

COMPETENCY MODEL FOR DATA ANALYST (1779)

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **DATA ANALYST**. (Numbers refers to the order of the competencies in the Competency Bank.)

- 2. Mathematics
- 4. Analytical Ability
- 20. Job Knowledge
- 21. Technology Application
- 28. Supervision
- 29. Fact Finding
- 32. Responsiveness and Follow-Up
- 45. Oral Communication
- 47. Written Communication

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized*, **bolded**, and underlined), examples of behavioral indicators, and satisfactory and superior performance levels.

2. MATHEMATICS – Performs arithmetic or higher-level mathematical computations accurately.

Level of Competency Required by Job:

- Level 1: Perform arithmetic computations (add, subtract, multiply, divide, ratios, percentages).
- Level 2: Use algebra (substitute numbers for letters in a formula), geometry (angles, distances, area), and/or descriptive statistics (mean/median/mode, standard deviation, range).
- Level 3: Apply and interpret calculus, inferential statistics (t-tests, correlations, ANOVA, multiple regression) or other very high level mathematics.**

Examples of Behavioral Indicators:

- Quickly and accurately performs arithmetic computations.
- Appropriately selects and applies formulas for stated purpose.
- Correctly identifies an appropriate analysis for a specific purpose and selects the appropriate computer program for computation.
- Accurately interprets and presents results of mathematical/statistical computations.

Performance Levels:

Satisfactory

Knows mathematical requirements of the job and performs them correctly. Verifies work to ensure accuracy.

Superior

Identifies additional opportunities for the application of mathematics in work. Answers questions/trains others to assist them in their use of mathematics.

4. ANALYTICAL ABILITY – Identifies, obtains, and evaluates relevant information to establish relationships or patterns, cite causes, and reach logical conclusions.

Level of Competency Required by Job:

Level 1: Recognize similarities/differences in current situation to those previously encountered and is guided accordingly. Apply existing policies correctly. Ask pertinent questions or otherwise seek additional information to formulate appropriate response.

Level 2: Consider multiple, varied factors when evaluating a situation or issue. Seek additional information to provide further insight. Reach conclusions that logically follow from the information obtained.

Level 3: Consider a multitude of diverse factors, their interrelationships, the perspectives of others, alternative courses of action and their likely ramifications when evaluating information to reach a conclusion.

Examples of Behavioral Indicators:

- Obtains the necessary amount of relevant information.
- Recognizes the impact of each type of information on conclusions.
- Evaluates the quality/source of information when considering it.
- States the shortcomings of the information and, therefore, the analysis.

Performance Levels:

Satisfactory

Recognizes available relevant information, seeks additional information to consider, and reaches a conclusion. Provides sound, convincing justification for conclusions, citing relevant data and facts.

Superior

Uses a great deal of existing and obtained information and data to develop and evaluate alternatives and arrive at a final conclusion. Provides compelling arguments in support of conclusions.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

Level 1: Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.

Level 2: **Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.**

Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/programs and/or give internal and/or external presentations related to work.

Data Analyst (1779)

Job Knowledge Areas

1. Knowledge of advanced statistical techniques and machine learning, mathematics as applied to statistics, and the application of statistical techniques in management problems.
2. Knowledge of principles of using and designing data queries, tables, diagrams, charts and graphs for reporting and recording data and the principles of statistical report writing.
3. Knowledge of theory and techniques of operations research and related applications such as mathematical model development and simulation, data science, descriptive statistics, correlation and regression analysis, linear programming, and factor analysis.
4. Knowledge of principles, techniques, and sources of information applicable to the collection, analysis (including forecasting), and presentation of data such as: social, economic, utility related load and physical data, including doing so with the use of computers.
5. Knowledge of computer programs sufficient to complete complex statistical and operational situations; design and conduct research and statistical studies including survey research studies.
6. Knowledge of data systems and/or programs sufficient to integrate, query, and join data across disparate systems and validate system generated results and research prepared by peers and outside institutions.
7. Knowledge of statistical and mathematical analysis sufficient to logically and creatively approach research problems; and plan procedures and techniques and program them for analysis.

