

ILLINOIS DEPARTMENT OF CENTRAL MANAGEMENT SERVICES
CLASS SPECIFICATION

MICROBIOLOGIST SERIES

<u>CLASS TITLE</u>	<u>POSITION CODE</u>
MICROBIOLOGIST I	27151
MICROBIOLOGIST II	27152

Effective: 2-16-90

SERIES DISCUSSION:

The Microbiologist series encompasses positions which perform professional microbiology laboratory work. Laboratory tests conducted by Microbiologists principally pertain to the origin, history, physical characteristics and life processes of microorganisms (i.e., any animal or plant organism which can be viewed only through a microscope). Microbiologists conduct experiments to determine the presence, identity and/or quantity of microorganisms present in a sample and interpret the findings of complex experiments; successful interpretation of these results is dependent upon a thorough knowledge of the theories, assumptions and ethical standards underlying the field of microbiology. In contrast, technical positions conduct microbiological tests where the test results lead to obvious conclusions. For example, the addition of a particular antigen to a sample causes an agglutination (the clumping together of microorganisms in fluid) if certain microorganisms are present, and no discernable reaction occurs if the microorganisms are absent. Specifically excluded from this series are positions in state laboratories subject to the Illinois Clinical Laboratories Act that perform professional laboratory work on specimens obtained from the human body; such positions are properly allocated to the Clinical Laboratory Technologist series. The Microbiologist classes are distinguished from each other primarily by expertise, decisions and commitments and supervision received. The Microbiologist I conducts professional laboratory work under the close supervision of the immediate supervisor; test results obtained are reviewed by the supervisor prior to release. Typically positions in this class do not provide expert testimony in court or administrative hearings. Although the test interpretations made by Microbiologist II's may be similar in difficulty to the interpretations rendered by Microbiologist I's, the increased expertise at the Microbiologist II level allows positions in this class to serve as expert witnesses in court, to release test results without supervisory review and to serve as designated lead workers of professional laboratory staff.

MICROBIOLOGIST I

POSITION CODE: 27151

DISTINGUISHING FEATURES OF WORK:

Under direct supervision, performs professional microbiological work in a state laboratory on such specimens as water, milk, environmental samples, and animal specimens; conducts tests to determine the presence of microscopic organisms; interprets test results; reports findings to immediate supervisor or lead worker for review and approval; releases test results only after receiving the approval of the supervisor or lead worker.

MICROBIOLOGIST I (Continued)

ILLUSTRATIVE EXAMPLES OF WORK:

1. Prepares environmental air, water and soil samples using liquid- liquid extraction, sonication and filtering techniques to concentrate chemicals in a sample to a detectable level for bioassay testing. Evaluates the prepared sample for potential mutagenicity and carcinogenicity using the Ames salmonella bioassay procedure and the salmonella SV-50 test. Interprets results obtained from such tests and decides if they fall within acceptable parameters; reports test results to supervisor.
2. In accordance with established analytical procedures, conducts phosphatase tests of milk and dairy products to determine if pasteurization was conducted properly and adds inhibitor to milk and dairy samples to detect the presence of antibiotic residue; interprets results of the experiments and reports findings to supervisor.
3. Following established analytical procedures, tests public water supplies and private water supplies for the presence of total coliform, fecal coliform, and fecal streptococci using the millipore filter technique, the tubed media technique, and a microscope; analyzes test results and records findings onto a sample report form; reports are then submitted for the supervisor's review.
4. Complies with established guidelines to isolate various pathogenic bacteria and fungi; inoculates samples onto prepared media, incubates and examines through a microscope; interprets test results and reports findings to supervisor.
5. Conforms to existing testing methods in setting up or overseeing the set up of Enzyme Linked Immunosorbent Assay (ELISA) serological tests for porcine pseudorabies and serum neutralization tests for pseudorabies and TGE virus; uses a spectrophotometer, a personal computer and a microscope to observe test results; interprets results of the tests; reports findings to supervisor.
6. Prepares media and reagents for growth of cell lines; provides cells and media for all viral serology by maintaining cell lines and mixing/preparing media; tests pH of media; transfers and splits continuous cell lines; freezes cells in liquid nitrogen and thaws cells when needed; observes cell growth and maintains records on same.
7. Performs other duties as required or assigned which are reasonably within the scope of the duties enumerated above.

