Iowa Department of Administrative Services – Human Resources Enterprise
Job Classification Description

Data Scientist 1

Definition

Applies statistical methods, machine learning algorithms, and data modeling techniques to solve business problems, predict performance, and provide valuable insights; works with large and diverse datasets, including unstructured data, and focuses on predictive and prescriptive analytics; applies skills in programming, data manipulation, and basic machine learning; operates with moderate autonomy and collaborates with cross-functional teams; performs related work as required.

> *The work examples and competencies listed below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.*

Work Examples

Applies statistical techniques (e.g., regression analysis, hypothesis testing) to analyze data.

Develops and implements predictive models to forecast outcomes using programming languages like Python or R.

Conducts exploratory data analysis to uncover patterns, trends, and anomalies.

Prepares data models and transforms raw data into meaningful information using data-oriented programming languages and visualization software.

Utilizes data mining, data modeling, natural language processing, and machine learning to extract and analyze information from structured and unstructured datasets.

Collects and queries data from various sources, including databases, spreadsheets, surveys, and other data repositories; cleans and prepares data by resolving missing values, removing duplicates, and formatting raw data for accuracy and suitability for analysis.

Creates visualizations and interactive dashboards to communicate complex findings using tools such as Tableau, Power BI, and custom visualization libraries.

Prepares reports or presentations summarizing findings and insights for agency stakeholders and decision-makers.

Engages with business stakeholders and data engineers to discuss project requirements, share insights, and gather feedback.

Assists with the identification and selection of key performance indicators for the agency, collaborating with stakeholders to use data analysis to enhance agency performance.

Ensures data security and compliance with privacy regulations.

Documents processes, code, and analytical findings for future reference, ensuring transparency and reproducibility.

Stays informed about new tools, techniques, and best practices in data science, and actively participates in continual learning courses.

Competencies Required

Knowledge:

- Customer Service – Principles and processes for providing customer services, including customer needs assessment, meeting quality standards for services, and evaluating customer satisfaction.

- English Language – The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.

- Mathematics – Arithmetic, algebra, geometry, calculus, statistics, and their applications.

- Computers and Electronics – Circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

- Education and Training – Principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.

- Clerical – Administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.

Abilities:

- Written Expression – Communicate information and ideas in writing so others will understand.

- Written Comprehension – Read and understand information and ideas presented in writing.

- Oral Comprehension – Listen to and understand information and ideas presented through spoken words and sentences.

- Oral Expression – Communicate information and ideas in speaking so others will understand.

- Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.

- Inductive Reasoning – Combine pieces of information to form general rules or conclusions.

- Information Ordering – Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

- Mathematical Reasoning – Choose the right mathematical methods or formulas to solve a problem.

- Problem Sensitivity – Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

- Flexibility of Closure – Identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

- Category Flexibility – Generate or use different sets of rules for combining or grouping things in different ways.

- Originality – Come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Skills:

- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

- Reading Comprehension – Understanding written sentences and paragraphs in work related documents.

- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

- Speaking – Talking to others to convey information effectively.

- Writing – Communicating effectively in writing as appropriate for the needs of the audience.

- Mathematics – Using mathematics to solve problems.

- Systems Analysis – Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.

- Systems Evaluation – Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

- Coordination – Adjusting actions in relation to others' actions.

- Time Management – Managing one's own time and the time of others.

- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.

- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

1) Seven years of full-time work experience in business/data/statistical analytics, economic research, or data science.

2) Graduation from an accredited four-year college or university with a degree in business analytics, economics, data science, statistics, mathematics, management information systems, or industrial management, and experience equal to three years of full-time (as described in number one).

3) All of the following (a, b, and c):
   a. One year of full-time work experience in business/data/statistical analytics, economic research, or data science; and
   b. A total of four years of education and/or full-time experience (as described in part a), where thirty semester hours of accredited college or university coursework in business analytics, economics, data science, statistics, mathematics, management information systems, or industrial management equals one year of full-time experience; and
   c. A total of two years of graduate-level education and/or full-time experience (as described in part a), where twenty-four semester hours of accredited graduate college or university coursework in business analytics, economics, data science, statistics, mathematics, management information systems, or industrial management equals one year of full-time experience.

4) All of the following (a, b, and c):
   a. One year of full-time work experience business/data/statistical analytics, economic research, or data science; and

    b. A total of four years of education and/or full-time experience (as described in part a), where thirty semester hours of accredited college or university coursework in any field equals one year of full-time experience; and

    c. Graduation from an accredited college or university with a Master's degree in business analytics, economics, data science, statistics, mathematics, management information systems, or industrial management.

5) All of the following (a, b, and c):

    a. Three years of full-time work experience in business/data/statistical analytics, economic research, or data science; and

    b. A total of four years of education and/or full-time experience (as described in part a), where thirty semester hours of accredited college or university coursework in any field equals one year of full-time experience.

    c. Possession of a professional certificate in data science, business analytics, or data analytics.

6) Current, continuous experience in the state executive branch that includes six months of full-time work as a Data Analyst 2.

Effective date: 12/25 KC