

# QUANTITATIVE SOCIAL DATA ANALYSIS, UNDERGRADUATE CERTIFICATE (DEPARTMENT OF POLITICAL SCIENCE)

The Certificate in Quantitative Social Data Analysis is designed to meet the growing need of employers for a workforce that is fluent in data-driven decision-making. Students in the certificate program are exposed to a breadth of data analysis topics, including research methods, Geographical Information System (GIS), multiple regression, and advanced electives on a variety of quantitative topics in various social science fields, as well as software packages that are in common use in the business world. The program is interdisciplinary - it draws on courses from 9 social science-related departments (Africology, Anthropology, Communications, Criminal Justice, Economics, Geography, Psychology, Political Science, and Sociology) and is intended to complement students' social science major with concrete quantitative skills in data analysis.

Students will take courses in statistics, regression, GIS, and research methods and will frequently be able to choose a course specific to their major. For example, a sociology major can choose "Research Methods in Sociology" to satisfy the research methods course requirement while a psychology student may choose "Research Methods in Psychology." These options allow students to focus their certificate training in their own field.

## Eligibility

The certificate is open to current UWM undergraduates, UWM bachelor's degree holders, or graduates of other accredited four-year colleges; to be admitted to the certificate program, students must have a current overall GPA of 3.0 at UWM or their bachelor's degree institution. Students completing the certificate not in conjunction with a degree are not eligible for financial aid.

## Requirements

To obtain the certificate, the student must earn a grade of at least C in any course used to satisfy the certificate requirements, and a cumulative GPA of 3.0 over all courses used for the certificate. Twelve of the 15-18 required credits must be earned in residence at UWM. Nine of the credits must be on the 300-level or above. Courses for the certificate may not be taken on a credit/no credit basis.

Students currently enrolled at UWM who have fulfilled some of the program's requirements prior to the program's approval may have their credits applied retroactively to the certificate program.

Students are required to take one course each from 5 areas:

1. Introductory statistics (3-4 credits);
2. Research methods (3-4 credits);
3. GIS/Programming for Social Data Analysis (3 credits);
4. Multiple regression (3 credits); and
5. Electives (3-4 credits).

| Code                                            | Title                                                                      | Credits    |
|-------------------------------------------------|----------------------------------------------------------------------------|------------|
| <b>Introductory Statistics</b>                  |                                                                            | <b>3-4</b> |
| Choose one:                                     |                                                                            |            |
| AFRIC 220                                       | Introduction to Statistics in African and African Diaspora Studies         |            |
| ECON 210                                        | Economic Statistics                                                        |            |
| GEOG 247                                        | Quantitative Analysis in Geography                                         |            |
| HIST 595                                        | The Quantitative Analysis of Historical Data                               |            |
| PSYCH 210                                       | Psychological Statistics                                                   |            |
| SOCIOL 261                                      | Introduction to Statistical Thinking in Sociology                          |            |
| <b>Research Methods</b>                         |                                                                            | <b>3-4</b> |
| Choose one:                                     |                                                                            |            |
| AFRIC 301                                       | Research Methods in African & African Diaspora Studies                     |            |
| COMMUN 370                                      | Quantitative Research in Communication                                     |            |
| POL SCI 203                                     | Introduction to Political Science Research                                 |            |
| PSYCH 325                                       | Research Methods in Psychology                                             |            |
| SOCIOL 361                                      | Research Methods & Data in Sociology                                       |            |
| PH 455                                          | Public Health Research Methods II                                          |            |
| CRM JST 662                                     | Methods of Social Welfare Research                                         |            |
| <b>GIS/Programming for Social Data Analysis</b> |                                                                            | <b>3</b>   |
| Choose one:                                     |                                                                            |            |
| ANTHRO 380                                      | Anthropological Applications of GIS                                        |            |
| CRM JST 520                                     | Analysis Oriented Technology: Spatial Data Analysis; Crime Mapping; ArcGIS |            |
| GEOG 215                                        | Introduction to Geographic Information Science                             |            |
| GEOG 325                                        | Data Science and Environmental Applications                                |            |
| PSYCH 401                                       | Data Science for Psychology                                                |            |
| <b>Multiple Regression</b>                      |                                                                            | <b>3</b>   |
| Choose one:                                     |                                                                            |            |
| ANTHRO 568                                      | Introduction to Anthropological Statistics                                 |            |
| ECON 310                                        | Introduction to Econometrics and Data Science                              |            |
| ECON 413                                        | Statistics for Economists                                                  |            |
| ECON 513                                        | Introduction to Econometrics                                               |            |
| POL SCI 390                                     | Political Data Analysis                                                    |            |
| PSYCH 610                                       | Experimental Design                                                        |            |
| SOCIOL 461                                      | Social Data Analysis Using Regression                                      |            |
| <b>Electives</b>                                |                                                                            | <b>3-4</b> |
| Choose one: <sup>1</sup>                        |                                                                            |            |
| ECON 411                                        | Economic Forecasting Methods                                               |            |
| GEOG 525                                        | Geographic Information Science                                             |            |
| GEOG 547                                        | Spatial Analysis                                                           |            |
| POL SCI 392                                     | Survey Research                                                            |            |
| PSYCH 510                                       | Advanced Psychological Statistics                                          |            |

SOCIOL 352

Social Networks

**Total Credits****15-18**

<sup>1</sup> Other courses not on this list but relevant to quantitative social data analysis may be accepted with the approval of the Certificate Program Coordinator. A student making such a request must submit syllabi from the courses involved to the coordinator.

## Awarding the Certificate

Students currently involved in baccalaureate studies who successfully complete the requirements of the program will be awarded the certificate at the time of graduation. Students who already have a bachelor's degree will receive the certificate upon completion of the program requirements.

## Advising

Certificate advising is provided by one of the coordinators, Professor Aki Roberts (aki@uwm.edu) or Professor Hong Min Park (hmpark1@uwm.edu).

**To declare the Quantitative Social Data Analysis Certificate, simply complete the following steps:**

1. Click on Declaration of Certificate (<https://uwm.edu/sociology/students/undergraduates/declare-your-certificate/>) Form.
2. Fill out the Declaration of Certificate Form.
3. Submit the Declaration of Certificate Form.

Prospective students not yet enrolled at UWM can contact the college admissions office at (414) 229-7711 or let-sci@uwm.edu (let-sci@uwm.edu).