federal
CDO
council

HIRING A
DATA SCIENTIST
IN THE FEDERAL GOVERNMENT

TOOLKIT PRODUCED BY:

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Their work demonstrates the exceptional talent that exists across the Federal Government, highlighting that data innovation and leadership extend beyond the Data Science job series. Their contributions show the vital role diverse skill sets play in shaping the future of federal data strategy. Thank you for your valuable contributions to this important effort.

As the emergence of artificial intelligence (AI) continues to reshape the landscape of data management and analysis, a wide range of data skills are needed to harness its full potential. AI-driven technologies not only advance the work of s but also create opportunities for professionals across disciplines to use data in innovative ways.

From data engineers and analysts to policymakers and operational leaders, the evolving AI environment calls for a multidisciplinary approach that leverages diverse talents. This broad spectrum of expertise is crucial to developing, managing, and interpreting AI-driven solutions that are both effective and responsible. The CDO Council recognizes that in this era of AI, the breadth of "data talent" across various domains is key to ensuring the Federal Government remains a trusted leader in the ever-changing data space.

Moving forward, we hope to continue to elevate tools, resources, and best practices to strengthen the data acumen across the federal workforce.

Christopher Alvares, Co-Chair, Data Culture for the Workforce WG
Daniel Morgan, Co-Chair, Data Culture for the Workforce WG

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DATA SCIENTIST PRIMER

Authority

This hiring guide was developed in accordance to section 10.2 (f) of Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence that states "to facilitate the hiring of data scientists, the Federal Chief Data Officer (CDO) Council shall develop a position-description library for data scientists (job series 1560) and a hiring guide to support agencies in hiring data scientists."

Data Scientist Primer

SERIES 1560

Why Use This Occupational Series?

Overview

The Office of Personnel Management's (OPM) occupational series for data scientists, series 1560, sets a foundation to help agencies identify candidates with the appropriate skills and will help build out a federal community of practice around data accelerating modernization, which gained momentum in part due to the enactment of the Foundations for Evidence-Based Policy Making Act of 2018 and the creation of the CDO Council. This occupational series builds on guidance initially issued to agencies in June 2019 that gave agencies the flexibility to add a parenthetical "data scientist" tag onto positions that perform data science work as a major job function.

Primary Benefits

Agencies looking to recruit data scientists now have a clearer standard of what a qualified candidate should bring to the job and can more easily recruit in-demand data talent. Data scientists use advanced scientific, mathematical, and statistical methods to provide managers and leadership with valuable insights. These insights can support data-driven decisions related to the administrative and programmatic aspects of agency operations and management.

What positions does this series cover?

Series 1560 covers professional positions that primarily involve work related to identifying the methods, processes, algorithms, tools, and systems to extract and interpret findings from varied structured and unstructured data sets related to the data science lifecycle. OPM's Data Scientist job series covers positions that involve extracting and interpreting data sets, as well as

visualizing them to highlight their findings. Data science work may be found in various other occupational series, including but not limited to: Epidemiology - Medical and Health Care Series (0601); Actuarial Science Series (1510); Operations Research Series (1515); Statistician Series (1530); and IT Specialist - Data Management (2210).

Given data science's multifaceted nature, how do I overlay the series when seeking talent from interdisciplinary backgrounds?

In June 2019, OPM issued a [Data Scientist Titling Guidance Memo for Hiring Data Scientists](#). This guidance authorizes agencies to amend a job title with a parenthetical of "data scientist" for positions that perform data science work as a major portion of the job and not as a collateral duty. Furthermore, The Office of Management and Budget published [Improving the Federal Hiring Experience (M-24-16)](#) on August 14, 2024. This guidance further encourages agencies to "use a descriptive, organizational, or functional job title that resonates with jobseekers… and accurately conveys the position and skills sought by the hiring manager…"

How are the roles and responsibilities of data scientists different from similar positions, such as Data Analysts, Data Architects and Data Engineers?

Data science stands apart from other data roles due to its focus on advanced techniques. Data scientists primarily apply skills in quantitative analysis, computer science, mathematics, and statistics to interpret large, often unstructured data sets and explore unknown insights. This distinguishes them from other roles like Data Analysts, Data Architects, and Data Engineers. For example, Data Analysts typically work with structured data to solve specific business problems using tools like SQL, R, Python, data visualization software, and statistical methods. In contrast, Data scientists focus on more advanced techniques, such as designing predictive models and machine learning algorithms, to make predictions and uncover patterns in both structured and unstructured data.

## What are the basic qualifications?

OPM defines the [basic qualifications for data science positions](#) as a bachelor's degree in either mathematics, statistics, computer science, data science or any field directly related to the position. The agency also considers candidates eligible for data science positions if they have 30 semester hours of completed courses, plus additional education or appropriate experience resulting in a combination of education and experience equivalent to a four-year degree.

Have there been any government-wide data science hiring initiatives to date?

OPM, working with the CDO Council, and U.S. Digital Service posted a joint hiring announcement in 2021 that gave applicants with in-demand skills consideration for more than 50 data science positions across 16 federal agencies through a single application. Applicants went through a Subject Matter Expert Qualification Assessment (SMEQA) that gave data scientists already working at agencies the ability to vet applicants. As a result, OPM received more than 500 applications in less than 48 hours. The announcement produced 107 qualified data scientist candidates, to whom 46 offers were made. The qualified candidates who were not selected were brought to the attention of interested federal agencies.

Our office has historically relied on contracted work. What are the benefits of hiring through the 1560 job series?

