

CAREER GUIDE FOR NATURAL SCIENCES MANAGER

SOC: 11-9121

Pay Band(s): 5, 6 and 7 ([Salary Structure](#))

Standard Occupational Description: Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.

Natural Sciences Manager positions in the Commonwealth are assigned to the following Roles in the [Life and Physical Science Career Group](#):

[Scientist Manager I](#)

[Scientist Manager II](#)

[Scientist Manager III](#)

While Natural Sciences Managers within the Commonwealth are all located within the Life and Physical Science Career Group, individuals may want to pursue other opportunities within the Commonwealth depending upon individual training, education, knowledge, skills, abilities, and interests.

Other Career Group(s) that may be of interest are:

[General Administration](#)

[Education Administration](#)

[Program Administration](#)

SKILLS, KNOWLEDGE, ABILITIES AND TASKS

(Technical and Functional Expertise)

Skills

Note: *The technical and functional skills listed below are based on general occupational qualifications for Natural Sciences Managers commonly recognized by most employers. Typically, you will not be required to have all of the skills listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

1. Adjusting actions in relation to others' actions.
2. Understanding written sentences and paragraphs in work related documents.
3. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
4. Talking to others to convey information effectively.
5. Considering the relative costs and benefits of potential actions to choose the most appropriate one.
6. Managing one's own time and the time of others.
7. Communicating effectively in writing as appropriate for the needs of the audience.
8. Understanding the implications of new information for both current and future problem-solving and decision-making.

9. Motivating, developing, and directing people as they work, identifying the best people for the job.
10. Using scientific rules and methods to solve problems.

Knowledge

Note: *The technical and functional knowledge statements listed below are based on general occupational qualifications for Natural Sciences Managers commonly recognized by most employers. Typically, you will not be required to have all of the knowledge listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

The **Knowledge** of:

1. Business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
2. Arithmetic, algebra, geometry, calculus, statistics, and their applications.
3. Structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
4. Chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
5. Economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.
6. Laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.
7. Quality Assurance or techniques used to ensure a quality product.

Abilities

Note: *The technical and functional abilities listed below are based on general occupational qualifications for Natural Sciences Managers commonly recognized by most employers. Typically, you will not be required to have all of the abilities listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

The **Ability** to:

1. Listen to and understand information and ideas presented through spoken words and sentences.
2. Read and understand information and ideas presented in writing.
3. Communicate information and ideas in speaking so others will understand.
4. Communicate information and ideas in writing so others will understand.
5. Come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).
6. Add, subtract, multiply, or divide quickly and correctly.
7. Apply general rules to specific problems to produce answers that make sense.
8. Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
9. Speak clearly so others can understand you.
10. See details at close range (within a few feet of the observer).

Tasks

Note: The following is a list of sample tasks typically performed by Natural Sciences Managers. Employees in this occupation will not necessarily perform all of the tasks listed.

Tasks

1. Confer with scientists, engineers, regulators, and others, to plan and review projects, and to provide technical assistance.
2. Design and coordinate successive phases of problem analysis, solution proposals, and testing.
3. Determine scientific and technical goals within broad outlines provided by top management and make detailed plans to accomplish these goals.
4. Develop and implement policies, standards and procedures for the architectural, scientific and technical work performed, to ensure regulatory compliance and operations enhancement.
5. Plan and direct research, development, and production activities.
6. Prepare project proposals.
7. Advise and assist in obtaining patents or meeting other legal requirements.
8. Conduct own research in field of expertise.
9. Develop client relationships and communicate with clients to explain proposals, present research findings, establish specifications or discuss project status.
10. Develop innovative technology and train staff for its implementation.

INTERESTED?

Like people, occupations have traits or characteristics. These characteristics give important clues about the nature of the work and work environment, and give you an opportunity to match your own personal interests to a specific occupation. When you choose a job in an occupation that matches your own interests you have taken an important step in planning a successful and rewarding career.

The occupation of Natural Sciences Manager has **Investigative**, **Enterprising** and **Realistic** characteristics as described below:

Investigative — Investigative occupations frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.

Enterprising — Enterprising occupations frequently involve starting up and carrying out projects. These occupations can involve leading people and making many decisions. Sometimes they require risk taking and often deal with business.

Realistic — Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.

LICENSURE, REGISTRATION, OR CERTIFICATION REQUIREMENTS

Generally this is not required for Natural Sciences Manager positions in state government.

However for professional growth certification is encouraged.

Managers with the Commonwealth of Virginia are eligible for the Virginia Certified Manager Program offered by the Department of Human Resources. Web site is <http://www.dhrm.state.va.us/training/cpm/cpmhome.htm>. This certificate program offers practitioner-oriented course work that builds upon management training programs offered through agencies, colleges, and universities.

The Institute of Certified Professional Managers is a certifying organization and offers a management certification program. The Institute is located at James Madison University, Harrisonburg, Virginia. Web site is <http://cob.jmu.edu/icpm>. Management Skills is the theme of the program, which emphasizes the teaching and application of real-world, practical skills and techniques over theories, and critical-thinking skills over rote knowledge.

