

Career Profile: Geologist

Geology is the study of the earth's crust and its rock formations. It includes classifying and mapping of the composition and distribution of mineral deposits contained in the earth's formations. Geologists in the mining industry apply this knowledge to find additional mineral resources and to upgrade existing resources.

There are two broad categories of geologist in mining, exploration and mining geologists:

- Exploration geologists, as the name suggests, search for and evaluate new ore deposits, using techniques such as remote sensing, photo geology and geological mapping, geophysics and geochemistry. When a mineral deposit is located, the grade and size of the deposit have to be defined and quantified. Borehole drilling and logging are methods of gathering and analyzing the data to establish whether the ore body is large enough to make mining economically viable.
- Mining geologists run geological departments on mines to establish the basic geological and structural properties of the ore body at the mine. They ensure that the minerals are extracted from the deposit efficiently for maximum profit. To do so they use surface and underground mapping in conjunction with logging and sample analysis.

Education Requirements

National Senior Certificate (NSC)

For a career in mining geology students are advised to select Science and Mathematics and to add to this a selection from the designated subjects. These are subjects that are particularly suitable for tertiary study.

Bachelor Degree

Bachelor of Science (Geology) – (3 years)

A three year degree programme in Geology. You could consider an Honours degree as a follow up with emphasis on mining.

Offered at:

- [University of Johannesburg](http://www.uj.ac.za/Default.aspx?alias=www.uj.ac.za/geology)¹ (Department of Geology)
- [University of Pretoria](http://web.up.ac.za/default.asp?ipkCategoryID=2048)² (Department of Geology)

¹ <http://www.uj.ac.za/Default.aspx?alias=www.uj.ac.za/geology>

² <http://web.up.ac.za/default.asp?ipkCategoryID=2048>

- [University of the Witwatersrand](#)³ (School of Mining Engineering)

Students who prefer a more practical approach can enrol for programmes to qualify in retailing at BTechnology and Diploma levels. Specializations are offered in these programmes.

National Diploma / BTech

The **National Diploma** is a three year course which includes guided practical experience. The diploma is a pre-requisite for admission to a **Bachelor of Technology - BTech**.

Offered at:

- [Tshwane University of Technology](#)⁴ (Department of Environmental, Water and Earth Sciences)
- [University of Johannesburg](#)⁵ (Department of Geology)
- [UNISA](#)⁶ (College of Science, Engineering and Technology)

Specializations offered:

There are some National Diplomas and BTech degrees to consider.

Tshwane University of Technology

National Diploma: Geology

BTech: Geology

University of Johannesburg

National Diploma: Mining engineering

BTech: Mining engineering

UNISA

National Diploma: Mining engineering

Admission requirements

As admission requirements vary from one institution to another, find out what the specific requirements are by checking on the website and contacting the university if you have any queries.

³ <http://web.wits.ac.za/Academic/EBE/MiningEng/>

⁴ <http://www.tut.ac.za/Students/facultiesdepartments/science/departments/environscience/Pages/default.aspx>

⁵ <http://www.uj.ac.za/Default.aspx?alias=www.uj.ac.za/geology>

⁶ http://brochure.unisa.ac.za/brochure/showprev.aspx?d=l_4_23&f=p_NDMIN

Possible Employers

- [Anglo American Corporation Limited](#)⁷
- [AngloGold Ashanti](#)⁸
- [Anglo Platinum](#)⁹
- [BHP Billiton](#)¹⁰
- [De Beers Consolidated Mines](#)¹¹
- [Durban Roodepoort Deep](#)¹²
- [Gold Fields Limited](#)¹³
- [Harmony Gold](#)¹⁴
- [Impala Platinum Limited](#)¹⁵
- [Ingwe Coal Corporation Ltd](#)¹⁶

Find out more

Find out more about geology in mining and careers for geologists in the mining industry:

- [Professor Kim Hein](#)¹⁷ of the Witwatersrand School of Geosciences and Mining Geology expresses some interesting ideas on the current state of affairs.

⁷ <http://www.angloamerican.co.uk/>

⁸ <http://www.anglogold.com/default.htm>

⁹ <http://www.angloplatinum.com/>

¹⁰ <http://www.bhpbilliton.co.za/bb/home.jsp>

¹¹ <http://www.debeersgroup.com/Inside-De-Beers/Family-of-Companies/De-Beers-Consolidated-Mines/>

¹² <http://www.drd.co.za/>

¹³ <http://www.goldfields.co.za/>

¹⁴ <http://www.harmony.co.za/>

¹⁵ <http://www.implats.co.za/business/impala.asp>

¹⁶ <http://www.mbendi.com/orgs/cb23.htm>

¹⁷ http://www.miningweekly.com/article.php?a_id=119902

Are you suited to this career?

This quick quiz can help you to identify whether you are suited for this occupation.

Quiz	Yes	No
Are you interested in the geological structure of the earth?		
Are you interested in an occupation in which you spend a fair amount of time working out of doors?		
Are you able to stick at tasks until completed?		
Are you well organized and do you work in a systematic way?		
Are you able to communicate well orally and in writing?		
Are you interested in mining?		
Are you a keen observer?		
Do you have an inquisitive mind and enjoy analyzing things?		
Are you able to work well with others?		
Do the inventions of modern technology interest you?		

If you have mainly yes answers it may be an indication that this is an occupation to consider.