



FAIRFAX COUNTY
invites applications for the position of:

Data Scientist II

22-03351
Management & Budget

SALARY: \$31.61 - \$52.68 Hourly
\$2,528.77 - \$4,214.61 Biweekly
\$65,747.97 - \$109,579.81 Annually

Pay Grade: S25

LOCATION: FX. CTY. GOVERNMENT CENTER, 12000 GOVERNMENT CENTER
PKWY., FAIRFAX (EJ32)

**OPENING
DATE:** 12/03/22

**CLOSING
DATE:** 12/23/22 11:59 PM

**POSTING
TYPE:** Open to General Public

JOB ANNOUNCEMENT:

Under limited direction and general supervision of Principal Data Scientist and/or Senior Data Scientist, serves as a subject expert for demographic, economic and statistical research (EDSR) in the Data Analytics Division; serves as a technical specialist to generate, collect, analyze, manage, and interpret large amount of economic and demographic data from multiple sources, and to synthesize data and deliver tangible research products to communicate to various stakeholders.

We are seeking a well-rounded, data-driven individual with mid-level technical skills who can build complex quantitative algorithms to create, organize and synthesize large amounts of information used to identify and answer relevant questions, and to provide unbiased data to support decision-making. This position requires the candidate having a holistic understanding of data science and its usage, has a strong quantitative background in research, data analysis, statistics, and/or programming knowledge with focus on data warehousing, mining, and modeling to build data connection and analyze algorithms. Manages and conducts all aspects of research and analyses processes including problem definition, research design, primary and secondary data collection, data analysis, and report writing. Develops, utilizes, updates and documents complex computerized models, databases, methodologies, and statistical tools for obtaining, analyzing, and creating land use, demographic, social and economic information, and generating forecasts. Utilizes programs such as SAS, R, SQL, ArcGIS, and Microsoft Power BI to conduct spatial and statistical analyses and to visualize information. Possesses communication skills (written and oral) to explain highly technical results to their non-technical counter parts. Designs and develops materials and approaches for disseminating conclusions and products to decision-makers, planners, and the public. Designs, creates, and updates web pages. As part of the selection process, candidates may be asked to complete written exercises and provide work samples.

ILLUSTRATIVE DUTIES:

(The illustrative duties listed in this specification are representative of the class but are not an all-inclusive list. A complete list of position duties and unique physical requirements can be found in the position job description.)

Employs general principles, theories, and practices of economic, demographic, and statistical analysis and research practices. Implements or contributes to complex, multi-faceted research projects from concept to implementation. The process includes employing advanced principles and theories for problem definition, research design, primary and secondary data collection, data analysis, synthesis, and reporting.

Performs data sourcing from internal and external databases.

Implements or contributes to develop complex mathematical and statistical analyses and models for estimating and forecasting economic and demographic trends; to make predictive analysis for various scenario simulations and understanding situations and evaluating impacts regarding local government for effective service delivery.

Conducts survey research to obtain timely, accurate and valid demographic, economic, and social characteristics for Fairfax County.

Implements or contributes to design and conduct quantitative research employing advanced statistical techniques such as stratified samples, multi-stage sampling, weighting, and quasi-experiment design.

Provides technical expertise for conducting large-scale research projects involving multiple departments and agencies.

Possesses communication skills (written, verbal, non-verbal, visual) to disseminate information in a clear and meaningful way to all types of audiences.

Designs and develops materials and approaches for disseminating research findings, and conclusions to the public and for developing reports for customer agencies and groups; Communicates these findings in an effective manner with appropriate formats (i.e. reports, statistical tables, graphics, maps, Internet products, and databases.) Utilizes programs such as SQL, SAS, R, ArcGIS, Python and Microsoft Power BI to manage and maintain complex economic and demographic databases, conduct spatial and statistical analyses and to disseminate information.

Contributes to develop, utilize, update and document complex computerized models, databases, methodologies, and statistical tools for sourcing, managing, and analyzing large amounts of structured and unstructured data, and creating products to communicate conclusions.

Conducts quantitative research employing advanced statistical techniques such as statistical tests, multivariate analysis, linear regression, logistic regression, machine learning, causal inference analysis; spatial statistical techniques such as clustering analysis, hot spot analysis, ordinary least square regression, and geographically weighted regression to analyze the large amount of administrative data, census data, survey data and spatial data.

