CLASS SERIES CONCEPT AND RESPONSIBILITIES

The MICROBIOLOGIST performs a variety of standard, complex testing and analysis in the scientific fields of virology, immunology, serology, bacteriology, parasitology, mycology, biochemistry or genetics for the detection and cause of disease. Work also involves the design, development or application of testing methods and procedures.

In order to perform a variety of complex testing, employees in this class assess the adequacy of specimens or samples for necessary tests and may log them, capturing necessary demographics and information prior to preparing them for testing. Microbiologists perform testing by following established procedures using quality control samples to determine if the results are accurate and of high quality. They maintain accurate and up-to-date records. Perform troubleshooting of assays as well as any calculations and data analysis necessary, correlate results with other tests, and record results. Based upon the results, they may request additional specimens or samples. Routinely complete and generate reports related to testing and communicate test results to clients or other staff. Prepare specimens and accompanying reports to be forwarded to other departments or agencies. Prepare and maintain necessary equipment, performing quality control checks and calibration as applicable. Evaluate new instruments, perform validation or verification and implement new test procedures. Some employees in this class may train or oversee lower level laboratory personnel in a specialized area of expertise and provide consultation to them.

Employees in this class are primarily found outside of hospitals and medical facilities. They require the willingness to work in the environment associated with the position's location and purpose.

DISTINGUISHING FEATURES

This is a three-level, professional classification series.

The responsibilities within the Concept and Distinguishing Features are characteristic of the type and level of work associated with these classes. Individual positions may do all or some combination of the responsibilities listed as well as other related responsibilities.

Level 1

The MICROBIOLOGIST 1 is the first of this professional, three-level series. Clear and diversified procedures, precedents and professional standards govern judgment used to select the most appropriate solutions. Employees at this level have readily available professional leadership or managerial supervision. Both goals and methods are well defined, guiding the planning and execution of responsibilities.

Under direct supervision, employees in this class perform testing and prepare reports on specimens or samples. They utilize quality control samples with known values to determine if procedures and results are within acceptable limits, calculate numerical results and correlate results with other tests. Employees in this class level have limited independence to address priorities and established procedures and practices must be adhered to at all times. Results will be reviewed frequently by higher level staff.

The Microbiologist 1 is further distinguished from the next higher level by lack of responsibility for coordinating the work of other laboratory staff, serving as a project lead or by limited professional level subject area expertise. Although employees in this class are expected to carry out studies, they may receive technical advice on approaches to non-routine problems.

Level 2

The MICROBIOLOGIST 2 is the second and journey level of this professional, three-level series. This professional level classification is distinguished by the requirement to apply experiential knowledge,
experience and judgment to plan and accomplish goals. Employees may coordinate the work of staff involved in such studies or provide consultation and assistance to others in the planning, development and conduct of such studies.

Under general supervision, employees perform a wide variety of testing and analysis that may require research to find available answers. They assess the adequacy of samples and test results to determine the impact on patients, industry or population. Employees have limited discretion to prioritize their daily work but established policies, procedures and practices must be adhered to at all times. Results may be reviewed periodically by higher level staff.

At this level, employees may provide guidance to lower level staff, students or interns assigned to the agency for work study experiences in the laboratory, provide training in general laboratory methods as well as in specific project tasks to local health department staff members, staff from other agency programs or other government agencies.

Level 3

The MICROBIOLOGIST 3 is the third and advanced professional of this three-level series. This level is distinguished by the requirement to apply advanced knowledge, interdisciplinary experience and judgment to plan and accomplish goals. They serve as senior scientific analytical specialists who design, develop, implement and perform state-of-the-art methods and procedures. They require minimal supervision and routinely exercise independent, scientific judgment that may include the interpretation of data from applied research and method development, and they make recommendations on the application of the findings. At this level, employees may serve as an active member of a leadership team and provide considerable input towards outcomes. Employees have direct accountability to provide input to program plans, objectives and procedures.

The variety and scope of situations differ frequently and many require research to find appropriate answers. Conditions and elements of issues must be identified and analyzed to figure out interrelationships. Employees have independence to prioritize their daily work and the work of other staff in the unit to accomplish the overall workload, but established procedures and practices must be adhered to at all times. Results may be reviewed by higher level staff or agency leadership less frequently than for the lower levels in this class.

