

MASSACHUSETTS DEPARTMENT OF PERSONNEL ADMINISTRATION

CLASSIFICATION SPECIFICATION

APPROVED

I. BACTERIOLOGIST SERIES:

Bacteriologist I
Bacteriologist II
Bacteriologist III

MAY 1 1989

**Department of Personnel
Administration**

II. SUMMARY OF SERIES:

Incumbents of positions in this series perform microbiological, serological, immunological, parasitological, urological, hematological, histological, bacteriological and chemical tests and procedures; determine the type and sequence of tests or experiments; interpret results; propagate cultures; inspect and evaluate laboratory equipment; and perform related work as required.

The basic purpose of this work is to identify and study the growth, structure, development and general characteristics of micro-organisms.

III. ORGANIZATIONAL LEVELS:

Bacteriologist I is the entry-level professional job in this series.

Bacteriologist II is the first-level supervisory job in this series.

Bacteriologist III is the second-level supervisory job in this series.

IV. EXAMPLES OF DUTIES COMMON TO ALL LEVELS IN SERIES:

1. Performs microbiological, bacteriological, serological, immunological, parasitological, urological, hematological, histological, and chemical tests using standard laboratory equipment such as autoclaves, microscopes, centrifuges, incubators, turbidity meters, pH meters, coulter counters, etc. to isolate and examine and identify micro-organisms and other biological material.
2. Determines the type and sequence of tests or experiments to be performed to analyze organisms.
3. Contacts outside laboratories to arrange for and track specific tests and to verify test results; prepares specimens and/or samples for outside laboratory testing and arranges transportation of the specimens to outside labs.
4. Propagates cultures in proper media, determining the suitability, validity and acceptability of samples and specimens for analysis and prepares varied cultures, media and chemical solutions for use in laboratory tests.

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5. Inspects laboratory equipment by performing calibration checks of testing equipment for proper functioning and need for repair or replacement; makes minor or routine mechanical repairs and adjustments; recommends the purchase of supplies and equipment; monitors laboratory quality control procedures by making visual inspections; and performs tests of media, reagents and equipment to establish quality control.
6. Performs related duties such as maintaining records and logs by organizing and recording data on forms for analysis or informational purposes; disposing of chemicals or contaminated materials; writing narrative reports describing test results; reading scientific journals to keep abreast of trends in the field; and utilizing adequate safety equipment in the performance of duties.

Based on assignment, incumbents of positions may also:

1. Perform microbiological water quality analyses and tests of well water and wells for biological, mechanical, hydrological, geographical, environmental or other problems.
2. Prepare various cultures, media and/or chemical solutions for use in laboratory tests and perform microbiological and chemical analyses and other tests such as coliform levels and/or paralytic shellfish poisons tests.
3. Sort and prepare blood and urine specimens and prepare accompanying forms according to laboratory format.
4. Survey the environment for disease carrying vectors by doing mosquito counts, etc.

V. DIFFERENCES BETWEEN LEVELS IN SERIES:Bacteriologist II:Incumbents of positions at this level or higher also:

1. Advise physicians and nurses regarding appropriate tests to use in specific situations.
2. Confer with outside laboratories regarding the type and sequence of tests or experiments to be performed to analyze particular problems and to compare test results and procedures.
3. Determine the proper methodology for collecting and examining laboratory samples and recommend changes to be instituted.
4. Isolate and perpetuate cell lines of various tissues.
5. Evaluate laboratory equipment to determine the need for repair and replacement.
6. Determine when additional samples should be obtained.
7. Attend meetings to discuss such matters as programs, policies, activities and services provided; confer with other professionals to discuss work related matters.
8. Interview salesmen and product representatives to evaluate, recommend and/or purchase equipment and supplies.

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9. Evaluate mechanical problems of laboratory equipment and take appropriate action.

Bacteriologist III:Incumbents of positions at this level also:

1. Perform complex diagnostic tests by microscopic, cultural, serologic, immunologic and pathologic methods.
2. Evaluate and interpret test procedures and results from outside labs.
3. Recommend staffing changes to accommodate workloads and train agency personnel in laboratory and/or field procedures according to agency standards.
4. Conduct meetings to discuss such matters as program policies, activities and services provided; confer with other professionals to discuss work related matters.
5. Inform the medical community of the significance of test results.
6. Institute guidelines for statistical accuracy and establish test procedures.
7. Write scientific or diagnostic letters, memoranda or reports.
8. Perform quality inspections on purchased items for compliance with specifications.
9. Answer inquiries over the phone and in person from the public, the media, various Federal State and municipal agencies, etc. to provide information on which a medical and/or public health decision may be based.