Implements or contributes to develop, manage, and conduct research projects and analyses that create technical products to support countywide need for demographic, land use, social and economic information, forecasts, and use of data intelligence.

Employs geo-spatial models to generate large amount of spatial and temporal explicit data on housing unit, market value, population, household, land use, residential development, industrial and commercial real estate data.

Designs, creates, and updates web pages.

Presents advanced economic, demographic, and statistical concepts in a clear and meaningful

way for use by county staff, managers, boards and authorities, and elected officials for policy initiatives, strategic planning, and decision-making.

Serves as technical and business contributors to data production and utilization that requires multi-agency collaboration on data linkage.

Serves as a technical support to review and/or implement Census Bureau's programs.

Collaborates and innovates with academics on studies and methodologies to improve data products.

Serves as a data ambassador to disseminate and communicate Fairfax County's economic and demographic data products to a broad audience including boards, authorities and commissions, county agencies and other governments and public.

REQUIRED KNOWLEDGE SKILLS AND ABILITIES:

(The knowledge, skills and abilities listed in this specification are representative of the class but are not an all-inclusive list.)

Knowledge of the principles, theories, and practices of economic, demographic, and statistical analysis and research.

Knowledge of data science life cycle and processes.

Knowledge about design data architecture and curate relational databases for data storage, management, and query using Oracle or SQL.

Knowledge of systems management and process improvement.

Knowledge of multivariable calculus and linear algebra.

Knowledge of machine learning methods, to understand when it is appropriate to use different techniques.

Ability to take data — to understand it, to process it, to extract value from it, to visualize it, and to communicate it.

Ability to analyze scenarios and solve problems with data-driven approaches.

Ability to comprehend and process data, extract values, visualize, and communicate findings.

Ability to perform quantitative analysis and economic and demographic forecasting.

Ability to conduct complex research project.

Ability to perform complex mathematical and statistical analysis and modeling.

Ability to effectively organize, prepare and disseminate information through reports, studies, and presentations.

Ability to use computer software (such as SAS, R, SQL, Python, ArcGIS, and MS Power BI) to analyze data and present results of studies.

Ability to use word processing, spreadsheet, and presentation software to prepare documents.

Ability to conduct research to assess database and technology needs, and evaluate intactness, connectivity, and accuracy of data.

Ability to collaborate and innovate with academics on studies and methodologies to improve analysis procedures and data products.

Skills of data mining and data wrangling, to be able to source data and deal with imperfections in data.

Skills of programming: a statistical programming language such as SAS, R or Python; and a database querying language like SQL.

Skills in data visualization and communication (writing reports, presentations, including using BItools, etc.)

EMPLOYMENT STANDARDS:

MINIMUM QUALIFICATIONS:

[Any combination of education, experience, and training equivalent to the following:](#)

(Click on the aforementioned link to learn how Fairfax County interprets equivalencies for “Any combination, experience, and training equivalent to”)

Graduation from an accredited college or university with a bachelor's degree in economics, mathematics, statistics, data science, geoinformatics, applied sciences or a related field; two years of professional work experience in research, quantitative analysis, modeling and forecasting, economics, demographics, statistics, data science or policy analysis.

CERTIFICATES AND LICENSES REQUIRED:

None.

NECESSARY SPECIAL REQUIREMENTS:

The appointee to this position will be required to complete a criminal background check to the satisfaction of the employer.

All newly hired employees are required to be fully vaccinated against COVID-19 (two weeks after the last required dose) as a condition of employment or obtain approval of a medical or religious exemption prior to their start date. Proof of an exemption or vaccination status will be required during the pre-employment onboarding process. New employees who obtain an exemption from the vaccine mandate for medical or sincerely held religious beliefs may be subject to a weekly testing requirement. Vaccinated employees and employees with a medical or religious exemption will complete the attestation online on their first day of employment or shortly thereafter.

PREFERRED QUALIFICATIONS:

Master's degree in a related field (e.g., economics, mathematics, data science, geospatial informatics, statistics, demography, applied sciences). Knowledge of demographic and economic research techniques and experience working with large, complex relational databases. Knowledge of Census databases, tools and techniques for extracting census data, and the appropriate statistical techniques for compiling and employing these data. Significant demonstrated experience in quantitative research, and demographic and economic analysis involving managing, synthesizing, and using information in various formats. Significant demonstrated experience using and developing analyses employing ArcGIS, SQL, Python, SAS or R, and Microsoft Power BI or other data visualization products. Ability to write clearly, synthesize complex information, and present findings to audiences without technical backgrounds.

