STATE OF SOUTH DAKOTA CLASS SPECIFICATION

Class Title: Microbiologist **Class Code: 40661**
Pay Grade: GH

A. Purpose:

Performs standard microbiological and serological examinations to determine and identify the presence of known or unknown pathogenic microorganisms.

B. Distinguishing Feature:

The Microbiologist follows established procedures for processing specimens and performs assigned analytical tests according to predetermined protocol.
The Senior Microbiologist is responsible for completing, analyzing, and monitoring testing activities in one or more specialized sections of a microbiology laboratory such as quality control for water quality, virology, bacteriology, serology, immunology, parasitology, mycology, food safety, or mycobacteriology; and ensures that proper procedures are followed by coworkers, monitors quality control methods, validates new test procedures, and participates in and/or directs method development.
The Laboratory Quality Assurance Coordinator defines, writes, implements, and monitors the quality control system for the laboratory.

C. Functions:

(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)

1. Performs standard microbiological examinations on various substances to identify known or unknown organisms.
   a. Utilizes established methodology.
      i. Uses standardized test kits for some tests.
      ii. Runs positive or negative controls to verify test results.
   b. Refers unusual results for identification and analysis.
   c. Runs additional tests based on specific results of each test.
   d. Recognizes factors that affect measurements and results and takes predetermined actions.

2. Maintains quality assurance to ensure tests are completed accurately.
   a. Runs negative, positive, and in-house controls with specimens.
   b. Participates in quality assurance meetings to discuss and resolve variances in quality control, preventive maintenance, and other quality assurance elements.
   c. Recognizes factors that affect measurements and results and takes appropriate action according to protocols.
   d. Completes proficiency testing as required to maintain lab certification.

3. Interprets and reports test results to document findings and maintain appropriate records.
   a. Reads and enters test results into computer or onto log sheets.
   b. Determines the need, enters a request for, and performs additional testing of specimens.
   c. May send specimens out of the laboratory for confirmatory testing.
   d. Validates test results entered into the computer.

e. Communicates information such as test results, normal ranges, and specimen requirements to authorized sources.

4. Prepares specimens for testing to ensure the submitter gets accurate results.
   a. Checks specimen tubes for proper labeling and compares to submitter forms.
   b. Examines specimens to see if they have been submitted according to acceptable procedures.
   c. Determines if specimen has been submitted timely.
   d. Rejects specimens that do not meet laboratory requirements.
   e. Organizes specimens by type of test.
   f. Generates worksheets off the computer to be used in testing specimens.

5. Performs preventive maintenance to ensure laboratory equipment and instruments are operating correctly and specimens do not deteriorate.
   a. Follows schedules for daily and weekly maintenance on instruments.
   b. Records equipment temperatures.
   c. Notifies supervisor of problems.

6. Initiates and maintains cell cultures for laboratory use to provide the means to isolate infectious viral agents from tissues submitted for testing.

7. Performs other work as assigned.

D. Reporting Relationships:

Typically reports to a Health Lab Administrator, Senior Microbiologist, or a faculty member. Does not supervise but may provide work direction to other laboratory staff, interns, and/or students.

E. Challenges and Problems:

Challenged to ensure test results are absolutely accurate. A high volume of tests are run daily, therefore, results must be consistent and accurate because public health can be affected.

Typical problems include whether to reject a specimen for testing, equipment malfunctions, doing several tests at once, insufficient supply of reagents or outdated reagents, preventative maintenance and quality controls are out of range, discrepancies in test results, maintaining cell cultures, determining specific reactions, and result identification not meeting established criteria.

F. Decision-making Authority:

Decisions include whether to rerun tests, if test controls are inaccurate, degree of agglutination, if a sample should be tested, whether a submitter should be contacted immediately with test results, what testing codes are, how to explain different testing procedures, whether to use new reagents, whether to repeat preventative maintenance, and whether to order/perform additional tests according to standard protocols.

Decisions referred to a superior include what questions about test results can be answered and how, what tests are required, if controls are correct, whether to reject a questionable specimen for testing, final decision on whether a specimen should be rejected, if new reagents should be

used, and whether to order/perform additional tests.

G. Contact with Others:

Daily contact with health care professionals or veterinarians to request additional information about samples and to inform them of serious test results; with university faculty to give or receive information; and communicable disease personnel several times a week to refer questions and report results.

H. Working Conditions:

Potential for exposure to blood borne pathogens, body fluids, infectious agents, dangerous chemicals, high voltage equipment, toxic fumes, high-pressure steam, temperature extremes, and radioactive elements.

I. Knowledge, Skills and Abilities:

Knowledge of:

- the basic principles and practices of microbiology;
- laboratory methods of diagnosis of diseases;
- microbiology laboratory methods, materials, equipment, safety procedures, and laboratory computer software;
- the operation of applicable laboratory equipment and apparatus such as balances, microscopes, biological cabinets, and pH meters.

Ability to:

- perform various bacteriological, virological, serological, and parasitological tests and analyses;
- follow specific testing procedures;
- work safely with dangerous and contagious materials and specimens;
- operate scientific equipment;
- operate computers;
- perform quality assurance;
- establish and maintain effective working relationships with others;
- make and record scientific observations accurately;
- perform necessary mathematical calculations.