

Draft Classification Standards – Rev. 03/29/2024

Database Administrator

Class Title	Class Code	Issue Date	FLSA
<i>Database Administrator I</i>	XXXX	XXXX	<i>Non-Exempt</i>
<i>Database Administrator II</i>	XXXX	XXXX	<i>Exempt*</i>
<i>Database Administrator III</i>	XXXX	XXXX	<i>Exempt*</i>
<i>Database Administrator IV</i>	XXXX	XXXX	<i>Exempt*</i>

OVERVIEW:

Deploys and maintains the on-premise and in-the-cloud databases as well as database related computing infrastructure and systems with substantial impact on enterprise services. Performs updates, identifies technical issues, and implements automation and integrations that meet operational needs. Monitors, troubleshoots, maintains, and improves database systems. Investigates and resolves technical issues and database errors and interfaces with product vendors to provide onsite technical support, integrate back-end systems, and deploy updates and fixes.

Positions are assigned to classifications within the series based on the scope and complexity of database administration activities; degree of independence and judgement; experience, knowledge, skill, and ability required; degree of planning, analysis, and execution required by the position; impact and risk to the university; and nature of supervision received. Higher levels within the series build upon and include the knowledge and skill requirements and work assignments of lower levels within the series.

Database Administrator I – Entry-level professional who applies basic professional concepts to resolve problems of limited technical scope and complexity. Normally operates under established guidelines. Assignments may be routine in nature and involve performing various duties related to maintaining databases, testing systems, and providing technical documentation. Follows standard practices and procedures.

Database Administrator II – Professional who applies acquired database administration job skills, and knowledge of IT policies and procedures to complete significant assignments, projects, and asks of moderate technical scope and complexity related to the development and maintenance of databases and database systems. Draws from prior experience and knowledge of database administration principles and concepts to exercise judgment while developing and customizing solutions.

Database Administrator III – Professional who applies advanced job skills, in-depth organizational and stakeholder acumen, and technical project planning skills to complete the planning, design, and development of database solutions, and related work of significant technical scope and complexity. Exercises advanced discernment when determining appropriate database design and customization decisions. Demonstrates in-depth knowledge of database design, development, and customization principles and information technology policies, guidelines, and standard operating procedures to determine appropriate action. May require the development of new approaches, techniques, and innovation to address issues.

* This classification as outlined in this document meets the duties test of the Administrative Exemption. An employee's actual exemption status may differ based on salary rate and actual duties performed.

Database Administrator IV – Technical leader with a high degree of knowledge in database development and architecture. Problem-solving frequently requires analysis of unique issues or problems without precedent and/or structure and new approaches, methods, techniques, or innovation. Responsible for providing strategic direction for the university's database infrastructure. Under the direction of management, creates strategies, guidelines, and procedures to ensure university objectives are achieved within cost and timeline parameters.

TYPICAL PROGRAMS, ACTIVITIES, AND CORE FUNCTIONS/DISCIPLINES (May include but are not limited to):

- **Database Administration** – Installs, configures, and upgrades database software and related tools. Creates and maintains database instances, schemas, tables, and indexes. Monitors and optimizes database performance, including query tuning and indexing. Implements and maintains database security measures, including user access controls and data encryption. Performs regular backups and disaster recovery procedures to ensure data integrity and availability. Monitors database capacity and plans for future growth requirements. Collaborates with system administrators to ensure database servers are properly configured and maintained as well as comply with data security protocols.
- **Database Development and Strategy** – Designs, develops, documents, implements, and maintains databases, database servers, and data warehouses that collate and integrate current/historical data from various sources/systems within the university. Develops and administers data flows between systems. Conducts performance tuning and testing methods for data/applications loaded into the warehouse to ensure consistency and compatibility across different sources. Implements procedures for maintenance, monitoring, backup, and recovery of databases and related systems. Conducts database design reviews and provides recommendations for improvements. Ensures data integrity and consistency across multiple databases and systems. Works on data migration and integration projects. Collaborates with stakeholders and cross-functional teams to ensure that database systems are compatible with technology systems and platforms to meet operational and security standards. Works with developers to implement database architecture, queries, and enhancements.
- **Database Support and Troubleshooting** – Responds to and resolves database-related incidents and service requests. Investigates and troubleshoots database performance issues, errors, and data inconsistencies. Collaborates with end-users and IT support teams to identify and resolve database-related issues. Provides technical support and guidance to users and stakeholders.
- **Documentation and Reporting** – Maintains accurate and current documentation of database configurations, procedures, and troubleshooting guides. Generates reports and metrics related to database performance, capacity, and security. Contributes to the development of database-related policies, standards, and best practices.

