

**RESEARCH SPECIALIST**

**Description of Work:** Positions in this banded class plan, develop, conduct and evaluate scientific research in a laboratory, clinic, field and/or teaching environment (hereafter referred to as “laboratory”). Employees in these positions understand the context and implications of the research in order to apply and interpret theoretical knowledge necessary to conduct research in one or more scientific disciplines. The range of duties includes, but is not limited to: project planning, experimental design, developing methodology, conducting procedures, modifying procedures as needed, data collection and analysis, laboratory management, project management, preparing publications and reports, and communication and instruction. Employees demonstrate and model effective mental concentration, visual attention and manipulative skills. Work may include the training and supervision of staff, students and others in performing specific techniques or phases of experiments.

<b>Competency</b>	<b>Definition</b>
Knowledge – Professional/Scientific	Achieves a high level of professional/scientific skill or knowledge in specific area(s) and keeps up with current developments and trends in area(s) of expertise. Knowledge of the scientific principles, methods and processes (technical and/or theoretical) used to conduct a systematic and objective inquiry including study design, methods of data collection and analysis, and interpreting and reporting results; ability to operate instruments and equipment; knowledge of related information technology.
Research Design	Identifies and develops research objectives, methods and quality control measures based on literature searches; plans methods and techniques to meet research objectives; may modify and/or refine procedures, methods and techniques as needed; identifies and plans for research project resources and methods of data collection.
Conducting Experiments/Procedures	Performs tests, procedures and experiments applying specialized skills, knowledge and equipment; modifies and refines techniques and procedures to meet research objectives; manages multiple, concurrent projects or a multi-faceted project.
Data Analysis	Performs statistical analysis; interprets and evaluates results; prepares reports and/or presentations; monitors and collects research data to assess accuracy, validity, and integrity.
Laboratory Management	Provides oversight of technical programs and administrative activities in a research setting - research laboratories and/or agricultural research stations including quality assurance and safety programs; coordinates and manages facilities, equipment, supplies and related resources; monitors environmental risks and quality control; understands and complies with safety standards to maintain a safe environment.
Communication	Clearly and concisely conveys information verbally and in written form; effectively presents ideas to individuals or groups to ensure that they understand the information and message. Presents research results and summaries; adheres to reporting requirements of research project(s); contributes to the writing of publications and reports.
Instruction	Instructs and trains staff, students, faculty and/or other clients in the performance of procedures and operation of equipment.

Note: Competency statements are progressive and not all competencies apply to every position/employee. Evaluate only those that apply. For positions with some supervision consider the highest level of professional work performed.

**Knowledge – Professional/Scientific**

Achieves a high level of professional/scientific skill or knowledge in specific area(s) and keeps up with current developments and trends in area(s) of expertise. Knowledge of the scientific principles, methods and processes (technical and/or theoretical) used to conduct a systematic and objective inquiry including study design, methods of data collection and analysis, and interpreting and reporting results; ability to operate instruments and equipment; knowledge of related information technology.

<b>Contributing</b>	<b>Journey</b>	<b>Advanced</b>
1. Understands research and regulatory standards to maintain a laboratory environment.	1. Responds to changing research conditions by modifying the research process.	1. Proposes alternative research methods, techniques and initiatives demonstrating knowledge of other scientific areas and related research.
2. Knowledge and ability to conduct scientific literature reviews where applicable.	2. Knowledge and ability to adapt work process and methods based on findings and literature review with limited supervision.	2. Knowledge and ability to independently adapt work process and methods based on findings and literature review; may contribute new knowledge and/or techniques.
3. Understands scientific principles to conduct research procedure in order to operate laboratory instruments and equipment.	3. Understands scientific principles to modify procedures in response to changing conditions; designs and/or operates highly-specialized instruments and/or equipment.	3. Demonstrates scientific knowledge and analytical skills to monitor, modify, and design the research process. Designs, modifies, and troubleshoots highly specialized equipment.

**Definitions:**

Process – work involving a number of steps and/or operations.

Procedure – method or manner chosen

## Research Design

Identifies and develops research objectives, methods and quality control measures based on literature searches; plans methods and techniques to meet research objectives; may modify and/or refine procedures, methods and techniques as needed; identifies and plans for research project resources and methods of data collection.

Contributing	Journey	Advanced
1. Searches literature demonstrating an understanding of scientific, experimental and/or research theory to assist in the design of methods, procedures and/or techniques.	1. Use research literature to compare techniques and/or recommend and propose design alternatives with approval by PI. Identify and determine methods, procedures, and techniques to support research design with limited supervision.	1. Independently expands scope of literature search to support and/or propose alternative experimental methods, procedures and/or techniques.
2. Identifies data to be collected and documented.	2. Identifies and recommends data collection methodology.	2. Collaborates with others to plan and design data collection, technology and analysis.*
3. Identifies resources needed to conduct experiments (e.g., equipment, materials).	3. Plans and documents how resource materials (e.g., equipment, materials) needed to conduct experiments can be acquired .	3. Plans, modifies, and adjusts resources needed to conduct experiments.
4. Monitors expenditures used to acquire resources for experiments	4. Prepares/assists in research project budget(s).	4. Gathers information to prepare budget and proposes estimates for acquisition of supplies and equipment.
5. Monitors and reports quality control measures.	5. Assists in designing quality control measures.	5. Plans and designs specific quality control measures and procedures as part of research protocol.
6. N/A	6. Assists in the development of research protocols.	6. Drafts research protocols.

\* For example, statistical analysis software.

**Conducting Experiments/Procedures**

Performs tests, procedures and experiments requiring specialized skills, knowledge and equipment; modifies and refines techniques and procedures to meet research objectives; manages multiple, concurrent projects or a multi-faceted project.