VI. RELATIONSHIPS WITH OTHERS:

Major work contacts are with agency staff, representatives of various state agencies, physicians, vendors and Federal laboratories.

VII. SUPERVISION RECEIVED:Bacteriologist I:

Incumbents of positions at this level receive general supervision from Bacteriologists or other employees of higher grade who provide instruction, assign work and review performance through inspections and conferences for compliance with standard procedures.

Bacteriologist II:

Incumbents of positions at this level receive general supervision from Bacteriologists or other employees of higher grade who provide guidance on procedures, assign work and review performance through inspections and conferences for effectiveness and compliance with standard procedures.

Bacteriologist SeriesBacteriologist III:

Incumbents of positions at this level receive general supervision from employees of higher grade who provide policy and procedural guidance, assign work and review performance through conferences and reports for effectiveness and compliance with professional standards.

VIII. SUPERVISION EXERCISED:Bacteriologist I:

Based on assignment, incumbents of positions at this level may exercise functional supervision (i.e., over certain but not all work activities or over some or all work activities on a temporary basis) over 1-5 paraprofessional or nonprofessional personnel.

Bacteriologist II:

Incumbents of positions at this level exercise direct supervision (i.e. not through an intermediate level supervisor) over, assign work to and review the performance of 1-5 professional and/or paraprofessional personnel.

Bacteriologist III:

Incumbents of positions at this level exercise direct supervision (i.e. not through an intermediate level supervisor) over, assign work to and review the performance of 1-5 professional and/or paraprofessional personnel; and indirect supervision (i.e. through an intermediate level supervisor) over 6-15 professional, paraprofessional or other personnel.

IX. WORKING CONDITIONS:

Bacteriologists are exposed to communicable diseases and to the harmful effects of flammable substances, poisonous or toxic chemicals, gasses and fumes; and may work varied shifts, weekends, holidays or nights.

X. QUALIFICATIONS REQUIRED AT HIRE FOR ALL LEVELS IN SERIES:

1. Knowledge of the principles and practices of bacteriology and microbiology.
2. Knowledge of the principles and practices of general chemistry.
3. Knowledge of research methods and techniques followed in bacteriology, microbiology and biology.
4. Knowledge of the safety practices and procedures followed in a biological or bacteriological laboratory.
5. Knowledge of the practices, techniques and tests relative to a biological or bacteriological laboratory.
6. Knowledge of the types and uses of equipment, apparatus and materials used in a biological or bacteriological laboratory.
7. Knowledge of the proper methods for disposing of contaminated laboratory materials.

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8. Knowledge of the types and uses of sterilization equipment and devices used in a laboratory.
9. Knowledge of calibration and/or adjustment techniques as applied to laboratory equipment.
10. Knowledge of the properties and characteristics of chemicals, acids, materials, etc. used in a laboratory.
11. Knowledge of research methods and procedures followed in a biological or bacteriological laboratory.
12. Knowledge of the terminology and standard abbreviations used in a biological or bacteriological laboratory.
13. Knowledge of general laboratory testing procedures including sample collection.
14. Knowledge of the methods used in the preparation of charts, graphs and tables.
15. Knowledge of the techniques for the handling and transportation of specimens.
16. Skill in operating office machines or equipment such as calculators, duplicators, etc.
17. Ability to analyze and determine the applicability of bacteriological data to draw conclusions and make appropriate recommendations.
18. Ability to understand and apply the laws, rules and regulations governing agency operations.
19. Ability to understand and apply the laws, rules and regulations governing assigned unit activities.
20. Ability to follow written instructions.
21. Ability to follow oral instructions.
22. Ability to give oral instructions in a precise, understandable manner.
23. Ability to give written instructions in a precise, understandable manner.
24. Ability to deal tactfully with others.
25. Ability to exercise sound judgment.
26. Ability to work independently.
27. Ability to establish and maintain harmonious working relationships with others.
28. Ability to explain the procedures, guidelines, policies, etc. governing assigned unit activities.
29. Ability to explain the provisions of the laws, rules and regulations governing assigned unit activities.

