

African Mineral Resources: the Science and Politics of Sustainable Extraction of Mineral Resources (I002408)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0

Study time 150 h

Course offerings in academic year 2023-2024

A (semester 2)

English

Gent

Lecturers in academic year 2023-2024

Manzi, Musa

UPPSAL01 lecturer-in-charge

Offered in the following programmes in 2023-2024

[International Master of Science in Sustainable and Innovative Natural Resource Management](#)

crdts

5

offering

A

Teaching languages

English

Keywords

Position of the course

Contents

Future availability of minerals and expected demand trends with respect to economic development. Projections of global demand and supply of minerals and metals over the next century. The genesis of African ore bodies and great mineral fields with emphasis on stratigraphy, tectonics, site classification, depth, and other geoscientific and technical parameters. Deposits of resources such as chrome, copper, diamonds, gold, iron, manganese, platinum group elements, uranium, rare earth elements, and vanadium. Fossil fuels and energy minerals.

Geoscientific exploration of primarily Sub-Saharan deposits and suitable explorations strategies for currently under-explored regions within Africa. Economic geology and feasibility of exploitation. Current issues related to natural resource exploitation such as illegal mining, smuggling, mining rights, worker safety, and other socio-political issues. Development of mining policies and the connection between mining and economy and the globalized market in various countries. Environmental issues like waste rock management, tailings, acid mine drainage, air and water pollution, greenhouse gas emissions, and other local and global impacts from mining operations. The course will make extensive use of case histories.

Initial competences

90 credits in science/engineering (physics, chemistry, biology, mathematics, earth science, computer science, material science), including 15 credits in mathematics or physics and 10 credits in chemistry. Proficiency in English equivalent to the Swedish upper secondary course English 6.

Final competences

1 On completion of the course the student shall be able to:

critically assess and describe Africa's major mineral provinces and resources, their properties and suitability for exploitation

2 provide informed insight and proficient discussion around exploration and

- exploitation strategies for primarily Sub-Saharan resources
- 3 account for management and awareness of social challenges of sustainable mining in Africa
- 4 critically evaluate potential environmental hazards and suitable mitigation strategies

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture, Practical

Extra information on the teaching methods

Lectures, seminars, case-based learning and practical exercises

Learning materials and price

References

The Future Availability of Natural Resources: a new paradigm for global resource availability, World Economic Forum, 2014
The great mineral fields of Africa : Special issue for the 35 IGC, Cape Town, South Africa 27 August - 4 September 2016, Beijing: International Union of Geological Sciences, 2016
Geological Atlas of Africa : With Notes on Stratigraphy, Tectonics, Economic Geology, Geohazards, Geosites and Geoscientific Education of Each Country Berlin, Heidelberg: Springer-Verlag Berlin Heidelberg, 2008.

Course content-related study coaching

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment, Participation, Written assessment, Assignment

Examination methods in case of periodic assessment during the second examination period

Oral assessment, Participation, Written assessment, Assignment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Individual project report and oral presentation (2 hp), participation in group work and seminars (1 hp), written examination (2 hp).
If there are special reasons for doing so, an examiner may make an exception from the method of assessment indicated and allow a student to be assessed by another method. An example of special reasons might be a certificate regarding special pedagogical support from the disability coordinator of the university.

Calculation of the examination mark