21. TECHNOLOGY APPLICATION – Correctly applies technology as required on the job; conceptualizes improvements in work through introducing and/or enhancing use of technology.

Level of Competency Required by Job:

Level 1: *Expert in the use of technology required for own job. May identify additional applications for currently used technology to enhance own work and/or work of others.*

Level 2: Identify additional technology to be applied to improve own work and/or work of others and/or enhanced use of current technology to improve the operations of an entire function or department.

Level 3: Identify new technology application to improve/enhance work of an entire function, department, or organization.

Examples of Behavioral Indicators:

- Demonstrates mastery of technical applications required for current work.
- Suggests additional applications of existing technology that improve productivity.
- Identifies new technology that can be applied to improve existing operations.
- Provides convincing justification for investment in new technology versus anticipated benefits.
- Presents compelling arguments to justify purchase of existing software (with or without modification) versus in-house development.

Performance Levels:

Satisfactory

Knows and correctly applies current technology as required on the job. Extends use of current technology to improve efficiency of accomplishing additional tasks.

Superior

Recognizes opportunities to apply technology to improve work

28. SUPERVISION – Ability to assume direct responsibility for all aspects of the Performance of a work group, which requires knowledge and/or ability in the areas of:

- Planning and goal setting
- Creating a safe and positive work environment
- Establishing standards and training employees
- Motivating employees and teambuilding
- Performance Management (assigning, monitoring, facilitating, reviewing and evaluating work, and providing feedback)
- Supporting and developing employees through delegation and participation
- Taking disciplinary action including progressive discipline
- Provisions of employees' MOU's and handling grievances
- Legal requirements including EEO, ADA, FLSA, FMLA, and Workers' Compensation provisions
- Civil Service Commission Rules and Policies related to the management of employees
- Administrative Code provisions related to the management of employees
- Budget processes sufficient to request and justify expenditures in a correct and timely manner

Level of Competency Required by Job:

Level 1: **Supervises small workgroup of employees performing the same or highly related work.**

Level 2: Supervises a larger workgroup of employees performing various types of work.

Level 3: Supervises employees including provision of coaching and advice to subordinate supervisors.

Examples of Behavioral Indicators:

- Plans, assigns, and monitors work progress
- Trains employees to do work
- Evaluates work and gives positive and negative feedback.
- Displays knowledge of legal requirements including applicable Federal and State laws, Administrative Code provisions, Civil Service Commission Rules and Policies, and MOU provisions

Performance Levels:

Satisfactory

Proficiency in supervision sufficient to supervise a workgroup in terms of task orientation, interpersonal concerns, and personnel administration.

Superior

Proficiency in supervision sufficient to serve as a resource to others and/or represent department position in a public forum.

29. FACT FINDING – Obtains required information through questioning, review of existing materials, or securing new materials to answer a question or address a problem.

Level of Competency Required by Job:

Level 1: Look up information available in the workplace (including use of the internet) or by asking questions of co-workers or supervisor.

Level 2: Interview individuals and/or obtain necessary information from files, the library, and/or the internet.

Level 3: *Conduct in-depth interviews/interrogations or depositions. Locate obscure reference material containing germane information by correctly identifying needed information, making logical inferences regarding where it might be available, and discerning from newly acquired information relevant additional materials.*

Examples of Behavioral Indicators:

- Asks a series of insightful questions in a logical order.
- Correctly identifies persons most likely to have the needed information.
- Listens carefully to responses from others to discern all relevant information stated.
- Makes logical assumptions about where certain types of information might be found; or asks others who are likely to know.
- Persists in locating relevant information until a sufficient amount is available to permit answering questions or addressing the problem fully.

Performance Levels:

Satisfactory

Obtains necessary information through scrutiny of existing files and other resources, correctly identifying and obtaining other sources of information, and/or asking questions.

