



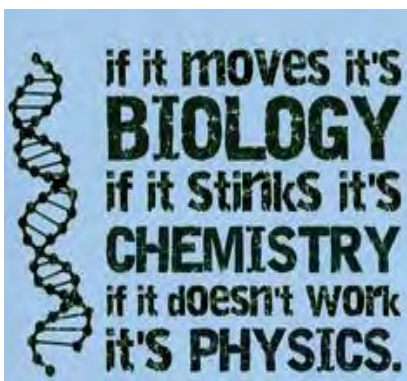
TUCSIN 2015

Career Focus

BIOLOGIST

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Dear Students

Biology is one of the broadest and most important subjects in the world today. Put simply, biology is the study of life. Pursuing a career in biology can be rewarding and exciting. Studying biology teaches us to ask questions, make observations, evaluate evidence, and solve problems. In this weeks edition we give you information on the different fields you can specialize in biology. We also take a look at the characteristics of a biologist, the educational requirements and tertiary education options. To end this edition we have some interesting facts about Biology.

– Martina

Becoming a Biologist :

Biologists study and do research on the origin, relationships, development, derivation, anatomy, functions, heredity and other basic characteristics of plants, animals and microbiological life.

They usually specialize in research or the development of specific plants, animals or aspects of biology. The nature of their work depends on the field chosen. Below find a few examples of professions in Biology:

- **Botany: Botanists** are scientists who study the origin, development, physiology, reproduction, distribution, interdependence, classification and other aspects of plants. They can specialize in plant morphology, plant ecology, plant genetics, to name but a few.
- **Zoology: Zoologists** study several aspects of animals, namely the origin, behaviour and processes of life. Fields of specialization include: morphology, taxonomy, genetics, zoogeographic, embryology, behavioural studies and aquaculture.
- **Entomology: Entomologists** study all aspects connected with insects. Extensive study and research can be done in the fields of taxonomy, behaviour, insect pest control, etc.
- **Biochemistry: Biochemists** examine the structure and functions of chemical compounds in all living organisms such as plants, animals, insects, viruses and microbes. They study aspects such as the metabolism, inter- relationships between structures, etc.

All such studies help to make advancements in fields such as medicine, industry and agriculture, and can be broken down into various fields of study:

- ◇ **Aquatic Biologists** study plants and animals that live in water
- ◇ **Physiologists** study the functions of living organisms and their parts
- ◇ **Cytologists** study plant and animal cells
- ◇ **Anatomists** study the bodies of animals, from organs and tissues to cell structures
- ◇ **Mycologists (Microbiologist)** look into parasitic, poisonous and edible fungi, such as mushrooms and yeast.
- ◇ **Nematologists** study nematodes, which are parasitic to plants, attack insects and transmit diseases, to find ways to control these pests
- ◇ **Geneticists** examine hereditary factors in plants and animals

CHARACTERISTICS OF A BIOLOGIST

In order for it to be more likely that a biologist excels in their job role, there are many different positive traits which the individual in this position should possess.

The first trait is an **analytical mind**. Biologists spend much of their day analyzing research, subjects and results so it is important for the biologist to have an analytical mind as this will make the job much easier for the individual to complete on a daily basis.

One who is a biologist should also have a **scientific mind**. As biology is an in-depth science, it is important that one who takes on the role of a biologist has a scientific mind and outlook overall. This will make the tasks able to be completed much more quickly and efficiently.

Biologists should also love what they do on a day-to-day basis. Since a passion for one's job will often mean that the individual completing the job is happy to be there day in and day out, **having a passion and genuine love for biology** is another positive trait which the biologist should possess.

Preciseness is an additional beneficial factor which all biologists and scientists in general, should possess as biology is a precise field. It is important that all of the figures are exact in nature and precise. This will equate with exact results which provide the biologist and others with a detailed and precise picture regarding the biological survey, experiment or research.

Another good trait for biologists to have is that of **adequate public speaking skills**. Some individuals may think that biologists spend their days behind a microscope and off on their own but this is not the case. Biologists will have to prepare reports and findings and then detail those findings to the general public and members of the scientific community. For this reason, biologists need to have persuasive public speaking skills and be comfortable speaking to the public on a variety of matters and issues.

Biologists have an important role to fulfill in today's society. They do important basic and applied research in the fields of ecology, evolution, medicine, agriculture, forestry and conservation. No matter what type of biologist an individual may be, they wear many different hats on a daily basis as they have many roles to fulfill. If a biologist is an individual who has a wonderful analytical mind, a true passion for biology and science and feels comfortable dealing with the public, they are sure to do a great job pursuing their profession.