Instead of mainly relying on contractors to execute data product design, data operations, and data visualizations, onboarding federal data science experts affords agencies the opportunity to raise the overall data proficiency of its workforce, address the data-related talent gap, and develop a more agile team. There is also the benefit of inherent trust with data scientists who both understand the mission of the agency and can apply data science to policy or mission challenges.
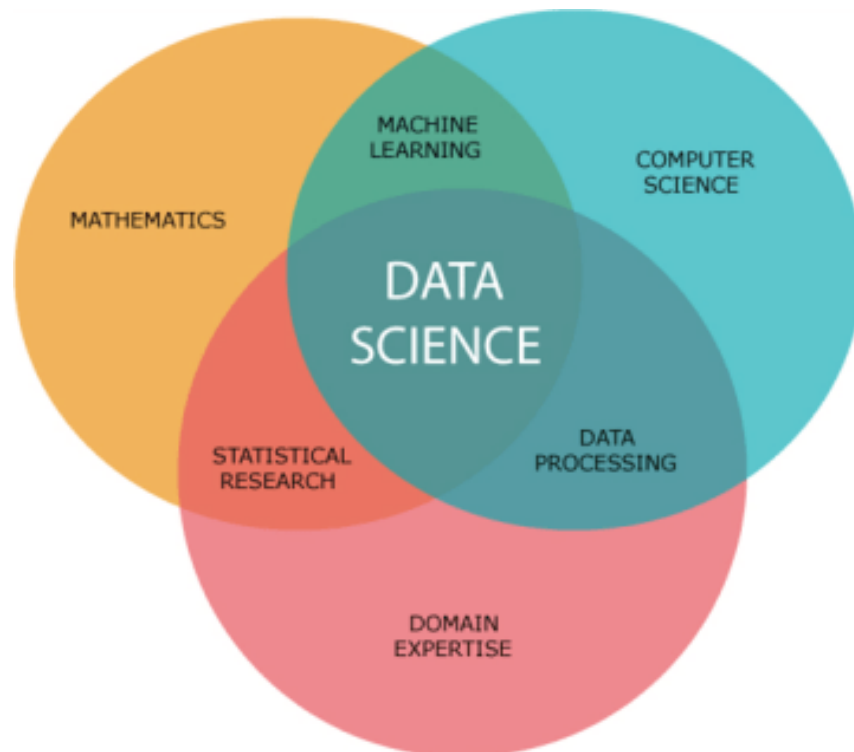
Data science is an interdisciplinary academic field that uses statistics, scientific computing, scientific methods, processes, algorithms, and systems to extract or extrapolate knowledge and insights from noisy, structured, and unstructured data. Experts in data science are called data scientists. Not surprisingly, over the recent years, the data science field and the data scientist profession have exploded in the public and private sectors.

According to the U.S. Bureau of Labor Statistics (BLS), the median salary for data scientists in the private sector is $108,020 annually. The more experienced the data scientist, the higher the salary. Location matters as well. In May of 2023, Washington state offers the highest mean data scientist salary at $148,730, whereas in Mississippi the mean salary is roughly $72,000. See the latest salary ranges in relation to location here.

The Federal Government competitively recruits data scientists at the GS-13 and 14 levels with an annual salary range of $112,000 to $172,000 based on location.

There are many benefits to a person working as a data scientist in the public sector. One of the main benefits is that data analysis can help influence policy decisions. Data science plays a groundbreaking role across diverse fields. For example, in cybersecurity, data analysis is used to identify trends in cyberattacks targeting critical infrastructure. In environmental and public safety, data science helps analyze ecological data to inform public policy on issues like pollution, climate change, and water contamination. This research can lead to changes in laws on toxic waste disposal, recycling protocols, and other environmental regulations.

Data Scientists at Work in the Federal Government

Some examples of agencies leveraging data scientists include: 1) the National Institutes of Health (NIH) studies on viruses like COVID-19 and other infectious diseases 2) federal agencies such as the U.S. Census Bureau, Federal Bureau of Investigations (FBI), Food and Drug Administration (FDA), and National Aeronautics Space Administration (NASA). Additionally, there are foreign policy agencies, like the Department of State (DOS), that are creating roles for data science professionals.

Some success stories of data scientists at federal agencies can be found here.

SECTION 2.
HIRING A DIVERSE WORKFORCE

Hiring a Diverse Workforce

Diversity in hiring data scientists improves the quality of work and encourages creativity, innovation, and broader perspectives.

How Your Agency Can Support Diversity in Hiring

Agencies can benefit from establishing a federal workforce that reflects America. Removing barriers to equal opportunity and strengthening the ability to recruit, hire, develop, promote, and retain the best talent results in better outcomes for the American public. According to the Office of Personnel Management (OPM), agencies are encouraged to promote opportunities to underrepresented groups by:

1. Attracting the best talent through targeted recruitment campaigns, including searching over 1.5M resumes, and promoting hiring events.

2. Identifying potential barriers to hiring using anonymous job seeker demographic data and information on how applicants progress through the hiring process with our staffing software as a service.

3. Devising recruitment and branding strategies to more effectively attract diverse and highly qualified candidate pools.

4. Measuring new employee experiences, including those that influence how they adapt to their organization and whether they stay.
   See more of OPM's recommendations and resources here.

The table below provides a sample listing of organizations to share your job posting or partner with the goal of reaching a more diverse talent pool.