DESIRABLE REQUIREMENTS:

Education and Experience

Requires a bachelor's degree in microbiology, biology, or a related field from a recognized college or university.

Knowledges, Skills and Abilities

Requires working knowledge of the methods and techniques of laboratory analysis, the principles of bacteriological reagents, standard microbiological examinations and the principles of organic chemistry.

Requires working knowledge of the operation and maintenance of microscopes, analytical balances, centrifuges, and other laboratory apparatus.

Requires ability to maintain accurate laboratory records and prepare activity reports.

Requires skill in erecting combinations of laboratory apparatus and ability to operate less complex types of laboratory equipment.

Requires ability to understand and follow oral and written directions, laboratory formulae and charts.

MICROBIOLOGIST II

POSITION CODE: 27152

DISTINGUISHING FEATURES OF WORK:

Under general supervision, serves as designated lead worker of professional laboratory staff; or performs difficult professional microbiology analytical work, regularly interpreting test results and reporting findings to concerned parties (e.g., person/laboratory requesting the tests, United States Centers for Disease Control, United States Environmental Protection Agency food manufacturers, local public health agencies); serves as an expert witness in court and/or administrative hearings.

ILLUSTRATIVE EXAMPLES OF WORK:

1. As a designated lead worker of professional staff engaged in laboratory work, assigns, reviews and controls subordinates' work on an on-going basis; guides and directs staff concerning acceptable methods of conducting tests; spot checks subordinates' test results; schedules shift assignments; provides input to the line supervisor concerning performance of subordinates; interprets laboratory results and advises veterinarians and laboratory personnel regarding the proper method of submitting specimens.
2. Gives expert testimony in court regarding methods and standards, procedures and instruments used in the analyses of organic materials and the results of the analyses.
3. Performs clinical animal pathology tests (e.g., conducts whole blood analysis, determines serum chemistry levels, performs urinalysis, examines blood smears and semen) to diagnose diseases, to identify parasites, and to quantitatively measure levels of chemicals in body fluids; interprets test results; prepares reports listing findings of tests and distributes to veterinarians throughout the State of Illinois.
4. Analyzes potability of water for human consumption and for use in meat processing plants; tests for coliform and enterococci bacteria; checks water with spectrophotometer for presence of nitrates; interprets results; decides if test results fall within acceptable range; spot checks results obtained by Microbiologist I's, if the interpretation indicates an error may exist or a specimen may have been contaminated, decides to retest; forwards test results to municipalities and other concerned parties.
5. Develops and conducts aquatic and terrestrial toxicological testing procedures including execution of bioassay and culture data analyses, processing, and storage on laboratory computer equipment; establishes and maintains cultures of several species of terrestrial organisms by nourishing and incubating same; conducts acute static and flow-through aquatic toxicity tests; completes reports on bioassay test results and other technical areas.

MICROBIOLOGIST II (Continued)

6. Examines genetic stocks of trout and salmon for bacteria and parasites; samples fish kidneys for the presence of bacteria using the fluorescent antibody technique; identifies bacteria and parasites found; analyzes fish found dead in the wild, uses involved, lengthy testing techniques to ascertain the cause of death; reports cause of death to originator of the specimen.
7. Performs other duties as required or assigned which are reasonably within the scope of the duties enumerated above.

DESIRABLE REQUIREMENTS:

Education and Experience

Requires a bachelor's degree in microbiology, biology, or a related field from a recognized college or university supplemented by one year's professional experience in the testing of specimens submitted for diagnosis of infectious diseases, or in the testing of foods, dairy products, ware samples, or biological products.

Knowledges, Skills and Abilities

Requires working knowledge of the principles and practices of microbiology and organic chemistry.

Requires working knowledge of the operation and care of microscopes, glassware, analytical balances, centrifuges, autoclaves and other laboratory apparatus.

Requires ability to conduct specialized laboratory experiments and to interpret the complex test results.

Requires skill and dexterity in the performance of complex scientific laboratory methods and procedures.

Requires ability to maintain accurate records and to prepare scientific reports.

Requires ability to understand and follow oral and written directions, formulae and charts.

May require ability to assign, direct and review work of subordinate professional staff.