

PART I

DEPARTMENT OF EDUCATION
STATE OF HAWAII

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Class Specifications for the:

RESEARCH STATISTICIAN SERIES

This series includes all classes of positions, the primary duties of which are to apply research and statistical methods and techniques to the analysis of socio-economic data; to the solution of problems in the applied sciences such as engineering; to the publication of survey data of such fields as agriculture and labor; and to intensive research projects in such fields as health and economics.

Research statistical studies are conducted to provide information and reasoned conclusions in the publication of data which are required for public information and/or for formulation and support of administrative and legislative decisions. The techniques of research and statistics are applicable to any subject matter field where facts may be validly expressed in or reduced to numerical form. The two major areas of research statistical work are the collection of data (survey) and the analysis, correlation and interpretation of data (analytical).

The research statistical study process involves: recognizing study needs; planning and modifying research and statistical methods and techniques to be used; gathering data from sources; analyzing and interpreting findings; and finally, presenting evaluated data with valid conclusions in graphic, narrative or numerical form. Research into sources of data may include gathering data from primary sources, through oral interviews or questionnaires, or secondary sources such as publications. Examples of some of the various kinds of statistical techniques often used by research statisticians include analysis of frequency distributions, time series analysis, and analysis of variance and sampling.

In State government, the Research Statistician is not restricted entirely to a statistical frame of reference but incorporates information of relevant socio-economic and, in certain instances, medical conditions with statistical methodology in the design and planning of research statistical studies. This situation is due to the total integration of the work of positions in this series with subject matter specialties. For instance, in health studies, a Research Statistician exhibits subject matter knowledge of general health and medical specializations under study and utilizes this knowledge to plan and design research statistical investigations. A Research Statistician conducting agricultural surveys also uses specific knowledge of general agricultural economic conditions in research and statistical analysis. However, it should be recognized that although specific knowledge of subject matter fields is applied, the primary purpose of

positions in this series is still the basic application of evaluative research and statistical methodology and techniques.

The Research Statistician may cooperate with digital computer equipment personnel to facilitate the collection, summarization and processing of data. This requires that the Research Statistician have a basic understanding of computer processes and capabilities of the machines in the State's computer centers.

The lower levels of Research Statisticians are concerned with the collection and summarization of data; whereas the higher levels of Research Statistician are concerned with the validity and design of research and statistical methods used in various reporting systems, the conduct of statistical studies or programs, and the final interpretation and evaluation of results. Based on this differentiation of scope and level of work, the primary allocation factors for positions in this series are: the nature of assignments, technical responsibilities and administrative responsibilities. A factor which may be incidental in the allocation of positions to levels in this series is the supervision of subordinate personnel. Due to the nature and quantity of data processed, a Research Statistician conducting a study is normally required to supervise clerical and/or lower-level Research Statisticians in the routine computation of data according to stated formula and methods of assigned projects. Therefore, some supervisory responsibilities are inherent in the concepts of project leader types. Consequently, supervisory responsibilities of this nature do not warrant additional grade level credit.

Among the subject matter specialties in this series are the following:

1. Agriculture - crop production and crop acreage, livestock production and inventories, farm commodity prices and income, consumption of agricultural products, farm labor, farm property values and finances, marketing and transportation.
2. Business and Economics - business activities and economic needs, such as income, trade, production, prices, finance, taxation, employment and unemployment, and operations of specific business organizations and industrial groups which include public utilities.
3. Demography - human populations and their characteristics including distribution and growth; fertility, fecundity, mortality, marriage and divorce; and individual social and economic characteristics, such as age, education, occupation, attitudes, etc.
4. Health - the causes, incidence, and cost of accidents, disease and disabling illness including epidemiological research; the administration of medical care and

disability insurance, and public health programs; the planning or registration systems for recording data on births, deaths, stillbirths, notifiable diseases, accidents, marriages, divorces and annulments; and registration of non-reportable conditions such as cancer, mental illness and tuberculosis.

