

# Career Focus - GEOLOGIST

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## TUCSIN Alumni 2013

### Inside this issue:

What is a Geologist	1
Education and Career path	2
TUCSIN AA: Geologist Professionals Mr Alfeus Shekunyenge & others	3
Where to study Geological Science	3 4
TUCSIN AA Contact information	4



### What is a Geologist?

Geology is the study of the Earth, the materials of which it is made, the structure of those materials, and the processes acting upon them. It includes the study of organisms that have inhabited our planet. An important part of geology is the study of how Earth's materials, structures, processes and organisms have changed over time.

#### What Does a Geologist Do?

Geologists work to understand the history of our planet. The better they can understand Earth's history the better they can foresee how events and processes of the past might influence the future. Here are some examples:

**Geologists study earth processes:** Many processes such as landslides, earthquakes, floods and volcanic eruptions can be hazardous to people. Geologists work to understand these processes well enough to avoid building important structures where they might be damaged. If geologists can prepare maps of areas that have flooded in the past they can prepare maps of areas that might be flooded in the future. These maps can be used to guide the development of communities and determine where flood protection or flood insurance is needed.

**Geologists study earth materials:** People use oil that is produced from wells, metals that are produced from mines, and water that has been drawn from streams or from underground. Geologists conduct studies that locate rocks that contain important metals, plan the mines that produce them and the methods used to remove the metals from the rocks. They do similar work to locate and produce oil, natural gas and ground water.

**Geologists study earth history:** Today we are concerned about climate change. Many geologists are working to learn about the past climates of earth and how they have changed across time. This historical geology news information is valuable to understand how our current climate is changing and what the results might be.



**Climate change endangers our life! Climate change is real! The science of climate change is sound. All citizens on Earth must act! Get involved!**

## GEOLOGY Education and Career Paths

The broad areas of specialization within this field include: earth material; earth processes and earth history. The sub-specialities include: economic geology, mineralogy, geochemistry, geophysics, palaeontology, marine geology, mineral economics, engineering geology and environmental planning.

**General geologists** can specialize in various fields of application, of which only a few are discussed here:

Basic mapping is the drawing of a map on which geological information such as the distribution of different rocks is shown. This is one of the most important tasks of geologists.

**Economic geology studies** the deposit of economic minerals and the processes leading to their formation.

**Environmental geology studies** recent sediments deposited in river valleys, on beaches and in the oceans, in order to acquire information on aspects such as climatic changes, erosion of coastlines and the influence of human activities on the environment.

**Engineering geologists** study the physical and chemical properties of rocks and soil in order to ensure that dams, road, tunnels and buildings are built at the most suitable sites and in the most cost-effective manner. They also study materials used in road construction.

**Geohydrologists** study the water-storing capacity of various geological formations and the flow of groundwater in these formations. The development of cavities in rocks through cracks and faults as well as the chemical solution of rocks are also studied by geohydrologists. Post-graduate study and specialization at an honours degree level is essential for a career as geohydrologist.

**Palaeontologists** study fossils to make deductions concerning the climate that prevailed during deposition and the environment where the organisms occurred. This information is used amongst other things, to understand the origin and formation of certain minerals in sedimentary rocks and to find further resources. The study of fossils also contributes to our knowledge of factors that led to the extinction of species and the origin of new species.

**Geophysicists** make geophysical measurements to determine the distribution of rocks underneath the soil. They also try to determine the deep-seated structure of the earth's crust as well as its physical qualities.

Geologists work in a variety of settings. They may work outdoors at a site under investigation, with conditions varying from sub-zero temperatures to the scorching heat in a desert. In addition, they may work indoors in laboratories, offices and classrooms.

### Requirements

A geologist should be/have:

- curious and imaginative
- observant, responsible and objective
- able to visualize things three-dimensionally
- problem-solving skills
- enjoy working with others
- flexible and adapt easily to new situations
- able to communicate clearly in writing and in speech
- enjoy travelling and nature
- prepared to work out in the field
- good health and stamina

### School Subjects

National Senior Certificate meeting degree requirements for a degree course  
National Senior Certificate meeting diploma requirements for a diploma course

Each institution will have its own minimum entry requirements.

**Compulsory Subjects:** Mathematics, Physical Sciences

**Recommended Subjects:** Life Sciences, Geography, Economics, Information Technology

### **Training**

Degree: BSc with Geology as a major - RU, US, UJ, UP, UFH, UFS, NWU, UV; Geological Science - UKZN, UCT or Geoscience - Wits and NMMU; a second major in Chemistry, Physics or Mathematics is recommended. Computer Science and Statistics are also useful majors with Geology because of the rapidly growing application of these fields. Some universities specialise at the BSc (Hons) level in subjects such as Geochemistry, Geohydrology, Geophysics, Sedimentology or Engineering Geology.

