

GENERAL DESCRIPTION OF CLASS

The MICROBIOLOGIST 3 serves as a senior scientific specialist with an expertise in specific areas of microbiology involving the design, development and application of state-of-the-art methods and procedures to complex and unusual problems.

DISTINGUISHING FEATURES

This is the third level of a three-level series. It is distinguished from the lower levels by serving as a senior scientific analytical specialist who designs, develops, and implements state-of-the-art methods and procedures. At this level, employees routinely exercise independent scientific judgment in the interpretation of data from applied research and method development and make recommendations on the application of the findings. Employees in this class regularly perform nonroutine tests and procedures requiring complex analytical techniques and equipment, and require minimum supervision.

DUTIES AND RESPONSIBILITIES

Employees in this class will specialize in one or more of the fields of microbiology, such as food microbiology, medical immunobiology, virology, serology, immunology, mycology, or parasitology.

Allocation of positions to this class will depend on the total work performed which may include one or a combination of the duties or tasks listed below.

- 1. Test Development and Studies.** Typical tasks: applies scientific theory and expertise to design, develop, conduct, implement, evaluate and interpret new methods in a specific area of microbiology; performs basic or applied research; evaluates new laboratory methods and instrumentation; conducts independent studies; is expert in the use, care, maintenance, and quality control of highly sophisticated scientific specialty instrumentation; interprets data from instrumentation and/or new procedures for supervisor and others to determine whether they should be incorporated into the routine testing of specimens or samples.
- 2. Benchwork.** Typical tasks: prepares or oversees preparation of necessary equipment, and organizes supplies, media, and reagents; prepares sample or specimen for testing by diluting, filtering, staining or centrifuging; performs standard, complex, and sometimes experimental microbiological tests, such as inoculating specimens/samples to a wide variety of media, antibiotic susceptibility testing, fluorescent antibody assay, genetic probe assay, radioimmunoassays, bacterial inhibition assay, serum neutralization; agglutinations, enzyme immunoassay, mouse inoculation, and chromatography; performs various tests in field of virology, food microbiology, medical microbiology, immunology, serology, parasitology, mycology; runs quality control samples and standards with known values or reactions and determines if procedure and results are within acceptable limits; correlates results with other information, deviations from expected results as identified by quality assurance.
- 3. Reports.** Typical tasks: enters results of test in log book or computer; completes test result form to be sent to the person or agency which submitted the sample and contacts them immediately by phone in cases of significant positive test results; interprets results for submitter; requests additional specimens

or samples, if necessary; suggests drugs for treatment, if appropriate; completes daily and monthly reports including number and types of test performed and number of positive findings; maintains accurate and up-to-date records detailing quality control procedures; prepares specimen or sample and accompanying reports to be forwarded to other agencies in cases where exchange of information is warranted; monitors trends in test results and recommends whether new or updated testing procedures should be implemented; and may collaborate in preparation of written reports to users of laboratory services.

4. Advancement of Knowledge. Typical tasks: maintains current expertise in field by reading scientific literature and attending symposia and workshops; recommends improvements in methodology and incorporation of new procedures; takes the lead in implementing pilot programs to test recommended improvements and procedures; participates in procedure manual preparation by suggesting revisions deemed appropriate; and maintains expertise in all areas of laboratory by rotating duties with microbiologists in other sections.

5. Miscellaneous. Typical tasks: may assist manager in overall operation of the laboratory; provides technical direction to new employers, student interns and other lab staff or interested parties; calibrates, troubleshoots, performs and oversees maintenance to laboratory equipment; takes inventory and requisitions, supplies with supervisor's approval; testifies on methodology and results of tests when those results are evidence in cases of litigation; may write grant proposals.

RELATIONSHIPS WITH OTHERS

Employees in this class have regular, in-person or telephone contact with agency staff, county health departments, physicians, university faculty, industrial and business representatives, other researchers and other governmental and private organizations. This contact is to exchange information, consult, discuss test results, and/or to determine priorities.

Employees may also have occasional contact with other experts in the field to discuss mutual problems and possible resolutions. There may also be occasional contact with equipment and reagent manufacturers, and sales/service representatives to discuss instrument and reagent improvements and problems. These employees may have occasional in-person contact with students or other interested parties to instruct them in microbiological methods and techniques.

SUPERVISION RECEIVED

Employees in this class receive general supervision from a laboratory supervisor or other administrative superior as to general assignments and priorities. Test data results and interpretation are reviewed for program implications. Reports are reviewed upon completion for accuracy (since possibility exists the reports may be used in litigation). Records are reviewed for quality control guidelines used in performance of duties; such guidelines include standardized and experimental testing procedures, accepted laboratory practices, manufacturers' guidelines, accepted aseptic and sterilization procedures, and applicable State and Federal guidelines.

KNOWLEDGE, SKILLS, AND ABILITIES (KSA)

Extensive knowledge of one or more of the areas of microbiology, such as food microbiology, medical microbiology, virology, immunology, mycology, serology, and parasitology.

Extensive knowledge of the techniques required for laboratory safety and the proper handling of hazardous materials, whether they are chemical, biological, or radiological.

Extensive knowledge of highly complex laboratory equipment and instruments.

Extensive knowledge of the scientific principles and methods of study design.

Extensive knowledge of laboratory and microbiological rules, regulations, principles, terminology, materials, equipment, procedures, and techniques.

General knowledge of performing literature searches.

General knowledge of computer application in microbiology.

Skill in organizing and putting work in priority order.

Skill in communicating orally and in writing to gather and exchange information.

Skill in preparing laboratory specimens/samples, reagents, solutions, and strains for testing.

Skill in performing standardized and highly sophisticated laboratory tests.

Skill in writing reports, procedures, etc. which contain analyses of laboratory testing results, methods to use, documentation of compliance to laws, etc.

Skill in applying written laboratory methods and procedures.

Skill in operating, calibrating, maintaining, and quality-controlling sophisticated laboratory equipment and instruments.

Skill in interpreting test results.

Skill in documenting all work performed.

Skill in designing, conducting, and interpreting results of applied research experiments.

Skill in performing evaluations of methods for scientific accuracy and precision.

Ability to apply scientific theory to laboratory practice.

Ability to determine appropriate test equipment and/or instruments to be used.

Ability to adapt existing methods to new areas of laboratory testing.

Ability to apply appropriate procedures and controls in nonroutine circumstances.

Ability to develop new procedures to support laboratory programs.

Ability to learn new and often complex laboratory procedures.

Ability to perform independent studies.

Ability to provide direction to other employees when needed.

Ability to apply for grants.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. ABILITIES may be required for initial consideration, at any time during the selection process, or during a trial service period as a final stage of the selection process. Some duties performed by positions in this class may require different KSA's. No attempt is made to describe every KSA required for **all** positions in this class. Additional KSA requirements will be explained on the recruiting announcement.

Adopted 1/90

Revised

Examples of work are typical of duties assigned to this class. No attempt is made to describe every duty performed by all positions in this class.