



CURATOR

Also known as Archivist, Collections Manager, Conservator, Museum Manager

Curators are custodians and managers of a wealth of ecological information.

Curators collect and take care of specimens e.g. plant, insect, marine and terrestrial fauna. They work in herbaria, museums, national parks and botanical gardens. Collections are used for educational and recreational purposes. They are very valuable sources of information for research and managing conservation. They use sophisticated software and electronic databases to store and catalogue information which may also enable them to compare and exchange information with others.

Curators do a fair amount of field work but most time is spent in a herbarium.

Skills

Curators manage and maintain plant and animal collections and benefit from:

- Analytical and research skills
- Technical environmental aptitude
- Organisational and administrative ability
- Attention to detail
- Computer skills

Tasks

- Conduct research, record and store data
- Collect morphological, anatomical, genetic, ecological and conservation data
- Catalogue data using sophisticated software and electronic databases
- Develop systems to make this data available to stakeholder groups

Studies

BSc, but preferably a MSc or PhD with Botany and Zoology and some of the following subjects: Anthropology, Archaeology or Geography at all universities.

Employers

- Museums (e.g. Bayworld Museum, Iziko museum)
- Zoos (e.g. Johannesburg Zoo)
- Research Institutions (e.g. CSIR)
- Parastatals (e.g. SANBI)



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ECOLOGIST

Also known as Marine Ecologist, Biologist, Vegetation Ecologist, Biotechnician, Landscape Ecologist

South Africa's rich biodiversity makes it an ideal location for ecologists to explore natural assets. There are abundant species and habitats on which to focus ecological research.

Ecologists study the relationship between organisms and the environment. They usually specialise in a particular type of habitat, for example coastal areas or a specific vegetation type (fynbos, savannah) or study a specific animal or plant species in the environment or changing environment.

A fair amount of field work is required from Ecologists. They also spend time in the office developing computer models and preparing reports. Ecologists spend much time in a laboratory doing various tests, like water or soil sample testing.

Skills

Ecologists undertake research using scientific methodologies in the field and in laboratories and would benefit from:

- A methodical and systematic approach to working
- Data collection and interpretation skills
- Knowledge of environmental policies and legislation, trends and patterns
- Good presentation and report writing skills
- Project management skills
- Computer Literacy
- GIS skills

Tasks

- Conduct research outdoors and in the laboratory
- Use research findings and ecological knowledge to comment on environmental impact reports and management plans
- Manage ecological resources by monitoring, mapping and planning to restore ecosystems
- Develop models to predict future ecological changes and challenges to be considered in conservation planning
- Write research reports
- Guest lecturing

Studies

BSc specialising in Ecology Botany, Zoology, Biology, Geography at all universities in SA.

Employers

- Private nature reserves (e.g. Grootbos Private Nature Reserve)
- Provincial environmental agencies (e.g. EKZN Wildlife, ECPTA, DAEA, CapeNature)
- Research Institutions (e.g. CSIR, CACE, SAIAB)
- Parastatals (e.g. SANParks, SANBI)



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GENETICIST

*Also known as Microbiologists,
Biologists and Biotechnicians*

Geneticists study genetic functioning to understand the production of cells and organisms and hereditary traits and mutations through generations.

Geneticists study genes and hereditary variation of living things in evolving natural environments, including bacteria, plants and animals. Plant Geneticists for example use tools and techniques to reduce pollutants such as pesticides and insecticides contributing to environmental degradation.

Geneticists typically work in a laboratory, although they could spend time in the field.

Skills

Geneticists use scientific research and analytic methods to study genetic information found in DNA and would benefit from:

- A keen interest in living organisms
- A methodical and systematic approach to working
- Data collection and interpretation skills
- Good presentation and report writing skills
- An ability to function in a group and work independently
- Project management skills
- Computer Literacy

Tasks

Geneticists collect DNA samples of plants, animals and micro-organisms and conduct genetic biochemical analysis. They write scientific journal papers and reports. They often have to present their findings to key stakeholders.