5. Traffic Engineering (planning and operations) - traffic volumes and classification trends; economic activity, population growth, land use and travel characteristics; trip generation and future trip distribution; assignment and analysis of transportation systems; tabulations and reports of accident and traffic statistics; research and tests of traffic control and safety devices.
6. Social Services - child welfare, medical care, paroles and pardons, housing and rehabilitation data, etc.; and exploratory, descriptive and diagnostic research on public assistance programs.
7. Education - student group testing to include ability and achievement evaluation and the effect of the curriculum program on the student; cost per student for personnel, material and facilities; statistics for educational planning; student population accounting in public and private schools; etc.
8. Taxation - tax planning and analysis; State and local tax revenues, tax incidence, personal and business income, distribution of tax burden, tax effort indexes, etc.

Although the basic methods and techniques of research and statistics are applied by all positions in the series, the prerequisite need for specialized subject matter knowledge may necessitate the requirement for selective certification of applicants for particular positions in this series.

RESEARCH STATISTICIAN I

8B.806

Duties Summary:

As a trainee, participates in on-the-job formal training to learn the theories, techniques and methods used in research and statistical analysis; and performs other duties as required.

Distinguishing Characteristics:

Duties assigned this level provide training and experience in the research and statistical methods and techniques used in a particular subject matter specialization, as well as in the technical and administrative policies and regulations of the agency. A higher-level Research Statistician exercises immediate supervision, gives specific

instructions and reviews finished assignments in detail for compliance with instructions, accuracy in application of techniques and soundness of conclusions.

Examples of Duties:

Accompanies higher-level research statisticians on survey audits to learn the characteristics of the survey population; assists in the design of questionnaires; codes data on completed questionnaires; researches clearly indicated sources; calculates ratios, percentages, means, medians and other statistical measurements; prepares tables and charts according to instructions; under technical direction prepares preliminary drafts of narrative reports from collected data; conducts speed studies on highways using the radar speed meter; and studies published reports and operational manuals to learn the sources, procedures, policies and objectives relevant to program research studies.

Knowledge and Abilities Required:

Knowledge of: Basic research and statistical methods and techniques.

Ability to: Apply standard statistical formulas and compute statistical measures; analyze statistical data; follow oral and written instructions; learn to use calculators and adding machines; learn the processes, methods and techniques used in research statistical investigations; draw conclusions from derived data and prepare preliminary narrative, graphic or numerical reports.

RESEARCH STATISTICIAN II

8B.807

Duties Summary:

Assists higher-level Research Statisticians on assigned research projects or conducts research studies according to defined objectives and methods, and performs other duties as required.

Distinguishing Characteristics:

Assignments at this level are small studies which may be parts of larger, more complex studies assigned higher-level Research Statisticians. These smaller studies normally involve recurrent and predictable factors. Work is controlled by well-established procedures, readily available and clearly defined precedents or by detailed instructions. Responsibilities include the development of the details of a study according to established objectives and specifications, the recognition of unexpected problems or variations in results of an assigned study, and the preparation of

preliminary interpretations or tentative recommendations. In survey situations, relations with survey participants may be maintained. Planning and results of studies conducted by a position in this class are subject to technical review.

Examples of Duties:

Revises or designs questionnaires and schedules for reruns of recurring research studies; conducts interviews for the collection of data; maintains a reporting system such as a health register by ascertaining the validity of data received, modifying report forms when required and periodically summarizing and evaluating collected data; prepares employment and unemployment estimates for the State using standard and specially developed statistical techniques which have been adjusted for local conditions; applies standard formulas and computes frequency distribution, time series analysis, trend ratios, etc.; uses various statistical and research techniques prescribed in statistical and engineering manuals to evaluate and analyze growth factors to determine use of highway systems; prepares summaries of evaluated data and narrative analysis of possible effects on economic or operational conditions; prepares data for processing by computers; and may supervise clerical or other assigned project personnel.

Knowledge and Abilities Required:

Knowledge of: Research and statistical methods; departmental programs and objectives; socio-economic conditions relevant to the subject matter specialty; computer processes and capabilities.