DISTINGUISHING CHARACTERISTICS:

- For higher levels, the following apply:
 - Supports information systems used by core campus functions.
 - IT computing infrastructure is considered “enterprise class” and generally hosted in a central data center or in the cloud.
- Develops and executes combined development and operations role/strategy at the operating system and server level.
- For those who do not execute combined development and server-related roles, refer to the Business Systems Analyst or Software Development classifications.

DATABASE ADMINISTRATOR I

Under direct supervision, performs entry-level professional database administration duties to analyze database performance and avoid system failures. Performs less complex technical tasks following detailed and established procedures. Work is reviewed for accuracy and soundness of technical concepts.

Work assignments typically include some or all of the following:

- ◆ Troubleshoots and resolves basic database-related issues, such as data corruption, connectivity problems, or performance issues, by analyzing logs, diagnosing problems, and implementing appropriate solutions.
- ◆ Creates, updates, disables, deletes, and audits user accounts.
- ◆ Drafts backup and recovery procedures to ensure the availability and integrity of data in case of system failures or disasters.
- ◆ Monitors database performance by analyzing data. Develops procedures for data transfers or sharing of files.
- ◆ Conducts file maintenance and database recovery. Maintains data dictionary and documentation.
- ◆ Performs regular backups and tests restore procedures to ensure data integrity in the event of system failures or data loss.
- ◆ Plans and executes database upgrades, applies patches and fixes, and ensures compatibility with new software versions or hardware upgrades.
- ◆ Documents database structures, configurations, and procedures to ensure accurate and current documentation for future reference and knowledge sharing.
- ◆ Researches new data warehousing applications.
- ◆ Develops and maintains database design.

MINIMUM QUALIFICATIONS:

Knowledge and Skill:

- ◆ General knowledge of database administration and design principles.
- ◆ Programming skills including configuring databases.
- ◆ Organizational and time management skills to plan, organize, and prioritize work.
- ◆ Demonstrated communication and interpersonal skills to gather information from users, communicate technical issues effectively, and draft documentation.
- ◆ Demonstrated knowledge and ability to configure data and troubleshoot database system issues.
- ◆ Ability to maintain confidentiality and appropriately handle sensitive data and information.

- ◆ Ability to work independently and as part of a team and build relationships with diverse stakeholders.
- ◆ Analytical skills to analyze current and potential applications, assess application process problems and identify database bugs, issues, and solutions.
- ◆ Stays current on programming languages and emerging database design concepts.

Experience and Education:

Equivalent to a bachelor's degree in a related field. Relevant education, certifications, and/or experience which demonstrates acquired and successfully applied knowledge and abilities shown above may be substituted for the required education on a year-for-year basis.

DATABASE ADMINISTRATOR II

Under general supervision, designs, analyzes, develops/upgrades, tests, and maintains university database systems. Applies database administration knowledge to maintain database systems, optimize performance, implement security measures, and ensure the efficient and reliable operation of the university's databases. Works independently on most day-to-day assignments with general supervision on new assignments or projects to ensure alignment with objectives. Handles multiple work priorities and is accountable for own work results.