Studies

Begin with a BSc or National Diploma in Biotechnology, Botany, Zoology. The minimum requirements for working as a Geneticist is an MSc and ideally a PhD. These courses are offered at all traditional universities.

Employers

- Universities
- Research Institutions (e.g. ARC, CSIR)
- Parastatals (e.g. SANBI, SANParks)



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NATURAL SCIENCE RESEARCHER

*Also known as Zoologist, Botanist,
Ecologist, Geneticist*

Natural Science Researchers specialise in the study of animals (Zoologists) or plants (Botanists) or the interactions between them (Ecologists) in different ecosystems, for example coastal dunes, rivers, forests or deserts. Scientists are usually very passionate about their work particularly when they develop an extreme interest in particular species, for example the fern, frogs or fruit flies or ecosystems, such as rocky shores, savannah grasslands, etc.

Natural Science Researchers engage with systematic research using scientific methodologies to gain comprehensive understandings of natural environments. Natural Science Researchers often publish research and scientific papers and use their findings to inform the management of natural areas, policy-making and governance of natural areas.

Some research is conducted in the laboratory (for example in aquariums or in test tubes), but most research is conducted outdoors. This might include research from a boat, research on remote islands, in nature reserves or in city parks and even in canals. To some extent researchers can choose whether they spend time in rugged outdoor conditions or carry out more indoor work.

Skills

Natural Science Researchers use scientific methodologies in the field and laboratory to explore specific details of natural assets and phenomena. They benefit from:

- An understanding of scientific research methodologies
- Working with figures and information technology
- Working with technical apparatus
- Precision, thorough with detail and accuracy of information
- Analytical and creative skills
- Good computer skills to capture, manage, analyse and present data
- Communication skills both verbally and in writing

Tasks

- Plan and conduct experiments to investigate and analyse natural phenomena
- Collect data to develop theories to explain phenomena
- Develop innovative recommendations to improve the management of natural assets
- Write up results in reports and/or journal papers or books
- Maintain accurate records of results
- Collaborate with other scientists, sometimes including scientists from other disciplines
- Carry out fieldwork (collecting samples and monitoring environment)
- Guest lecturing

Studies

BSc degree in a Science Faculty at all universities in South Africa.

Employers

- Consultancy (e.g. CapFish)
- NGO's (e.g. Flower Valley Trust)
- Research Institutions (e.g. HSRC, CSIR)



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TAXONOMIST

Also known as Biological Scientist, Laboratory Technologist, Microbiologist, and Molecular Biologist.

Taxonomy involves discovering, naming, describing and classifying living organisms and fossils.

Taxonomists collect plants, animals, fungi or micro-organisms, study them and group them according to patterns of similarity and variation.

Taxonomists spend much of their time in the field collecting specimens and in museums and herbaria studying preserved specimens. They could also do some work in a laboratory or office environment.

Skills

Taxonomists are primarily researchers who use scientific methodologies and would benefit from:

- A keen interest in Life Sciences
- Excellent skills for research and problem-solving
- Good capacity to observe with great attention to detail
- Comfortable with working outdoors and in a laboratory
- Ability to function with others and also work well independently
- Good writing skills
- Strong interpersonal skills

Tasks

Taxonomists collect specimens or study preserved specimens in museums or herbaria. They analyse living organisms and materials and record these findings. Microscopes, digital cameras and imaging systems, computers and databases and hard copy resources are the tools used in research. An important part of the Taxonomists job is writing up research findings for publication.

Studies

BSc in Zoology, Entomology, Botany, Biology, Microbiology or a related field of study. Additional courses that support a career in Taxonomy are Mathematics and Statistics.

All universities offer BSc degrees.

Employers

- Environmental impact assessment companies that do biodiversity surveys (e.g. NCC- Environmental Services)
- Parastatals (e.g. SANBI)
- Museum (e.g. Iziko Museum)



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