Organization	Description	Resource
Advancing Indigenous People in STEM (AISES)	National nonprofit organization focused on substantially increasing the representation of Indigenous peoples of North America and the Pacific Islands in science, technology, engineering, and math (STEM) studies and careers.	Opportunities Board
Black Data Processing Associates (BDPA)	Building a pipeline of diverse professionals and aspiring students in the STEM and digital technology fields.	Careers Page – Job Postings
Data Jobs	The value from big data can only be unlocked with the right investment in both technology and professional expertise. Job posting site to connect employers to talent.	Job Postings
Correlation One	The organization has both resources to retrain current staff or tap into a diverse talent pool through their Distance Science for All Program (DS4A/Empowerment).	Employment Pipeline and Training for Current Employees
CODE2040	Nonprofit activating, connecting, and mobilizing the largest racial equity community in tech to dismantle the structural barriers that prevent the full participation and leadership of Black and Latinx technologists in the innovation economy.	Career Opportunities
Women in Data (WiD)	Increase diversity in data careers.	Job Board

Videos About Data Science from Black and Asian American and Pacific Islander Thought Leaders

Creating diverse and equitable initiatives in data science | Tiffany Oliver | TEDxMorehouseCollege

In this video, geneticist and professor Tiffany Oliver provides steps on how to increase diversity, inclusion, and equity in the field of data science.

Seven Different Career Paths in Data Science | Data Science as a Career

This video offers seven different career paths for students or professionals considering a career in data science.

Why Everyone Should Become a Data Scientist | Joseph Kachiliko | TEDxLusaka

In this talk, Joseph Kachiliko, a data expert IT auditor at one of the world's leading audit firms, speaks about the benefits of increasing data literacy.

Demystifying Data Science | Asitang Mishra | TEDxOakLawn

In this talk, Asitang Mishra shares his experiences as a data scientist at the world-famous National Aeronautics and Space Administration's (NASA) Jet Propulsion Laboratory.

Real Talk About My Data Scientist Jobs and Salary for Entry-Level Data Science

Content creator The Almost Astrophysicist talks about why she left astrophysics to become a data scientist straight out of college and shares five realizations about the industry.

Why Being a Data Scientist Is Awesome!

In this video, content creator Tina Huang talks about exciting salary and career opportunities for data scientists.

Work Week in My Life | Data Scientist at Spotify

In this video, content creator Julia Fei shares a week in her life working in tech as a data scientist at Spotify.

What Is Data Science?

In this video, Luv Aggarwal, a data solution engineer at IBM, goes through the basics of data science and explains how the discipline deploys data mining, data cleaning, machine learning, and more.

Explore Pathways Program to recruit recent graduates and students

The Pathways Program consists of three programs: Internship Program, Recent Graduates Program, and Presidential Management Fellows Program. These programs are developmental programs designed to promote employment opportunities for students and recent graduates. Agencies can utilize these programs to improve the diversity of its applicant pool and notify a wide pool of potential applicants of job opportunities, including those who may not be aware of opportunities within the federal workforce. https://www.opm.gov/policy-data-oversight/hiring-information/students-recent-graduates/#url=Overview

Additional programs exist that, if used intentionally and in tandem with other strategies to reach wider audiences, can improve diversity in hiring

Utilize a diverse panel for Subject Matter Expert Qualifications Assessments (SME-QA) in the review and certification of applicants for better alignment of candidates and larger candidate pools. The potential to have SME representation from different agencies creates a more diverse pool of candidates.

https://smeqa.usds.gov/toolkit/assessment-strategy/understanding-the-sme-qa-process.pdf

https://www.usds.gov/projects/smeqa

Utilize hiring authorities, such as the Centralized Selection Process and Direct Hiring Authority (DHA), to recruit from diverse talent pools and fill vacancies.

https://www.opm.gov/policy-data-oversight/hiring-information/direct-hire-authority/#url=Fact-Sheet

https://media.defense.gov/2021/Aug/12/2002831294/-1/-1/1/AFMC%20CENTRALIZED%20SELECTION%20PROCESS%20GUIDE_JULY%202021.PDF

https://www.afmc.af.mil/News/Article-Display/Article/2799037/personnel-directorate-introduces-new-centralized-selection-process-for-hiring/

Skills and Qualifications

Data Scientist

What are some main data scientist skills?

There are both technical and interpersonal skills data scientists need to be successful. The primary technical data science skill sets include:

Analytical Skills: Data scientists need to be able to take large amounts of data and analyze it to find trends or patterns.

Business Acumen: It is important for data scientists to understand how the business and numbers they are analyzing translate into successful business opportunities.

Programming Skills: Data scientists need to be able to write code to manipulate and analyze data.

Statistical Analysis: Data scientists use statistics to understand how different factors are affecting their data.

Skill Category	Skill Examples	Rational
Programming Languages	Python, Java, Scala	Mastering programming languages like Python and R is essential for data scientists as they provide the tools to manipulate, analyze, and model large datasets efficiently. These languages also offer extensive libraries and frameworks that streamline machine learning and statistical analysis tasks.
Databases	SQL, MySQL, PostgreSQL and NoSQL databases (MongoDB, CouchDB, Redis)	Understanding databases and SQL is vital for querying, managing, and extracting data from structured datasets. As most data is stored in databases, proficiency in SQL enables data scientists to access and organize data for analysis effectively.
Data Visualization	Tableau, Power BI, Sisense, Excel	The ability to create clear and informative data visualizations helps data scientists communicate insights to both technical and nontechnical stakeholders. Tools like Tableau and Matplotlib make it easier to uncover patterns, trends, and anomalies in data.