In addition to duties performed by the Database Administrator I, the Database Administrator II typically performs the following duties:

- Performs day-to-day database administration tasks, including database installation, configuration, maintenance, and troubleshooting, to ensure the availability, performance, and security of database systems.
- Automates installation, configuration, setup, monitoring, and alerting processes utilizing configuration management and application best practices.
- Designs and develops software/server integrations and administration practices using appropriate methodologies.
- Implements and maintains database security measures, including user access controls, authentication mechanisms, and data encryption.
- Develops and maintains database backup and recovery strategies.
- Reviews database performance metrics, identifies performance bottlenecks, and optimizes database configurations, indexes, and queries to improve overall system performance and response times.
- Investigates and resolves database-related issues, such as data corruption, connectivity problems, or performance degradation.
- Maintains accurate and current documentation of database configurations, procedures, and troubleshooting guides. Generates reports on database performance, capacity utilization, and security compliance.
- Monitors database growth trends, assesses capacity requirements, and plans for future storage needs, including database expansion, hardware upgrades, and resource allocation.
- May provide direction and training to technical or less experienced staff.

MINIMUM QUALIFICATIONS:

In addition to Database Administrator I knowledge and skill requirements, work assignments typically require:

- ◆ Strong knowledge of database concepts, SQL, and database design principles.
- ◆ Working knowledge of database administration methodologies such as designing workflows, diagrams, and schematics.
- ◆ Working knowledge of database development life cycle and structured database development concepts.
- ◆ Strong project planning and organizational skills to plan, organize, and manage multiple projects.
- ◆ Strong communication and interpersonal skills with the ability to present technical information to technically diverse audiences in a clear and concise manner.
- ◆ Strong analytical skills to evaluate user and business needs/programs and to design, develop, and implement database solutions.
- ◆ Skill leading the work of others.
- ◆ Proficiency in using applicable software and programming languages.
- ◆ Knowledge of higher education policies, data needs, and data privacy regulations.

Experience and Education:

Equivalent to a bachelor's degree in a related field and two years of relevant experience. Additional experience which demonstrates acquired and successfully applied knowledge and abilities shown above may be substituted for the required education on a year-for-year basis. An advanced degree in a related field may be substituted for the required experience on a year-for-year basis.

DATABASE ADMINISTRATOR III

Working independently under general supervision, designs and implements database solutions that meet the university's evolving needs. Applies advanced technical knowledge and expertise in complex database analysis and programming to provide technical advice and consultation on difficult analysis and programming problems. Demonstrates advanced discernment in selecting methods and techniques for obtaining solutions. Often provides guidance to other database administrators. Activities include the conceptualization, development, and implementation of complex database systems. Decision-making is based on database administration best practices; system standards; university and information technology policies, guidelines, and protocols; as well as university needs and goals. Work is performed independently with general supervision focused on ensuring alignment with overall objectives. Handles multiple work priorities and may provide lead work direction with accountability for results.

In addition to duties performed by the Database Administrator II, the Database Administrator III typically performs the following duties:

- ◆ Collaborates with various stakeholders and cross-functional IT teams to plan and lead database administration and development projects. Ensures technical solutions meet business needs and IT standards and protocols. Prepares cost analysis and justification for large database development initiatives projects.
- ◆ Designs new and recommends improvements to existing processes and procedures.
- ◆ Researches new data warehousing applications and strategies for adoption.
- ◆ Architects moderately complex database systems to support various university needs.

- ◆ Leads and innovates process automation and documentation with an emphasis on increasing efficiency and effectiveness of database setup and configuration, processes, and workflows.
- ◆ Enforces and provides guidance on database security policies, access controls, and encryption mechanisms to protect sensitive data from unauthorized access, ensuring compliance with industry regulations and data privacy laws.
- ◆ In collaboration with management, establishes and enforces database governance policies, standards, and procedures.
- ◆ Maintains accurate and current documentation of database configurations, procedures, and troubleshooting guides.
- ◆ Provides lead work direction, mentoring, and training to other database administrators.

MINIMUM QUALIFICATIONS:

In addition to Database Administrator II knowledge and skill requirements, work assignments typically require:

- ◆ Thorough and advanced knowledge of database concepts, SQL, and database design principles.
- ◆ Advanced knowledge of database development life cycle and structured database development concepts.
- ◆ Demonstrates competence in independently applying advanced judgment to resolve difficult and complex technical problems and issues.
- ◆ Advanced project management skills, with the ability to manage multiple, large, and/or complex projects.
- ◆ Advanced analytical skills to understand problems from a broad perspective and discern applicable underlying principles to conceive and develop strategic database solutions.
- ◆ Advanced skill in mentoring or overseeing the work of others.
- ◆ Advanced communication and interpersonal skills to effectively convey technical knowledge and procedures and persuade stakeholders and management regarding database design and development.