Some positions may represent the state on national, regional or multistate public health issues and serve as subject matter experts to help develop statewide guidelines, policies, procedures and implementation strategies for population level prevention of public health issues. This level may require proficiency in conducting advanced statistical analysis. It also designs and delivers training to lower level staff and stakeholders and may review work and ensure technical competency of staff.

This level is further distinguished by the assignment to assist in tactical planning or program development, including the definition of problems and new solutions. Further, employees have the independence needed to achieve operating objectives consistent with managerial direction, operating budgets, operating plans, objectives and functional policies and precedents. Management direction establishes expected results.

MINIMUM QUALIFICATIONS AND SKILLS

Some positions may be required to meet Clinical Laboratory Improvement Amendments (CLIA) personnel qualifications for high complexity testing.

Some positions in this class may require knowledge in a specialized area such as food processing, ecology, biochemistry, molecular biology or medical microbiology.
Microbiologist 1
A Bachelor’s degree in Biology, Chemistry or closely related field of Science.

**Knowledge and Skills:**
- Knowledge of biology and chemistry.
- Knowledge of laboratory and microbiological principles, terminology, materials, equipment, procedures and techniques.
- Knowledge of various fields of microbiology such as bacteriology, virology, serology, mycology, immunology, parasitology, molecular biology and biochemistry.
- Knowledge of standard laboratory testing procedures.
- Knowledge of the operation and maintenance of various standard laboratory instruments and equipment.
- Knowledge of the techniques required for general laboratory safety and the proper handling of hazardous materials.
- Knowledge of computer software applications used in laboratory practice.
- Skill in preparing laboratory specimens and samples, reagents, solutions and stains for testing.
- Skill in operating standard laboratory equipment and instruments.
- Skill in applying written laboratory methods and procedures.
- Skill in calibrating and maintaining standard laboratory equipment.
- Skill in interpreting standard test results.
- Skill in determining appropriate test equipment or instruments to be used.
- Skill in performing highly repetitive tasks while maintaining accuracy and speed.
- Skill in organizing and prioritizing work.
- Skill in communicating orally and in writing to gather and exchange information.
- Skill in working with potentially hazardous chemicals and microorganisms.

Microbiologist 2
A Bachelor’s degree in Biology, Chemistry or closely related field of Science AND 1 year of progressively responsible professional experience related to the series concept; OR
A Master’s degree in Biology, Chemistry or a closely related field of Science; OR
An equivalent combination of education and experience.

**Knowledge and Skills (in addition to those listed in level 1):**
- Knowledge of advanced laboratory and microbiological principles, terminology, materials, equipment, procedures and techniques.
- Knowledge of advanced laboratory testing procedures.
- Knowledge of the operation and maintenance of various standard laboratory instruments and equipment.
- Knowledge of the techniques required for general and complex laboratory safety and the proper handling of hazardous materials.
- Skill in preparing written reports that contain analysis of laboratory test results and statistical findings.
- Skill in interpreting test results and diagnosing test problems.
- Skill in providing direction and leadership to students and other employees.
- Skill in organizing and prioritizing own work and work of others.
Microbiologist 3

A Bachelor’s degree in Biology, Chemistry or closely related field of Science AND 3 years of progressively responsible professional experience related to the series concept; OR

A Master’s degree in Biology, Chemistry or a closely related field of Science AND 2 years of progressively responsible professional experience; OR

An equivalent combination of education and experience.

Knowledge and Skills (in addition to those listed in level 1 and 2):

Knowledge of advanced and complex laboratory and microbiological principles, terminology, materials, equipment, procedures and techniques.
Knowledge of advanced and complex laboratory testing procedures, instruments and equipment.
Knowledge of the techniques required for advanced laboratory safety and the proper handling of hazardous materials.
Skill in writing procedures and polices based on analysis of laboratory testing results, methods uses and documentation of compliance to laws.
Skill in calibrating and quality-controlling laboratory equipment and instruments.
Skill in designing new tests and procedures for applied research experiments.
Skill in performing evaluations of methods for scientific accuracy and precision.
Skill developing new procedures to support laboratory programs.
Skill learning new and often complex laboratory procedures.
Skill in developing and performing independent studies.
Skill in researching and applying for grants.

NOTE: The KNOWLEDGE and SKILLS (KS) are required for initial consideration. Some duties performed by positions in this class may require different KS. No attempt is made to describe every KS required for all positions in this class. Additional KS requirements will be explained on the recruiting announcement.

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