Machine Learning	NumPy, SciPy, Scikit-learn, TensorFlow, Keras, Pandas	Machine learning techniques allow data scientists to build predictive models and algorithms that can learn from data, helping to make accurate predictions or automate decision-making processes. This skill is crucial for advancing fields like artificial intelligence and business analytics.
Big Data	Hadoop, Spark, Storm, Hive, Flink	Proficiency in big data technologies like Hadoop and Spark is crucial for handling and processing massive datasets that cannot be managed using traditional data tools. It enables data scientists to work with high-volume, high-velocity, and high-variety data efficiently.
Statistics	Probability Theory, Bayesian Statistics, Modeling	A strong foundation in statistics is key for data scientists to perform hypothesis testing, regression analysis, and probability assessments, ensuring conclusions drawn from data are valid and reliable.
Mathematics	Calculus, Linear Algebra	Advanced mathematics, particularly in areas like calculus, linear algebra, and optimization, is essential for understanding the algorithms behind machine learning and statistical models. It also aids in developing custom models for complex data analysis.
Data Analysis	R, SAS, Stata	Data analysis skills help data scientists extract meaningful insights from raw data by identifying patterns, trends, and relationships. This is crucial for problem solving and making data-driven decisions in real-world scenarios.
Soft Skills	Critical Thinking, Communication, Flexibility, Adaptability, Teamwork, Perseverance, Creativity, Problem Solving	Strong soft skills, such as communication, collaboration, and critical thinking, are valuable for data scientists to explain technical findings to diverse audiences, work with cross-functional teams, and make strategic business decisions based on data analysis.

SECTION 3.
POSITION DESCRIPTIONS

Position Descriptions

1560 DATA SCIENTIST, GS 9-15

OPM's 1560 occupational series for data scientists sets a foundation that will help agencies identify prospective employees with the appropriate skills and build out a federal community of practice around data modernization. The CDO Council created a position description (PD) repository for data scientists on Max.Gov. This guide includes embedded attachments of example position descriptions ranging from GS 9-15. The example PDs can be used to help define and build your own PD for data scientists in your organization.

Federal Chief Data Officers Council Position Description Repository

https://community.max.gov/display/DATA/1560+Data+Scientists

SECTION 4.
SAMPLE INTERVIEW
QUESTIONS

1560 DATA SCIENTIST, GS 9-15
General Data Management Questions
Please describe your experience in developing and utilizing data management/business intelligence tools and capabilities to assist an organization. What obstacles did you face? How did you overcome them? What was the result?
Share your experiences identifying organizational data redundancies, improving data quality or addressing data integration challenges. How did you have you overcome these challenges? What was the result?
Share your experiences identifying and acting on opportunities for sharing data both internally and externally. How did your efforts strengthen decision support capabilities and improving business performance?
Without repeating your resume, please provide an overview of why your expertise in planning, developing, and implementing data governance and management programs is relevant to this role.
What is your experience in coordinating, disseminating, and interpreting data management directives, policies, and regulations?
How would you describe the ideal relationship between data governance and data stewards in large organizations?
Tell us about a data governance/management project that you're most proud of and describe your specific contribution.
Tell us about a time you reached consensus on a new policy or procedure when key stakeholders had very different perspectives on what should be done. What was the policy/procedure, what were the various viewpoints, and how did you reconcile those differences?
Tell us about your experience managing large, multi-dimensional projects related to the development of data analysis methods, data science software, and computer science technology-based solutions in the transportation sector.
How do you talk about data governance and management when engaging a skeptical mission or business leader?
What is your vision for a high performing data governance function? Why do you believe you are the right person to achieve that vision?
Please share your experience guiding executives in a new way of thinking about data. Include any lessons learned from your prior experiences and how you would apply them.
Please share your experience building community and unity of action at the staff level. Discuss your approach to coordination and being part of a distributed team within DOT headquarters.
How would you measure the success of a data governance program?
Data Scientist – Information Technology
How do you keep current on state of the art in data and IT?
The Department is currently in the early stages of centralizing "commodity" IT services. Have you had experience managing this type of change? Please give an example and describe the outcome.
Can you share some details about your experience working with data users, data owners, and IT system professionals to make improvements in their operations? Tell us about the improvements you may have helped implement and the results of those efforts.
How would your technical qualifications and experience contribute to the success of this Division and the larger organization?
The successful candidate will drive executive action related to data governance and management. Tell us about a time there was a problem in your organization due to data management issues. What steps did you take to better understand the problem, how did you reach your conclusions, and how did you effectively communicate your recommendations to a non-technical leadership audience?
Tell us about how you have incorporated computer programming, data structures, and machine learning into a specific project you've worked on in the past.
This position requires a balance of technical skills and customer service. What do you consider your strongest qualification for meeting this balance? What skills do you feel you need to strengthen to better meet this balance?
Individual and Teamwork
How do you maintain open communication with program office customers? Please provide an example of a situation when that communication contributed to the success of a project.
Tell me about the project you are most proud of and what your contribution was?
Describe a situation in which you and a client/customer had a disagreement or problem with a project (schedule, budget, deliverable). How did you resolve the situation, what was the outcome, and what did you learn?
How would your colleagues describe you? What would they say are your 3 most significant strengths and 3 most significant weaknesses?
Why do you want this position? What will you bring to this position?
Describe your experience implementing new practices and procedures to drive change. How did you plan for the roll out of the changes, what challenges did you encounter, and how did you deal with compliance issues?
Describe a situation where there was a problem with a project (deadline, budget, deliverable). How did you resolve the situation? What was the outcome?
Describe your most recent experience proposing, negotiating, and selling technical services that resulted in securing funding, and what have been your successes and failures.
How would your peers describe you in three adjectives? How would your supervisor describe you in three adjectives?
Describe a situation in which you led a team or participated on a team in which someone was not carrying their fair share. What did you do to influence this behavior, and would you do anything different as a result of this experience?
Give an example of a situation in which you proactively took on a leadership role on a team.
Explain how you normally resolve conflict with a peer or manager.
Give an example explaining how you would deal with a demanding stakeholder who frequently change the requirements of a project that you're working on.
How do you handle situations when you are given a task that you have never done in the past?
What is your 5-year vision for the <name data or technology> shared service?
This position resides in the brand-new Office of Data and Analytics Solutions. With initial limited staffing, we must wear many hats. How do you see yourself contributing to the success of this new office?
What do you consider to be the most exciting part of this opportunity?