REQUIREMENTS & TRAINING

SECONDARY EDUCATION

An above average pass on **HIGCSE/NSSCH** Grade 12, or equivalent qualification, with matriculation exemption is required to study at a South African university. UNAM requires a **HIGCSE/NSSCH/IGCSE/ NSSCO** Grade 12, or equivalent qualification, with at least a C-symbol in Mathematics and a minimum of 25 points on the **UNAM** point evaluation scale.

COMPULSORY SUBJECTS

Mathematics on HIGCSE level (South Africa)

Mathematics with at least a C-symbol on IGCSE level (UNAM)

RECOMMENDED SUBJECTS

Biology and Physical Science (South Africa)

TERTIARY

Most South African universities offer a **BSc.** degree in Biology with Botany and/or Zoology as major (s).

Degree: A BSc degree takes 3 years' full-time or 4 years' part-time study and can be obtained at any South African university. Prospective biologists are advised to obtain postgraduate qualifications in the fields in which they wish to specialize. At some universities a four-year BSc (Agric) course can be followed by those interested in the agricultural application of biology.

Diploma: Various universities of technology offer related biological science courses, e.g. DUT, TUT. A N.Dip. can be obtained in any one of the following fields: Medical Technology, Veterinary Technology, Food Technology, Clinical Technology, Nature Conservation, Microbiology and there are several diplomas offered in Agriculture.

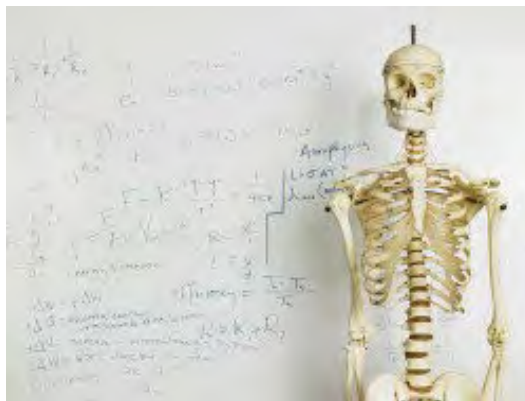
The University of Namibia (UNAM) offers a related BSc. degree with Biology as a major subject

PERSONALITY

The prospective biologist should be an observant, and an analytic all-minded person, with special interest in nature, and have an enquiring mind and the ability to work accurately.

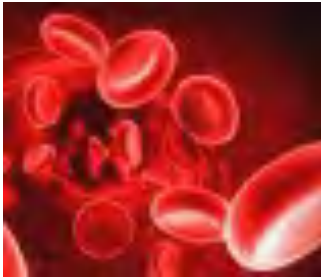
WORK OPPORTUNITIES

Opportunities exist at academic institutions and the Ministries of Environment and Tourism, Agriculture, Water and Rural Development, Fisheries and Marine Resources and Health and Social Services, as well as nature conservation bodies.



FOOD FOR THOUGHT

- ◇ The first person to see a live cell with a microscope was Antonie van Leeuwenhoek, in 1674.
- ◇ Moulds, yeasts and mushrooms are types of fungus.
- ◇ Endangered species are those that are in danger of being completely wiped out, they include blue whales, tigers and pandas. Without protection these species may eventually become extinct.
- ◇ Born on July 5th 1996, Dolly the sheep was the first mammal to be cloned from an adult cell.
- ◇ When the DNA of an organism changes and results in a new trait (characteristic) it is known as mutation.
- ◇ French chemist and microbiologist Louis Pasteur was well known for inventing a process to stop various foods and liquids making people sick. Called Pasteurization, it reduces the amount of microorganisms that could lead to disease without having a noticeable effect on taste and quality in a way which methods such as sterilization might.



A **red blood cell** takes 20 seconds to circulate around the human body.

Rafflesia Arnoldii is the largest flower in world, and can grow as big as an umbrella.



The largest frog in the world is **The Goliath Frog** of Gabon in West Africa and can grow as big as 33 cm long and up to 3 kg heavy.

A chicken egg is **one giant cell**.



One chicken egg is about 1000 times larger than the average cell in your body.

Reference: Min of Labour & Social Welfare - Careers in Namibia 2005/2006

<http://www.exforsys.com/career-center/career-tracks/the-role-of-a-biologist.html>

<http://www.sciencekids.co.nz/sciencefacts/biology.html>

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