Ability to: Conduct research studies including the analysis of collected data; prepare numerical graphic and narrative reports from derived data and relevant socio-economic conditions; apply standard or modified statistical formulas to the analysis of data.

RESEARCH STATISTICIAN III

8B.808

Duties Summary:

Conducts research studies through the application of research and statistical methods in a subject matter specialty. and performs other duties as required.

Distinguishing Characteristics:

Assignments cover recurring research studies or special survey investigations which involve numerous or unpredictable factors and require the setting up and carrying

out of integrated procedures. Considerable precedent in the form of similar studies is usually available for guidance in the application of research methodology and the drawing of conclusions. Such assignments are frequently major segments of projects assigned to higher-level statisticians. Work at this level also includes the selection and application of research methods and techniques and the valid numerical and narrative interpretation of collected data. An incumbent is accountable for the adequacy of all aspects of the study, including interpretation of results obtained. Final reports are generally reviewed for clarity, completeness, validity, adherence to program guidelines and conclusions. An incumbent at this level maintains relations with program administrators, subject matter specialists and the general public to develop project studies. Supervision may be maintained over assigned project personnel.

Examples of Duties:

Conducts research in such fields as health, agriculture, economics and engineering; designs and revises questionnaires and report forms; selects and/or modifies mathematical and statistical formulas used in the analysis of data in specific subject matter specialties; designs and prepares numerical or graphic illustrations for report use; prepares narrative reports and recommendations from conclusions drawn from the analysis of data which include correlation of pertinent socio-economic conditions; maintains a health register or conducts agricultural surveys in an assigned geographic area; works with subject matter specialists to define study objectives; prepares data for computer processing; supervises assigned project clerical or lower-level personnel in the compilation and analysis of data; correlates such factors as population growth and topography to determine trip distribution on highways for the solution of engineering problems; secures the participation of the public on the conduct of surveys; explains program findings and/or research procedures to program administrators or general public.

Knowledge and Abilities Required:

Knowledge of: Good working knowledge of research and statistical methods and techniques in assigned subject matter areas; departmental programs and objectives; sources of information; computer processes and capabilities; socio-economic conditions relevant to the subject matter specialty.

Ability to: Plan research projects; forecast trends from derived data and draw conclusions; maintain contact with source survey participants; prepare tables, charts and graphs; select and modify statistical formulas for the analysis of data; and draw valid conclusions and prepare research reports.

RESEARCH STATISTICIAN IV

8B.809

Duties Summary:

Conducts specialized research studies through the application of research and statistical methods in a subject matter specialty, and performs other duties as required.

Distinguishing Characteristics:

This level reflects responsibility for the conduct of a complex project study which involves the initiation of investigations based on observations of variables in a subject matter field, responsibility for developing subject matter research methods, and the correlation of advanced statistical techniques and intensive knowledge of the subject matter field. This level also reflects technical responsibility for the validity of research and statistical methods used and conclusions presented. The conduct of studies is done in accordance with program guidelines. Final reports are reviewed primarily for adherence to program policies and objectives. Subordinate project personnel may include several lower-level Research Statisticians and/or clerical staff. Conferences with subject matter specialists or program administrators are held to insure that the objectives, techniques and methods of the study are pertinent to program needs.

Examples of Duties:

Initiates research statistical investigations, and plans and designs the activities of such investigations; orients project staff on study objectives; recognizes the need for research statistical investigations in the subject matter area that will yield pertinent data; selects, modifies and applies statistical techniques and methods to the collection and analysis of data; conducts survey studies with the help of subordinate personnel in an assigned geographic area for survey reporting systems; recognizes the effect of relevant socio-economic data on the design and execution of research statistical studies; prepares narrative reports of findings with valid conclusions and predicts trends; prepares reports of budget needs of the project study; prepares data for computer processing; advises program specialists, administrators or the general public of research findings and/or research procedures.