[Appendix: 1560 Data Scientist, GS 9-15 Figure Long Description](#)

SECTION 5.
MARKETING MATERIALS

QUICK FACTS:
DATA SCIENTISTS

1) WHAT DATA SCIENTISTS DO

Data scientists use analytical tools and techniques to extract meaningful insights from data.

2) TYPICAL ENTRY LEVEL EDUCATION

Data scientists typically need at least a bachelor's degree in mathematics, statistics, computer science, or a related field to enter the occupation. Some employers require or prefer that applicants have a master's or doctoral degree.

3) MEDIAN PAY

According to the BLS Occupational Employment and Wage Statistics survey, the median annual wage for data scientists in 2021 was $100, 910.

4) NUMBER OF JOBS

The employment, or size, of this occupation in 2021 was 113,300.

5) JOB OUTLOOK

The projected percent change in employment from 2021 to 2031 is 36%. The average growth rate for all occupations is 5 percent.

6) WORK ENVIRONMENT

Data scientists spend much of their time in an office setting. Most work full time.

7) LARGEST EMPLOYERS

15% Computer systems design and related services
10% Management of companies and enterprises
9% Insurance carriers and related activities
7% Management, scientific, and technical consulting services
5% Scientific research and development services

SOURCE: U.S. BUREAU OF LABOR STATISTICS

[Appendix: Quick Facts: Data Scientists Figure Long Description](#)

4 USAJobs QUALIFICATIONS FOR DATA SCIENTISTS IN THE FEDERAL GOVERNMENT

1 Programming

Knowledge of languages such as SQL, Python, C/C++, Perl, JavaScript, and more make data science candidates more competitive in applying for jobs. Knowing these languages isn't enough; knowing which tools are right for the problem at hand is important, too.

2 Statistical Ability

Successful candidates will be able to perform complex statistical analysis on datasets, including but not limited to: Data Structures and Database Management, Imputation, Exploratory Data Analysis and Visualization, Regression, Classification, and more.
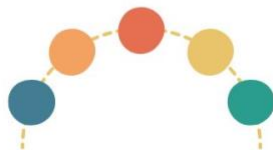
3 Analytical Thinking

This is an important skill that allows data scientists to approach and visualize business problems analytically, think creatively, evaluate various data science solutions, be innovative in their execution, and articulate these solutions in a meaningful way.

4 Domain Knowledge

Most positions require sector-specific domain knowledge. In the Federal Government, data scientists are needed in many sectors: from Agriculture, Climate, Consumer, and Defense, to Economics, Ecosystems, Education, and more.

[Appendix: Four USAJobs Qualifications for Data Scientists in the Federal Government Figure Long Description](#)

SECTION 6.
FAQS FOR THE FEDERAL HIRING MANAGER

Frequently Asked Questions

For the Federal Hiring Manager

The purpose of this document is to assist federal hiring managers in filling data scientist positions into the federal workforce by providing information to frequently asked questions that will help facilitate the process resulting in an improved overall hiring experience for the federal hiring manager. The Frequently Asked Questions (FAQs) have been created based on feedback from across the data scientist community and challenges identified with hiring data scientists in the government workspace. While many of the responses to the FAQs below are applicable across the Federal Government, hiring managers are encouraged to consult their administrative and human resources professionals to ensure the items mentioned below are applicable for their specific agency and to check if there are agency specific limitations.

What options are available for hiring a Data Scientist?

Pathways Programs: These programs include the Internship, Recent Graduates and Presidential Management Fellows Programs, use Schedule D authority to attract students as well as recent graduates from postsecondary educational institutions to federal service and after completing the Pathways Program, and can be noncompetitively converted into permanent competitive service positions. https://www.opm.gov/policy-data-oversight/hiring-information/students-recent-graduates/

Data scientist positions and data science-related positions are advertised on www.USAJobs.gov.

SME-QA for data scientist: https://www.cdo.gov/news/data-scientist-hiring-pilot/

What is the data science job series, 1560?

https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/data-science-series-1560/

https://data-science.usajobs.gov/

https://datasociety.com/the-federal-governments-broadening-embrace-of-data-science/

https://www.datasciencedegreeprograms.net/lists/five-ways-the-government-uses-data-science/

Are there any job series I should consider when looking for a data scientist?

While OPM recently created the 1560 Data Scientist series, many data scientists have been hired through other position series and titles across the Federal Government. You may want to consider the following additional job series and titles to expand your pool of candidates:

Engineering and Architecture Group (Series 0800)

> General Engineering (0801), Environmental Engineering (0819), Electrical Engineering (0850), Computer Engineering (0854), Bioengineering & Biomedical Engineering (0858), Industrial Engineering (0896)

Physical Sciences Group (Series 1300)

> General Physical Science (1301), Health Physics (1306), Physics (1310)

Mathematical Sciences Group (Series 1500)

> General Mathematics & Statistics (1501), Actuarial Science (1501), Operations Research (1515), Mathematics (1520), Mathematical Statistics (1529), Statistics (1530), Computer Science (1550)

Information Technology Group (Series 2200)

Information Technology Management (2210)

Miscellaneous Administration & Program (0300)

> Miscellaneous Administration & Program (0301),
>
> Management & Program Analysis (0343)

Social Science, Psychology, and Welfare Group (0100)

> Social Science (0101), Economist (0110)

Medical Hospital, Dental & Public Health Group (0600)

> General Medical & Healthcare (0601)

What is the difference between Merit Promotion (MP) and Delegated Examining (DE) recruitment?

Merit Promotion is the vacancy announcement for internal to government applicants.

Delegated Examining is the vacancy announcement for external to government applicants.

Please note both an MP and DE vacancy announcement may be posted simultaneously for the same position to allow the government to attract more applicants.

Can I offer a selected candidate more pay than is listed in the vacancy announcement?