<b>Contributing</b>	<b>Journey</b>	<b>Advanced</b>
1. Conducts tests, experiments, and/or procedures following standard or detailed protocol; identifies and documents variations that may affect the validity of the experiment.	1. Identifies problems, troubleshoots and analyzes variations observed and reported in regular testing protocols; modifies, refines or adapts techniques and procedures; modifies and/or adjusts quality control measures.	1. Analyzes and resolves variations in complex tests, experiments and procedures; designs and implements modifications and changes to techniques, procedures and quality control measures.
.3. N/A	.3. Coordinates and/or conducts multiple, concurrent assignments or a multi-faceted project.	.3. Leads multiple, concurrent projects and/or multi-faceted projects; directs others in making modifications.
2. Masters basic proficiency of a specialized technique or procedure.	2. Serves as an expert in conducting a specialized technique(s) or procedure(s).	2. Serves as an expert in a specialized area of research to influence research conclusions.

**Definitions:**

Test – a procedure in which the outcome is measured under various conditions.

Procedure – a sequence of actions that collectively accomplishes some desired task.

Experiment – the test of a hypothesis under controlled conditions.

Technique – a way of using skills to carry out a scientific operation.

**Data Analysis**

Performs statistical analysis; interprets and evaluates results; prepares reports and/or presentations; monitors and collects research data to assess accuracy, validity, and integrity.

<b>Contributing</b>	<b>Journey</b>	<b>Advanced</b>
1. Collects data and monitors data quality and accuracy as required by research protocol.	1. Collects and analyzes data for accuracy, validity and integrity.	1. Defines standards for the collection of data; sets standards for accuracy, validity and integrity; leads others in analysis.
2. Maintains appropriate documentation of research results, as required by research protocol.	2. Monitors documentation of results; reviews and recognizes documentation which may lead to modification and adaptation of research methodologies; may collaborate with others.	2. Evaluates documentation of results; leads efforts to modify and adapt research methodologies in collaboration with others; ensures compliance with regulatory standards.
3. Recommends revisions to experimental methods based upon observations of the data.	3. Adapts and/or modifies experimental methods based upon interpretation of data.	3. Adapts experimental design based upon interpretation of data and/or literature review, in collaboration with others.

**Laboratory Management**

Provides oversight of technical programs and administrative activities in a research setting - research laboratories and/or agricultural research stations including quality assurance and safety programs; coordinates and manages facilities, equipment, supplies and related resources; monitors environmental risks and quality control; understands and complies with safety standards to maintain a safe environment.

<b>Contributing</b>	<b>Journey</b>	<b>Advanced</b>
1. Maintains laboratory resources including supplies, equipment and facilities.	1. Plans and monitors resources needed to operate the laboratory; maintains inventory control; coordinates space, field, equipment and/or facilities; may monitor expenditures.	1. Manages laboratory resources, may include budget and personnel; establishes priorities in the use of resources including space, field, equipment and/or facilities.
2. Understands and executes quality assurance.	2. Evaluates and modifies quality assurance procedures.	2. Manages quality assurance program.
3. Coordinates and trains others to ensure compliance with safety measures and guidelines.*	3. Manages compliance with safety measures and guidelines.*	3. Develops, reviews, and revises safety plans and training.*

\* such as hazardous waste/materials

**Communication**

Clearly and concisely conveys information verbally and in written form; effectively presents ideas to individuals or groups to ensure that they understand the information and message. Presents research results and summaries; adheres to reporting requirements of research project(s); contributes to the writing of publications and reports.

<b>Contributing</b>	<b>Journey</b>	<b>Advanced</b>
1. Communicates detailed outcomes and results of research.*	1. Leads exchange of research information through demonstration and instruction.	1. Leads, consults and makes recommendations in the area of research through effective communication about the research project(s).
2. .Contributes to presentations within the department.	2. Makes presentations within department and/or at professional conferences.	2. Serves as primary presenter within department and/or at professional conferences.
3. Collects information for grant writing and reporting.	3. Assists in grant writing and proposal development.	3. Collaborates in conception and design of research and in writing grants and proposals.
4. Assists in documentation of research findings; prepares reports.	4. Contributes to preparation of publications and/or reports.	4. Co-authors/authors manuscripts and publications

**Instruction**

Instructs and trains staff, students, faculty and/or others clients in performance of procedures and operation of equipment.

Contributing	Journey	Advanced
1. Trains others in laboratory techniques and the use of laboratory equipment.	1. Instructs others in the performance of complex tests and procedures and the proper use and care of specialized equipment. Applies knowledge of instructional research methodology. May instruct lab section of a course.	1. Instructs others in the operation of specialized equipment and/or research techniques and methodology. May have full responsibility for the lab section of a course.
2. Documents how to conduct procedures; reviews and maintains correct standard operations, procedures and protocols.	2. Documents experimental processes and results in reports and/or publications.	2. Collaborates with research staff and colleagues to validate and/or redirect research based on documented results.

\* Oral and/or written

**Training and Experience Guidelines:**

Combination of training and experience necessary to perform the work.

**Contributing:** 4 year degree; or an equivalent combination of training and/or related experience.

**Journey:** 4 year degree + 1 year of directly related experience; or an equivalent combination of training and/or related experience.

**Advanced:** 4 year degree + 3 years of directly related experience; or an equivalent combination of training and/or related experience.

**Special Note:** This is a generalized representation of positions in this class and is not intended to identify essential work functions per ADA. Examples of competencies are primarily those of the majority of positions in this class, but may not be applicable to all positions.