Knowledge and Abilities Required:

Knowledge of: Advanced research and statistical methods and techniques; departmental objectives and programs; sources of information; computer processes and capabilities; socio-economic conditions relevant to the subject matter specialty; and variables or key factors in a subject matter specialty which noticeably affect the results of research studies.

Ability to: Plan research projects; forecast trends from derived data and draw conclusions; maintain contact with source survey participants; prepare tables, charts, and graphs; work with subject matter specialists in the design of statistical research projects; interpret research findings and conclusions to program administrators and the general public; modify and develop existing statistical and research methods and techniques for use in the subject specialty.

RESEARCH STATISTICIAN V

8B.810

Duties Summary:

Supervises the conduct of research statistical studies or functions as a staff specialist in the design and planning of research statistical investigations, and performs other duties as required.

Distinguishing Characteristics:

Situation A: Assignments involve the conduct of an extensive, complex and continuing study which requires the supervision of several subordinate journeyman level Research Statisticians engaged in the conduct of involved and complex interrelated project studies pertaining to the primary study assignment. Responsibilities include identifying study needs, determining priority of project objectives, explaining program policies to subordinates and planning and designing the research study within the broad guidelines established by a higher-level Research Statistician or subject matter specialist. Also inherent in this class are administrative responsibilities concerning the programs, staffing and budgetary requirements of study activities.

Situation B: This class may also reflect a staff specialist position which is substantially engaged in planning, designing and providing research and statistical study guidelines and procedures for line personnel participating in a survey reporting program. This involves knowledge of overall program policies and operational procedures and advanced research and statistical methodology.

In both situations, assignments involve the review of the work of subordinate personnel for accuracy in the application of research methods employed, validity of conclusions, and adherence to program objectives and policies. Contacts with program administrators, program specialists, and the general public are maintained. The work of an incumbent in this class is generally reviewed for conformance with departmental policies and objectives.

Examples of Duties:

Supervises the planning and designing of section studies; reviews survey and analysis procedures being utilized by subordinate personnel; consults with subject matter specialists and administrators to formulate work priorities and objectives; examines the possibility of modifying subject matter statistical formulas or research methods utilized; outlines methods and possible approaches to solutions of problems; coordinates work of professional staff with the work of a clerical staff to develop reports; supervises the preparation of data for computer processing; develops operational manuals; conducts training for new personnel; prepares reports on the budgetary requirements of section studies; reviews subordinates' findings and reports and prepares plans for annual summary reports or further possible research statistical investigation; and prepares interim and final reports of project findings.

Knowledge and Abilities Required:

Knowledge of: Advanced research and statistical methods and techniques; departmental objectives and programs; sources of information; computer processes and capabilities; socio-economic conditions relevant to the subject matter specialty; variables or key factors in a subject matter specialty which affect the results of research studies; and principles and practices of supervision.

Ability to: Plan research projects; correlate the results of unit studies in a major project report; modify and devise subject matter research and statistical methods and techniques; and supervise assigned project personnel.

RESEARCH STATISTICIAN VI

8B.811

Duties Summary:

Directs a complex and extensive research and statistics program through subordinate supervisors in a subject matter specialty or functions as a research and statistical consultant in a departmental program in which the validity of statistical data is critical and performs other duties as required.

Distinguishing Characteristics:

Situation A: The direction of a research statistician program at this level involves the supervision of study projects through subordinate professional supervisory personnel. The projects involved do not reflect a total departmental research and statistics program but a major area within a departmental statistical program or a major study area that requires extensive coordination of the research and statistical study

staffs with the activities of operating subject matter specialty personnel. The total research program is normally under the administrative direction of a higher-level Research Statistician or subject matter administrator.

Responsibilities at this level include the coordination of section studies within the staff, review of validity of research data presented, and interpretation of departmental policies. Relations are maintained with departmental program administrators, subject matter specialists, and the general public.