For DE candidates (outside the Federal Government), Creditable Service for Annual Leave (CSAL).

For DE candidates (outside the Federal Government), Advanced Rate of Pay (ARP).

If MP (within government applicant), if position is a promotion, typically two steps are given above current GS and step level.

Can this vacancy be supported via remote work or telework?

Remote positions allow for geographic diversity and attract candidates who are unable to live or relocate to certain geographical locations because of cost of living, commuting time, etc. Telework can be used as a recruitment and retention incentive to increase productivity and employee engagement.

Will my agency offer or support flexible work schedules such as AWS, MaxiFlex, and Compressed?

Flexible work schedules can be used to recruit and retain those employees needing to balance work and family responsibilities.

What recruitment incentives can I offer to attract a candidate who may be considering multiple options in addition to my federal data scientist position?

For DE candidates (outside the Federal Government), Creditable Service for Annual Leave (CSAL).

For DE candidates (outside the Federal Government), Advanced Rate of Pay (ARP).

Student Loan Repayment Policy:

Relocation – up to 25% of annual salary

Recruitment – up to 25% of hard to fill positions

What are some organizations or associations that are good places to find data scientist candidates of interest?

American Statistical Association (ASA), National Science Foundation (NSF), Bureau of Labor Statistics (BLS) Fellowship Program

ASA, NSF, Census Bureau Research Program, Department of Commerce (DOC)

Oak Ridge Institute for Science and Education (ORISE) Fellowship, Department of Energy (DOE)

Entrepreneurs-in-Residence Program, Department of Health and Human Services (HHS)

Association of Public Health Laboratories, Centers for Disease Control and Prevention (CDC)

Bioinformatics Fellowship, Centers for Disease Control (CDC) and state and local public health laboratories

Council of State and Territorial Epidemiologists (CSTE) Applied Epidemiology Fellowship, CDC

Steven M. Teutsch Prevention Effectiveness (PE) Fellowship, CDC

Data Science Upskilling @ CDC Program, CDC

Public Health Informatics Fellowship, CDC

Harvard-MIT Center for Regulatory Science's Food and Drug Administration Fellowship Program in Artificial Intelligence and Machine Learning (Food and Drug Administration)

Data and Technology Advancement (DATA) National Service Scholar Program, National Institutes of Health (NIH)

Graduate Data Science Summer Program, NIH

Coding it Forward Civic Digital Fellowship, NIH

Big Data Scientist Training Enhancement Program (BD-STEP), Veterans Health Administration and NIH National Cancer Institute

Pathways Program, OPM

SECTION 7.
FAQS FOR THE CANDIDATE OF INTEREST

Frequently Asked Questions

For the Candidate of Interest

The purpose of this document is to assist candidates of interest looking for data scientist positions in the federal workforce by providing information to frequently asked questions that will help facilitate the job search and application process resulting in an improved overall recruitment experience for the candidate of interest. The FAQs have been created based on feedback from across the data scientist community and challenges identified with hiring data scientists in the government workspace.

While many of the responses to the FAQs below are applicable across the Federal government, hiring managers are encouraged to consult their administrative and human resources professionals to ensure the items mentioned below are applicable for their specific agency and to check if there are agency specific limitations.

Where do I find data scientist jobs within the Federal Government?

www.usajobs.gov – search for relevant positions by title/field of interest to include:

Data Science - In December 2021, OPM created a new professional job series for data science, requiring at least a bachelor's degree in mathematics, statistics, computer science, data science or field directly related to the position, or a combination of education and experience with courses equivalent to a major field of study or 30 semester hours, plus additional appropriate education and experience relevant to data science.

The OPM Data Science job series 1560 guidance acknowledges that data science work may be found across other occupational series and agencies may recruit data scientists by using other occupational groups and series if data science work is a major portion of the job. https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/data-science-series-1560/

Additional relevant occupational groups include:

Engineering and Architecture Group (Series 0800) - https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/0800/files/all-professional-engineering-positions-0800.pdf General Engineering (0801), Environmental Engineering (0819), Electrical Engineering (0850), Computer Engineering (0854), Bioengineering and Biomedical Engineering (0858), Industrial Engineering (0896)

Physical Sciences Group (Series 1300) - https://www.opm.gov/policy-data-oversight/classification-qualifications/classifying-general-schedule-positions/standards/1300/gs1300p.pdf General Physical Science (1301), Health Physics (1306), Physics (1310)

Mathematical Sciences Group (Series 1500) - https://www.opm.gov/policy-data-oversight/classification-qualifications/classifying-general-schedule-positions/standards/1500/gs1500p.pdf General Mathematics and Statistics (1501), Actuarial Science (1501), Operations Research (1515), Mathematics (1520), Mathematical Statistics (1529), Statistics (1530), Computer Science (1550)

Information Technology Group (Series 2200) - https://www.opm.gov/policy-data-oversight/classification-qualifications/classifying-general-schedule-positions/standards/2200/gs2200a.pdf Information Technology Management (2210)

Miscellaneous Administration and Program (Series 0300) - https://www.opm.gov/policy-data-oversight/classification-qualifications/classifying-general-schedule-positions/occupationalhandbook.pdf Miscellaneous Administration and Program (0301), Management and Program Analysis (0343)

Social Science, Psychology, and Welfare Group (Series 0100) - https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/0100/social-science-series-0101/ Social Science (0101), Economist (0110)

Medical Hospital, Dental & Public Health Group (Series 0600) - https://www.opm.gov/policy-data-oversight/classification-qualifications/classifying-general-schedule-positions/standards/0600/gs0600.pdf General Medical and Healthcare (0601)

How do I apply to a federal position?