EDUCATIONAL, TRAINING, AND LEARNING OPPORTUNITIES

The Department of Labor provides the following information:

Natural sciences managers oversee the work of life and physical scientists, including agricultural scientists, chemists, biologists, geologists, medical scientists, and physicists. These managers direct research and development projects and coordinate activities such as testing, quality control, and production. They may work on basic research projects or on commercial activities. Science managers sometimes conduct their own research in addition to managing the work of others.

Strong technical knowledge is essential for natural sciences managers, who must understand and guide the work of their subordinates and explain the work in non-technical terms to senior management and potential customers. Therefore, these management positions usually require work experience and formal education similar to those of scientists, or mathematicians.

Many science managers begin their careers as scientists, such as chemists, biologists, geologists, or mathematicians. Most scientists or mathematicians engaged in basic research have a Ph.D.; some in applied research and other activities may have a bachelor's or master's degree. Science managers must be specialists in the work they supervise. In addition, employers prefer managers with good communication and administrative skills. Graduate programs allow scientists to augment their undergraduate training with instruction in other fields, such as management or computer technology. Given the rapid pace of scientific developments, science managers must continuously upgrade their knowledge.

The State Council of Higher Education lists several Virginia educational institutions offering programs in science: <http://research.schev.edu/>

COMMONWEALTH COMPETENCIES

Competencies are a set of identified behaviors, knowledge, skills, and abilities that directly and positively impact the success of employees and the organization. Competencies can be observed and measured. When consistently demonstrated, competencies make employees particularly effective in their work. Competencies help lay out a road map to career success. You can use the Commonwealth Competencies to help improve your individual performance by adopting behaviors that make high performing employees successful in their jobs. In this way, you can use the Commonwealth Competencies for your further professional development.

The Commonwealth Competencies are:

- 1. Technical and Functional Expertise
- 2. Understanding the Business
- 3. Achieving Results
- 4. Serving the Customer
- 5. Teamwork
- 6. Interpersonal and Communication Skills
- 7. Leadership and Personal Effectiveness

The above competencies may be applied to employees throughout the Commonwealth of Virginia. They can be rank-ordered by agencies and hiring managers to represent the needs of a specific job. The rank ordering will change depending upon the occupation, an organization's priorities, the actual job requirements, and the supervisor's preferences.

Career success is both about what you do (applying your technical knowledge, skills, and ability) and how you do it (the consistent behaviors you demonstrate and choose to use) while interacting and communicating with others. Hopefully, by studying the Commonwealth competencies, identifying your developmental opportunities, and working to refine your own competence, you can take charge of your career!

For additional information about the **Commonwealth Competencies** go to: http://jobs.state.va.us/cc_planningctr.htm. For the competencies, we first list the competencies and then define each. Finally, we list competency indicators; to describe what successful performance looks like.

COMMONWEALTH CAREER PATH

Career opportunities in the Commonwealth are not limited to moving “up” to the next highest role and pay band, changing positions, or to becoming a supervisor. That’s because most roles describe a broad group of occupationally related positions that perform a range of work that requires increased knowledge and skills. For that reason, Commonwealth roles describe the career paths within the same or higher-level role for the same or different Career Group. The broad salary range and the Commonwealth’s pay practices provide flexibility in recognizing career development and advancement. ([Salary Structure](#))

For example: **Natural Sciences Manager**

PAY BAND	PRACTITIONER ROLES

PAY BAND	MANAGER ROLES
5	Scientist Manager I
6	Scientist Manager II
7	Scientist Manager III

Sample Career Path

Scientist Manager I

The Scientist Manager I role provides career tracks for managers in a laboratory or scientific research setting. Employees plan, manage and evaluate the work of professional staff working in one or more disciplines; establish program goals; establish and monitor budgets; develop and implement technical methodologies, section objectives, policies and practices; allocate staff and resources; ensure compliance with government regulations, quality control standards and safety procedures; prepare research proposals; prepare technical reports and papers or develop grant contract proposals.

Scientist Manager II

The Scientist Manager II role provides career tracks for senior level to director level managers with responsibilities in a laboratory or scientific research setting. Employees have responsibility for an agency-wide laboratory operation; serve as assistant director of a statewide laboratory; or serve as a manager over multiple operations within a statewide laboratory. Some employees direct statewide scientific research operations or multidisciplinary research operations.

Scientist Manager III

The Scientist Manager III role provides career tracks for executives that serve as directors of scientific research centers responsible for diverse research programs or, for a statewide-consolidated scientific laboratory responsible for diverse testing, reporting and research programs. Employees direct statewide research programs and strategic research direction through subordinate managers. The results of which are shared statewide, nationally and/or internationally with research groups, agencies, businesses and associations. Employees may direct a statewide program that provides analytical support to local, state and federal human and animal health, law enforcement, consumer protection and environmental programs.

ADDITIONAL OCCUPATIONAL INFORMATION CAN BE FOUND AT:

O*NET (Occupational Information Network)

http://online.onetcenter.org/gen_search_page

Virginia Employment Commission

<http://www.alex.vec.state.va.us/>

Career One Stop

<http://www.careeronestop.org/>

Virginia Career Resource Network

<http://www.vacrn.net/>