Experience and Education:

Equivalent to a bachelor's degree in a related field and four years of relevant experience. Additional experience which demonstrates acquired and successfully applied knowledge and abilities shown above may be substituted for the required education on a year-for-year basis. An advanced degree in a related field may be substituted for the required experience on a year-for-year basis.

DATABASE ADMINISTRATOR IV

Working primarily independently with minimal supervision, provides expert guidance on the strategic direction of the organization's database infrastructure, ensuring high performance, availability, and security of critical data systems. Problems are highly complex and solutions may require the creation of new procedures and database administration techniques. Serves as a technical expert in the conceptualization, development, and implementation of database administration. Decision-making often requires integration and interpretation of diverse IT disciplines; expert database administration knowledge and experience; functionality and user experience impact on database systems, and persuasion and negotiation with management.

Functions with a high degree of autonomy. Work often requires a high degree of technical expertise, persuasion, and leadership.

In addition to duties performed by the Database Administrator III, the Database Administrator IV typically performs the following duties:

- ◆ Leads the design and architecture of complex database systems.
- ◆ Collaborates with cross-functional/technical teams in requirements gathering, planning, coordination, and implementation of new campus database architecture.
- ◆ Serves as a key technical advisor within the database administration discipline. Provides oversight and recommendations for highly complex projects, initiatives, problems, and issues.
- ◆ Leads efforts to address database and data emerging security threats and vulnerabilities. Designs and implements advanced security measures to protect critical database assets and data.
- ◆ Oversees the implementation of complex integrated and unique database solutions specific to university needs.
- ◆ Recommends new solutions and integrated problem resolutions, such as custom designed database design to management.
- ◆ Under the guidance of management, oversees process improvement efforts, often developing new strategic approaches, solutions, processes, and protocols.
- ◆ Under the guidance of management, works cross-functionally to provide consultation and advisement on business rules, services levels, and user requirements to database analysis and administration.

MINIMUM QUALIFICATIONS:

In addition to Database Administrator III knowledge and skill requirements, work assignments typically require:

- ◆ Expert knowledge and understanding of advanced database concepts, SQL, and database design principles.
- ◆ Expert knowledge and skill in applying and interpreting applicable standards, guidelines and, as appropriate, recommend new procedures, protocols, and standards.
- ◆ Expert analytical and organizational skills to organize, prioritize, and coordinate the successful completion of large, complex, and strategic database development projects.
- ◆ Expert communication, public, and internal relations skills to effectively communicate complex technical systems and procedures and persuade stakeholders and management regarding design and development options.

Experience and Education:

Equivalent to a bachelor's degree in a related field and five years of relevant experience. Additional experience which demonstrates acquired and successfully applied knowledge and abilities shown above may be substituted for the required education on a year-for-year basis. An advanced degree in a related field may be substituted for the required experience on a year-for-year basis.

NOTES:

All IT professionals protect the confidentiality and integrity of data and electronic information from incidental, intentional, unauthorized release and/or preventable misuse or loss to the university. IT professionals at the university are collectively responsible for ensuring the security

and protection of sensitive information, systems, and digital assets. This includes upholding data confidentiality, integrity, and availability and actively contributing to a culture of cybersecurity awareness and compliance throughout the university's technological ecosystem.

The California State University has a long-standing commitment to make its programs, services, and activities accessible to the public and the entire campus community. All professionals classified within the Information Technology Series have the expectation to support practices and techniques that align with federal and state law, as well as the CSU initiatives, coded memorandums, and executive orders.

Acronyms and technical terms used in this classification document are current as of the publication date. Subsequent technical, functional, and usage terminology and acronyms should be substituted as appropriate.

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