Create a profile account on USAJobs.gov that includes uploading relevant documents including resume, transcripts, letters of recommendation, cover letters, etc. For more information on finding and applying for jobs with the Federal Government, please note the following instructional video from the White House Initiative on Asian Americans, Native Hawaiians, and Pacific Islanders and the Office of Personnel Management: https://www.youtube.com/watch?v=_dvGvXwZTfM.

Is a specific degree required to apply to a federal data scientist position?

While not all positions require a specific degree, most professional job series have a minimum educational requirement and experience equivalent to a bachelors' degree or higher, whereas job series in other categories, such as administrative or technical, may not require this level of education. You should read the requirements within the specific recruitment advertisement for which you are interested in applying.

What does an average day look like for a data scientist in the federal workspace?

While every data scientist position across the Federal Government may look a little different, overall, you can expect to:

- Identify, evaluate, and recommend tools, techniques, and methods to increase access to and utility of datasets and knowledge bases, i.e., clinical, biological, scientific.
- Develop and apply analytical, machine learning, natural language processing, graph and network, visualization, and reporting tools to data sets to further scientific understanding and derive knowledge from data.
- Produce computer-based solutions to meet the data science needs of an organization; develop novel data science methods and implement existing data science methods to extract, organize, integrate, interpret, and visualize data stored in data systems.

See additional information on data scientist jobs in the Federal Government below:

https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/data-science-series-1560/
https://data-science.usajobs.gov/
https://datasociety.com/the-federal-governments-broadening-embrace-of-data-science/
https://www.datasciencedegreeprograms.net/lists/five-ways-the-government-uses-data-science/

What are the benefits of working in the Federal Government?

The benefits include the ability to utilize your technical skills to solve real-world problems, job stability, career advancement opportunities, and a flexible work schedule.

https://ourpublicservice.org/wp- content/uploads/2018/09/ten-reasons-to-work-for-the-federal-government.pdf
https://www.usajobs.gov/help/working-in-government

SECTION 8.
RESOURCES

Resources

For Hiring a Data Scientist in the Federal Government

What Is Data Science?

https://ischoolonline.berkeley.edu/data-science/what-is-data-science/

https://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century

https://www.ibm.com/topics/data-science

https://aws.amazon.com/what-is/data-science/

https://gogovernment.org/career/data-science/

https://digitalcorps.gsa.gov/blogs/day-in-the-life-data-scientist-federal-government/

https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-data-science

Data Science Wage Information

https://www.bls.gov/oes/current/oes152051.htm

https://www.bls.gov/ooh/math/data-scientists.htm

https://www.glassdoor.com/Salary/United-States-Federal-Government-Data-Scientist-Salaries-E236635_D_KO33,47.htm

Data Scientists in Government

https://gogovernment.org/career/data-science/

https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/data-science-series-1560/

https://digitalcorps.gsa.gov/blogs/day-in-the-life-data-scientist-federal-government/

https://pubsonline.informs.org/do/10.1287/orms.2023.01.04/full/

https://www.oii.ox.ac.uk/research/projects/data-science-in-local-government/#oii_tags

https://federalnewsnetwork.com/federal-report/2024/01/opm-leads-governmentwide-data-scientist-hiring-effort-to-build-up-ai-expertise/

https://datasociety.com/the-federal-governments-broadening-embrace-of-data-science/

https://www.datasciencedegreeprograms.net/lists/five-ways-the-government-uses-data-science

https://www.springboard.com/blog/data-science/government-jobs/

https://activewizards.com/blog/top-12-data-science-use-cases-in-government/

https://data-science.usajobs.gov/

https://www.sdvinternational.com/insights/data-analytics-in-government

https://www.datasciencedegreeprograms.net/faq/do-data-scientists-work-in-government/

https://www.nobledesktop.com/classes-near-me/blog/data-science-careers-government-big-tech

https://www.state.gov/data/

https://federalnewsnetwork.com/all-about-data/2022/04/state-department-hiring-50-data-scientists-to-meet-increasing-demand-for-its-workforce/

https://federalnewsnetwork.com/category/radio-interviews/all-about-data/

https://www.fda.gov/about-fda/jobs-center-drug-evaluation-and-research-cder/data-scientist-careers-cder

https://www.cia.gov/careers/jobs/data-scientist/

https://usaidlearninglab.org/community/blog/three-ways-data-science-changing-monitoring-and-evaluation

https://towardsdatascience.com/how-the-government-uses-data-science-b7dfa4a22677

https://www.ncbi.nlm.nih.gov/books/NBK532764/

Hiring a Data Scientist:

https://www.forbes.com/sites/joelshapiro/2021/03/12/how-to-hire-a-data-scientist/

https://www.testgorilla.com/blog/hire-data-scientists/

https://www.dominodatalab.com/resources/field-guide/hiring-data-science-teams

https://review.firstround.com/the-startup-founders-guide-to-hiring-a-data-scientist

https://business.linkedin.com/talent-solutions/resources/talent-acquisition/how-to-hire-guides/how-to-hire-a-data-scientist

Hiring Authorities:

https://www.opm.gov/policy-data-oversight/hiring-information/direct-hire-authority/#url=Governmentwide-Authority

SECTION 9.
APPENDIX

Sample Interview Questions

1560 DATA SCIENTIST, GS 9-15

General Data Management Questions

Please describe your experience in developing and utilizing data management/business intelligence tools and capabilities to assist an organization. What obstacles did you face? How did you overcome them? What was the result?

Share your experiences identifying organizational data redundancies, improving data quality or addressing data integration challenges. How did you have you overcome these challenges? What was the result?

Share your experiences identifying and acting on opportunities for sharing data both internally and externally. How did your efforts strengthen decision support capabilities and improving business performance?

Without repeating your resume, please provide an overview of why your expertise in planning, developing, and implementing data governance and management programs is relevant to this role.

