Information Sciences, Economics, Political Science, Public/Nonprofit Management, Public Policy/Political Economy, or Sociology) with courses prescribed by the respective EPPS Programs. The Program Director or the Associate Dean for Graduate Programs must approve course selection.

Criminology:

**CRIM 6303** Etiology of Crime and Criminality
**CRIM 6311** Crime and Justice Policy
**CRIM 6314** Policing
**CRIM 6315** Violent Crime

Geospatial Information Sciences:
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CRIM 6332</td>
<td>GIS Applications in Criminology</td>
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<td>GISC 6331</td>
<td>GIS Applications in Criminology</td>
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<tr>
<td>GISC 6325</td>
<td>Remote Sensing Fundamentals</td>
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<td>GISC 6382</td>
<td>Applied Geographic Information Systems</td>
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<td>GISC 6385</td>
<td>GIS Theories, Models and Issues</td>
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<td>GISC 7364</td>
<td>Demographic and Epidemiological Analysis and Modeling</td>
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<td>GISC 7366</td>
<td>Applied Remote Sensing</td>
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**Economics:**

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<tbody>
<tr>
<td>ECON 5321</td>
<td>Microeconomic Theory for Applications</td>
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<tr>
<td>ECON 5322</td>
<td>Macroeconomic Theory for Applications</td>
</tr>
<tr>
<td>ECON 5326</td>
<td>Managerial Economics</td>
</tr>
<tr>
<td>ECON 5397</td>
<td>Special Topics in Economics</td>
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<tr>
<td>ECON 6320</td>
<td>Game Theory for the Social Sciences</td>
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<td>ECON 6344</td>
<td>Transfer Pricing</td>
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**Political Science:**

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<tbody>
<tr>
<td>PSCI 6311</td>
<td>Proseminar in Law and Courts</td>
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<tr>
<td>PSCI 6319</td>
<td>Proseminar in International Relations</td>
</tr>
<tr>
<td>PSCI 6321</td>
<td>Proseminar in Comparative Politics</td>
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<td>PSCI 6347</td>
<td>Proseminar in Political Institutions and American Politics</td>
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**Public/Nonprofit Management:**

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<tbody>
<tr>
<td>PA 6311</td>
<td>Public Management</td>
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<tr>
<td>PA 6313</td>
<td>Public Policymaking and Institutions</td>
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<tr>
<td>PA 6320</td>
<td>Organizational Theory</td>
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<tr>
<td>PA 6321</td>
<td>Government Financial Management and Budgeting</td>
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<tr>
<td>PA 6345</td>
<td>Human Resource Management</td>
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<td>PA 6382</td>
<td>Nonprofit Management</td>
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**Public Policy/Political Economy:**

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<tbody>
<tr>
<td>PPPE 6301</td>
<td>Political-Economic Theories</td>
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<td>PPPE 6329</td>
<td>Ethics, Culture and Public Policy</td>
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**PPPE 6340** Domestic Social Policy
**PPPE 6352** World Political Economy
**PPPE 6354** Theories and Issues of Development

**Sociology:**

**SOC 6312** Social-Economic Theories
**SOC 6344** Gender and Policy
**SOC 6347** Religion in Public Life
**SOC 6348** Immigration Policy
**SOC 6350** Social Stratification
**SOC 6355** Race and Ethnic Relations

1. Prerequisite is College Algebra.
2. Prerequisite is Calculus.