Superior

Exhibits great insight in identifying who would have certain information, or in what materials it might be located. Carefully crafts questions to extract needed information. Persists until sufficient information is gathered to formulate a logical conclusion.

32. RESPONSIVENESS AND FOLLOW-UP – Executes actions as requested or to which a commitment has been made; continue involvement as needed.

Level of Competency Required by Job:

Level 1: Willingly accept job assignments and, upon completion, asks whether any other actions are necessary.

Level 2: Ensure that all job responsibilities are fulfilled within their designated timeframes. Willingly accept, and may volunteer for, additional assignments, but does not overextend. Anticipate and accommodate the need for continued involvement.

Level 3: Ensure that staff and other resources are available (or can be made available) to reasonably allow for completion of work before making a commitment. If not, make adjustments to ensure completion of work or re-establish priorities and communicate to all involved parties. Recognize the probable need for continuation of some staff involvement beyond the designated timeframe to ensure success.

Examples of Behavioral Indicators:

- Willingly accepts assignments and completes assigned work.
- Monitors “completed” work to determine whether additional issues to be addressed have arisen.
- Volunteers for assignments when able to assure their timely completion.
- Carefully considers available staff and resources, and competing priorities, before making commitments to complete additional work.

Performance Levels:

Satisfactory

Completes assigned work. Realistically appraises the likelihood of completing additional work before accepting or volunteering for it. Recognizes the usual need for follow-up once assignments are submitted.

Superior

Completes assigned work in an expeditious manner. Often ready to accept additional work or volunteer for it. Readjusts priorities and/or revises plans to maximize productivity. Diligently monitors the possible need for follow-up.

45. ORAL COMMUNICATION – Communicates orally in a clear, concise, and effective manner.

Level of Competency Required by Job:

- Level 1: Exchange specific, job-related information orally with others in the immediate work environment or via telephone and/or radio.
- Level 2: Obtain/provide/present general and/or job-specific information orally to a variety of others in various situations.**
- Level 3: Obtain/provide/present a diverse array of information orally at varying levels of complexity to a wide range of others across many different situations and circumstances.

Examples of Behavioral Indicators:

- Audience clearly understands the intended message.
- Rarely must repeat information in response to questions.
- Refrains from use of unnecessary words, phrases, or jargon.
- Provides a level of detail appropriate to the situation (avoids too much or too little detail).
- Speaks at a level appropriate to the audience in terms of terminology, sentence structure, and simplicity/complexity of ideas expressed.
- Uses words with precision (vocabulary) to convey exact information.

Performance Levels:

Satisfactory

Speaks clearly and audibly, providing the appropriate information and level of detail. Typically conveys the message on the first attempt. Answers questions accurately and directly.

Superior

Speech is direct and to the point. Speaks convincingly and with authority when appropriate. Maintains sensitivity to the audience while providing thorough information with the appropriate level of detail

47. WRITTEN COMMUNICATION – Communicates effectively in writing.

Level of Competency Required by Job:

- Level 1: Write notes/e-mails. Completes forms with some open-ended responses (sentences).
- Level 2: Write letters, articles/reports, and/or detailed descriptions of activities/occurrences.
- Level 3: Write lengthy reports, instruction manuals, in-depth analyses/reviews of complex issues and/or articles for publication. Reviews the written work of others.**

Examples of Behavioral Indicators:

- Writing includes the necessary information to convey the intended message.
- Sufficiently few errors in spelling, punctuation, grammar to not interfere with the intended message or distract the reader.
- Little editing or re-writing needed to produce a final product.
- Composes materials efficiently.
- Information is presented in a well-organized manner.
- Tone and degree of formality are appropriate to the purpose and audience.

Performance Levels:

Satisfactory

Writes material that clearly communicates the necessary information; needs little editing.

Superior

Precisely uses words and organizes information in a way that enhances presentation of the message. Virtually no editing needed.