What is your experience in coordinating, disseminating, and interpreting data management directives, policies, and regulations?

How would you describe the ideal relationship between data governance and data stewards in large organizations?

Tell us about a data governance/management project that you're most proud of and describe your specific contribution.

Tell us about a time you reached consensus on a new policy or procedure when key stakeholders had very different perspectives on what should be done. What was the policy/procedure, what were the various viewpoints, and how did you reconcile those differences?

Tell us about your experience managing large, multi-dimensional projects related to the development of data analysis methods, data science software, and computer science technology-based solutions in the transportation sector.

How do you talk about data governance and management when engaging a skeptical mission or business leader?

What is your vision for a high performing data governance function? Why do you believe you are the right person to achieve that vision?

Please share your experience guiding executives in a new way of thinking about data. Include any lessons learned from your prior experiences and how you would apply them.

Please share your experience building community and unity of action at the staff level. Discuss your approach to coordination and being part of a distributed team within DOT headquarters.

How would you measure the success of a data governance program?

Data Scientist – Information Technology

How do you keep current on state of the art in data and IT?

The Department is currently in the early stages of centralizing "commodity" IT services. Have you had experience managing this type of change? Please give an example and describe the outcome.

Can you share some details about your experience working with data users, data owners, and IT system professionals to make improvements in their operations? Tell us about the improvements you may have helped implement and the results of those efforts.

How would your technical qualifications and experience contribute to the success of this Division and the larger organization?

The successful candidate will drive executive action related to data governance and management. Tell us about a time there was a problem in your organization due to data management issues. What steps did you take to better understand the problem, how did you reach your conclusions, and how did you effectively communicate your recommendations to a non-technical leadership audience?

Tell us about how you have incorporated computer programming, data structures, and machine learning into a specific project you've worked on in the past.

This position requires a balance of technical skills and customer service. What do you consider your strongest qualification for meeting this balance? What skills do you feel you need to strengthen to better meet this balance?

Individual and Teamwork

How do you maintain open communication with program office customers? Please provide an example of a situation when that communication contributed to the success of a project.

Tell us about the project you are most proud of and what your contribution was?

Describe a situation in which you and a client/customer had a disagreement or problem with a project (schedule, budget, deliverable). How did you resolve the situation, what was the outcome, and what did you learn?

How would your colleagues describe you? What would they say are your 3 most significant strengths and 3 most significant weaknesses?

Why do you want this position? What will you bring to this position?

Describe your experience implementing new practices and procedures to drive change. How did you plan for the roll out of the changes, what challenges did you encounter, and how did you deal with compliance issues?

Describe a situation where there was a problem with a project (deadline, budget, deliverable). How did you resolve the situation? What was the outcome?

Describe your most recent experience proposing, negotiating, and selling technical services that resulted in securing funding, and what have been your successes and failures.

How would your peers describe you in three adjectives? How would your supervisor describe you in three adjectives?

Describe a situation in which you led a team or participated on a team in which someone was not carrying their fair share. What did you do to influence this behavior, and would you do anything different as a result of this experience?

Give an example of a situation in which you proactively took on a leadership role on a team.

Explain how you normally resolve conflict with a peer or manager.

Give an example explaining how you would deal with a demanding stakeholder who frequently change the requirements of a project that you're working on.

How do you handle situations when you are given a task that you have never done in the past?

What is your 5-year vision for the <name data or technology> shared service?

This position resides in the brand-new Office of Data and Analytics Solutions. With initial limited staffing, we must wear many hats. How do you see yourself contributing to the success of this new office?

What do you consider to be the most exciting part of this opportunity?

Quick Facts: Data Scientist Marketing Material

QUICK FACTS: DATA SCIENTISTS

1. WHAT DATA SCIENTISTS DO:

   Data scientists use analytical tools and techniques to extract meaningful insights from data.

2. TYPICAL ENTRY LEVEL EDUCATION:

   Data scientists typically need at least a bachelor's degree in mathematics, statistics, computer science, or a related field to enter the occupation. Some employers require or prefer that applicants have a master's or doctoral degree.

3. MEDIAN PAY:

   According to the BLS Occupational Employment and Wage Statistics survey, the median annual wage for data scientists in 2021 was $100,910.

4. NUMBER OF JOBS:

   The employment, or size, of this occupation in 2021 was 113,300.

5. JOB OUTLOOK:

   The projected percent change in employment from 2021 to 2031 is 36%. The average growth rate for all occupations is 5 percent.

6. WORK ENVIRONMENT:

   Data scientists spend much of their time in an office setting. Most work full time.

7. LARGEST EMPLOYERS:

   15% Computer systems design and related services

   10% Management of companies and enterprises

   9% Insurance carriers and related activities

   7% Management, scientific, and technical consulting services

   5% Scientific research and development services

SOURCE: U.S. BUREAU OF LABOR STATISTICS

Four USAJobs Qualifications for Data Scientists in the Federal Government

1. Programming - Knowledge of languages such as SQL, Python, C/C++, Perl, JavaScript, and more make data science candidates more competitive in applying for jobs. Knowing these languages isn't enough; knowing which tools are right for the problem at hand is important, too.

2. Statistical Ability - Successful candidates will be able to perform complex statistical analysis on datasets, including but not limited to: Data Structures and Database Management, Imputation, Exploratory Data Analysis and Visualization, Regression, Classification, and more.

3. Analytical Thinking - This is an important skill that allows data scientists to approach and visualize business problems analytically, think creatively, evaluate various data science solutions, be innovative in their execution, and articulate these solutions in a meaningful way.

4. Domain Knowledge - Most positions require sector-specific domain knowledge. In the Federal Government, data scientists are needed in many sectors: from Agriculture, Climate, Consumer, and Defense, to Economics, Ecosystems, Education, and more.