Diploma: N.Dip: Economic Geology or Geotechnology

Postgraduate study (for masters and doctors degrees) is possible at most South African universities.

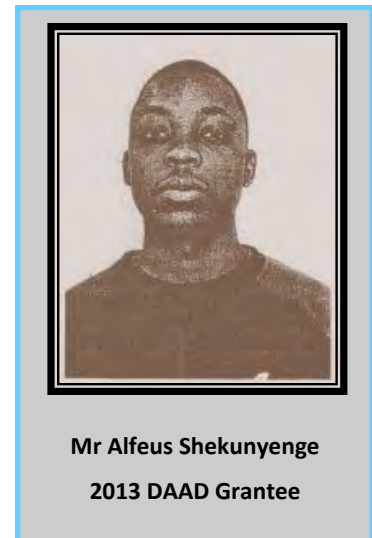
Those who study at universities of technology register as geotechnologists and work closely with geologists in various fields.



## The following proud alumni are examples of Geology

**Alfeus Shekunyenge** completed his undergraduate studies as well as his **Hon Degree in Environmental Biology & Geology** from the University of Namibia. Shortly thereafter he was a student Researcher at the Summer Land Care Programme (SLCP) as well as UNDP, where he assisted the programme officers with administrative and logical support. He is currently **studying MSc Ecological Mining Restoration at the University of Namibia**.

**Mr Shekunyenge** currently holds a DAAD scholarship doing his MSc Ecological Mining Restoration at the Univ of Namibia



**Other Geology science related professionals that Graduated or received funding with a DAAD Scholarship:**

- Helmuth Garoeb— Geologist
- Edwin Goagoseb— Geologist
- Kaunding Idalina—Geologist

## Where to study Geology



### UNIVERSITY OF NAMIBIA - DEPARTMENT OF GEOLOGY

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The B.Sc. Geology Single Major qualification is equivalent to an Honours degree that allows graduates to enter a professional career.

Geology is a professional career, where graduates become members of the professional organizations in the countries that they will be employed. As such the standard of the graduates are expected to meet the high standards in industry. This requires that students participate in field trips without exception. Practical competences will be learned and sharpened in the field. The practical competences of the graduates are highly valued, and therefore we expect all our students to take a keen interest in the field trip aspect of the course. In their final year, geology students also conduct research as part of the new honours equivalent geology single major BSc degree programme. This research work develops skills in scientific writing, solving of geological problems and academic communication.

To register for the B.Sc. Geology Degree, a candidate must hold a valid NSSC-O or NSSC-A certificate or equivalent with passes in at least five subjects which add up to 25 points, calculated using the UNAM specified scale. In addition to the above requirements, the candidate must have at least a 'C' symbol in English and in Mathematics on NSSC or equivalent qualification.

## Other Institutions

### UNIVERSITY CAPE TOWN - DEPARTMENT OF GEOLOGICAL SCIENCE

The department of Geological Sciences offers a comprehensive undergraduate curriculum in the Geological Sciences including an honours program.

#### BSc and BSc Honours in Geology

Our BSc degree includes three years of coursework in geology as well as companion fields. It is common for our majors to double-major in Oceanography, Chemistry or Geography (EGS). The major includes a field course which runs during vacations and weekends during the 2nd and 3rd year. You can see some of the field areas in our [Photo Galleries](#). Admittance to the BSc program requires adequate preparation in matric for maths and physical science. See the [UCT Handbook](#) for the most up-to-date requirements.

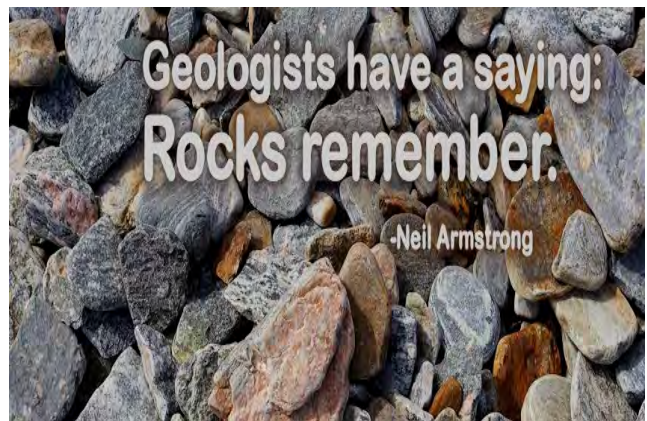
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References : <http://www.uct.ac.za>

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