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30. Ability to gather information by examining records and documents.
31. Ability to prepare general reports.
32. Ability to prepare technical reports.
33. Ability to write clearly and concisely.
34. Ability to communicate effectively in writing.
35. Ability to communicate effectively in oral expression.
36. Ability to prepare and use charts, graphs and tables.
37. Ability to maintain accurate records.
38. Ability to determine proper format and procedures for assembling items of information in accordance with established procedures.

Based on assignment, the following additional qualifications may be required at hire:

1. Knowledge of the principles and practices of serology.
2. Knowledge of the principles and practices of toxicology.
3. Knowledge of the principles and practices of mycology.
4. Knowledge of the principles and practices of hematology.
5. Knowledge of the principles and practices of cytology.
6. Knowledge of the principles and practices of virology.
7. Knowledge of the principles and practices of animal physiology.
8. Knowledge of the principles and practices of cellular physiology.
9. Knowledge of the principles and practices of parasitology.
10. Knowledge of the principles and practices of histology.
11. Ability to lead a group of workers.

Additional qualifications required at hire for Bacteriologist II and higher positions:

1. Ability to supervise; including planning and assigning work according to the nature of the job to be accomplished, the capabilities of subordinates and available resources; controlling work through periodic reviews and/or evaluations; determining subordinates' training needs and providing or arranging for such training, motivating subordinates to work effectively; determining the need for disciplinary action and either recommending or initiating disciplinary action.

Bacteriologist SeriesAdditional qualifications required at hire for Bacteriologist III positions:

1. Knowledge of the principles, practices and techniques of supervision.

XI. QUALIFICATIONS ACQUIRED ON JOB AT ALL LEVELS IN SERIES:

1. Knowledge of the types and availability of public or private community-based organizations and resources for conducting laboratory tests.
2. Knowledge of the laws, rules, and regulations pertaining to the prevention and control of communicable diseases.
3. Knowledge of the laws, rules and regulations governing agency operations.
4. Knowledge of the laws, rules and regulations governing assigned unit activities.
5. Knowledge of the policies, procedures, specifications, standards and guidelines governing agency operations.
6. Knowledge of the policies, procedures, specifications, standards and guidelines governing assigned unit activities.
7. Knowledge of the types and uses of agency forms.

Additional qualifications acquired on job in Bacteriologist II positions:

1. Knowledge of the principles, practices and techniques of supervision.

XII. MINIMUM ENTRANCE REQUIREMENTS:Bacteriologist I:

Applicants must have at least (A) two years of full-time, or equivalent part-time, professional or paraprofessional experience in bacteriology, biology or biochemistry work, or (B) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. A Bachelor's or higher degree with a major in bacteriology, biology, chemistry or biochemistry may be substituted for the required experience.*

*Education toward such a degree will be prorated on the basis of the proportion of the requirements actually completed.

Bacteriologist II:

Applicants must have at least (A) three years of full-time, or equivalent part-time, professional or paraprofessional experience in bacteriology, biology or biochemistry work and (B) of which at least one year must have been in a professional capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Bacteriologist SeriesSubstitutions:

- I. A Bachelor's degree with a major in bacteriology, biology, chemistry or biochemistry may be substituted for a maximum of two years of the required (A) experience.*
- II. A Graduate degree with a major in bacteriology, biology, chemistry or biochemistry may be substituted for the required experience.*

*Education toward such a degree will be prorated on the basis of the proportion of the requirements actually completed.

Bacteriologist III:

Applicants must have at least (A) four years of full-time, or equivalent part-time, professional or paraprofessional experience in bacteriology, biology or biochemistry work and (B) of which at least two years must have been in a professional capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. A Bachelor's degree with a major in bacteriology, biology, chemistry or biochemistry may be substituted for a maximum of two years of the required (A) experience.*
- II. A Graduate degree with a major in bacteriology, biology, chemistry or biochemistry may be substituted for a maximum of three years of the required (A) experience and one year of the required (B) experience.*

* Education towards such a degree will be prorated on the basis of the proportion of the requirements actually completed.

NOTE: Educational substitutions will only be permitted for a maximum of one year of the required (B) experience.

XIII. SPECIAL REQUIREMENTS:

None.

Occupational Group 18

Revised 04/89

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