Situation B: This class may also characterize a departmental research and statistical consultant position which advises departmental administrators and high-level subject matter specialists on research and statistical methods and techniques. Responsibilities also involve reviewing departmentally and privately prepared data for validity of statistical formulas and methods applied. Work is performed in accordance with departmental guidelines or objectives outlined by high-level subject matter specialists. Consultant work at this level is characterized by exceptional breadth and impact: surveys typically extend beyond the operations of the employing agency and findings have a significant regulatory impact on private industry as well as departmental programs.

Examples of Duties:

Plans and develops research and statistical project studies; explains departmental policies to project staff; provides direction to project personnel as to the possible application of statistical methods or by outlining the objective of proposed studies; supervises the in-service training of staff members; reviews and approves the scheduling of activities in regard to the collection of data; reviews tabular, graphic and narrative presentations for clarity, consistency and conformity with proper research methods and general policy before publication; meets with subordinate working supervisors and discusses personnel and operational problems of the staff; and prepares and submits reports of budgetary needs of the research statistical section.

Situation A: Functions as a consultant to high-level departmental subject matter specialists, such as economists; advises on the validity of data submitted by business organizations or other governmental agencies; conducts highly specialized research using advanced statistical techniques to verify published data; and testifies in legal proceedings on operational and financial data presented by business organizations and public utilities.

Knowledge and Abilities Required:

Knowledge of: Advanced research and statistical methods and techniques; departmental objectives and programs; sources of information; computer processes

and capabilities; socio-economic conditions relevant to the subject matter specialty; principles and practices of administration.

Ability to: Plan and supervise the conduct of research and statistical projects; provide advisory and consultation services to program administrators on research and statistical methods and techniques employed in the presentation of data; and develop program policies and objectives.

RESEARCH STATISTICIAN VII

8B.812

Duties Summary:

Serves as staff assistant to the administrator of the State Health Research & Statistics Office in planning, developing, directing, coordinating and promoting research activities and the application of research findings to operational planning; serves as registrar to statewide vital statistics system; and performs other duties as required.

Distinguishing Characteristics:

The position in this class serves as chief staff assistant in the State's health research and statistics program involving vital statistics records and research, and other research studies and services for operating health programs, as well as providing data and other technical expertise to other agencies.

The position provides both administrative and technical assistance.

Examples of Duties:

Plans, develops and coordinates departmental statistical studies; assigns work to staff and provides direction as necessary; provides in-service training; provides technical assistance and consultation services to program administrators and other personnel engaged in research and survey projects; directs the conduct of subject matter general and specialized research and statistical studies; develops new and revised policy and procedural material on research and statistical matters for incorporation into the departmental operational manual; develops new statistical reporting systems for operating divisions and programs; directs and oversees an extensive health program of vital statistics registration and records; serves as liaison with other agencies to advise on technical problems, use of health research or other purposes; analyzes the effects of laws on study design and results; prepares estimates of manpower and budgetary requirements.

Knowledge and Abilities Required:

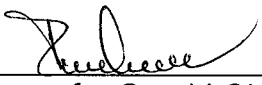
Knowledge of: Advanced research and statistical methods and techniques; departmental objectives and programs; sources of data; computer processes and capabilities; usefulness and applicability of statistical data in government and the community in relation to statistical and economic research; principles and practices of administration.

Ability to: Plan, organize, direct and coordinate research projects; recognize the limitations of data available at primary and secondary sources in the State and community; determine efficient methods of collecting, summarizing and publishing data for continuous statistical reports; evaluate the effectiveness of statistical programs of State agencies including the adequacy of data essential to economic goals and programs; analyze and interpret statistical data and prepare comprehensive reports; advise administrators and the general public on program activities; develop program policies and objectives.

Due to the transfer of authority to the Department of Education to administer its own Civil Service System pursuant to Act 51 Session Laws of Hawaii 2004, this is an adoption of the class specifications for the Executive Branch Civil Service classes RESEARCH STATISTICIANS I, II, III, IV, V, VI & VII by the Department of Education Civil Service system.

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for Gerald Okamoto
Assistant Superintendent
Office of Human Resources