PHYSICAL REQUIREMENTS:

Job is generally sedentary in nature; however, visual acuity is required to read data on computer monitor, incumbent must be able to operate keyboard driven equipment. Must communicate with others. Employee may be required to lift up to 15 lbs. Ability to carry heavy brief case to meetings and carry materials from the copy room to the office. All duties performed with or without reasonable accommodations.

SELECTION PROCEDURE:

Panel interview and may include a practical exercise.

The population of Fairfax County is very diverse where 39.8% of residents speak a language other than English at home ([Spanish](#), [Asian/Pacific Islander](#), [Indo-European](#), and [others](#)) and we encourage candidates bilingual in English and a foreign language to apply to this opportunity.

Fairfax County Government prohibits discrimination on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age, marital status, disability, sexual orientation, gender identity, genetics, political affiliation, or status as a veteran in the recruitment, selection, and hiring of its workforce.

Reasonable accommodations are available to persons with disabilities during application and/or interview processes per the Americans with Disabilities Act. Contact 703-324-4900 for assistance. TTY 703-222-7314. EEO/AA/TTY.

Data Scientist II Supplemental Questionnaire

- * 1. What is the highest level of education that you have completed?
 - Less than 12th grade
 - High school diploma or GED
 - Some college
 - Associate's degree
 - Bachelor's degree
 - Master's degree
 - Doctorate degree
- * 2. Please indicate all major(s) or minor(s) for your completed degree(s). Check all that apply.
 - Economics
 - Mathematics
 - Survey Design
 - Statistics
 - Demographics
 - Geographic informatics
 - Data science
 - Business administration
 - Other (related field)
 - Other (non-related field)
 - None
- * 3. If you answered "Other (related field)" or "Other (non-related field)" for the previous question, please list the discipline of your degree. If this question does not pertain to you, or you do not have a degree, enter "Not applicable."
- * 4. If you answered "Some college" for the highest level of education completed, please indicate the number of quarter or semester hours you have completed towards a related degree.
 - Less than 45 quarter hours
 - 45 to less than 90 quarter hours
 - 90 to less than 135 quarter hours
 - 135 to less than 180 quarter hours
 - 180 or more quarter hours
 - Less than 30 semester hours
 - 30 to less than 60 semester hours
 - 60 to less than 90 semester hours
 - 90 to less than 120 semester hours
 - 120 or more semester hours
 - Not applicable
- * 5. How many years of professional work experience do you possess in research, quantitative analysis, modeling and forecasting, economics, demographics, statistics, data science or policy analysis?

- None
 - Less than one year
 - One to less than two years
 - Two to less than three years
 - Three to less than four years
 - Four to less than five years
 - Five to less than six years
 - Six or more years
- * 6. Do you have work experience doing any of the following research and analyses tasks? Check all that apply.
- Developing problem definition and research design
 - Performing primary and secondary data collection
 - Conducting quantitative data analysis
 - Creating databases
 - Managing and maintaining databases
 - Data quality review and quality control
 - Creating population estimates
 - Creating population forecasts
 - Writing reports summarizing quantitative information
 - Creating data visualizations or Infographics
 - None of the above
- * 7. Do you have work experience with any of the following software and programming languages? Check all that apply.
- SAS, SPSS or R
 - Esri ArcGIS
 - Python
 - SQL
 - Microsoft Power BI
 - Tableau
 - None of the above
- * 8. Do you have experience working with large complex datasets?
- Yes
 - No
- * 9. If you selected "Yes" for the previous question, please provide 1-2 examples of the large complex databases you worked with. If this question does not pertain to you, enter "Not applicable."
- * 10. Do you have experience managing data related projects?
- Yes
 - No
- * 11. Which of the following Census Bureau and other Dept. of Commerce products do you have experience working with? Check all that apply.
- Decennial Census
 - American Community Survey Data
 - Public Use Microdata Samples (PUMS)
 - Current Population Survey
 - Economic Census
 - BEA Industries, Employment and Income Data
 - TIGER/Line Shapefiles
 - Other data product not listed above
 - None of the above

* Required Question