Palaeontology
an essential part of education in modern geosciences
at Freiberg University

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founded 1765
motivation of research:

regional and trans-regional stratigraphic and facies correlations
reconstruction of palecological architectures
reconstruction of complex habitat-depositional-realm relations
recognition of palaeogeographic, climatic, tectonic, ... processes
decoding palaeobiological systems

motivation of education:

very close interfingering of palaeontology and sedimentology

teaching of palaeontological procedures and techniques for geologists and related workers

education of palaeontologists for industry and institutions

education of academics in palaeontology for universities and research centers

Palaeontology at Freiberg University
modern education & high level basic research
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• **Cooperation & partnerships with about 20 international universities**
  mostly Europe, Middle East, NW Africa, N America

• **Close co-work with institutions and companies**
  geological surveys, oil companies, engineering companies, museums, government, …

• **Main topics of cooperation**
  stratigraphic definition/subdivision/correlation, environment characterisation, facies analysis

• **Stratigraphic focus of research**
  early and late Palaeozoic,
  mainly Permo-Carboniferous & Cambrian

• **Activities in the Cenozoic and Mesozoic**
Faculties of the University

Mathematics and Computer Sciences

Chemistry and Physics

Geosciences, Geoengineering and Mining

Engineering, Process Technology & Energetics

Material Sciences and Technology

Economic Sciences
Palaeontology in the Geological Institute

- **Palaeontological collections**
  stratigraphy, systematic palaeontology, petrology, training collections

- **Modern laboratories**
  palaeontological, mechanical & micropalaeontological preparation, image analysis

- **Electron / luminescence / light microscopy**
  SEM lab, microscopy lab
The Palaeontology Department

- one professor of palaeontology (head)
- one assistant professor
- guest research scientists (currently 2)
- associate lecturers (currently 2)
- phd students (currently 8 from 3 countries)
- master students (about 5 to 10 per year)
- student assistants (about 5)

**sum**: about 25 persons

vice-presidentship of the *Palaeontological Society of Germany*

voting members in international & national stratigraphic commissions
Degrees

- **Bachelor (6 semesters)**
  *Bachelor of Science*
  „Geology/Mineralogy“

- **Master (4 semesters)**
  *Master of Geosciences*
  specialisation „Palaeontology/Stratigraphy“
Palaeontology at Freiberg University

Bachelor of Science
“Geology/Mineralogy”

palaeontological contents in BSc education:

1. course “Basic Palaeontology”
2. course “Basic Micropalaeontology”

3. element of the course “Evolution of System Earth”
4. element of the course “Basic Geosciences”

5. several field short courses (2 days each)
6. one 2-weeks field training course
Palaeontology at Freiberg University

palaeontological contents in BSc education:

1. course “Basic Palaeontology”
   - taphonomy (bridging to sedimentology)
   - invertebrates (geologically important groups)
   - philosophy is: palaeontology as tool for geologists

2. course “Basic Micropalaeontology”
   - evolution of the “micro-world” & global interactions
   - microfossils as paleocological/facies indicators
   - focus on applied micropalaeontology
   - use of microfossils in
     - hydrocarbon industry, sedimentology,
     - environmental monitoring,
     - geoarchaeology, tectonics
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palaeontological contents in BSc education:

5. field short courses (2 days each)

• stratigraphic & evolutionary aspects
• marine and continental biotopes
• always in combination with aspects of sedimentology, regional geology, palaeogeography and climate evolution

6. two-weeks field training course

• “Sedimentation Processes and Facies Patterns”
• geological mapping course
“Palaeontology/Stratigraphy” specialisation within the “Master of Geosciences” programme

Palaeontological contents in MSc education:

1. complex “Evolution of the Organisms”
2. complex “Applied Palaeontology, Stratigraphy & Palecology”
3. training course “Preparation Techniques in Geosciences”
4. field courses in “Applied Palaeontology”
Palaeontology at Freiberg University

**palaeontological contents in MSc education:**

1. **complex “Evolution of the Organisms”**
   - course “Basics of Palaeobotany” (incl. field short course)
   - course “Geobiology”
   - course “Palaeontology of Vertebrates”

2. **complex “Applied Palaeontology, Stratigraphy & Palecology”**
   - course “Applied Palaeontology & Stratigraphy”
   - course “Palecology” (incl. field short course)
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Palaeontological contents in MSc education:

3. training course “Preparation Techniques in Geosciences”

One week course of basics and practical training:
- mechanical & wet chemical rock preparation techniques
- micropalaeontological preparation techniques
- casts & peels, coloration & conservation techniques
- thin sections & sample preparation for chemical and isotope analysis

4. field courses in “Applied Palaeontology”

Non obligatory …
- “Palaeontological Field Training” (excavations, facies mapping, conservation, …)
- 2nd short course “Applied Palaeontology & Stratigraphy”
Freiberg „Philosophy“ of Palaeontology

**Palaeontology as a science**
- understanding biotic evolutionary processes
- combination with other geo-methods/directions
- high-level fundamental and applied research

**Teaching palaeontology**
- to educate a broad modern geological world view
- understanding complex evolution of the world
- as an efficient tool for many geological tasks