

```
> library(divDyn)
v0.8.2. See latest changes with 'news(package="divDyn")'
Time flows forward with 'bin', and backward with 'rbin'
> data(corals)
> str(corals)
data frame: 29775 obs. of 35 variables:
  genus      : chr "Thamasteria" "Thecosmilia"
  collection_no : int 1559 1566 1566 1569 1600
  family      : chr "Thamasteriidae" "Montastridae"
  band_value    : chr "1" "2" "3" "4" "5" "6" "7" "8" "9" "10"
  band_unit     : chr "mm" "cm" "m" "km" "mi" "in" "ft" "yd"
  core_no       : int 41 41 41 41 41 41 41 41 41 41
  habit        : chr "intermediate-level epifaunal" "photosymbiotic" "photosymbiotic"
  : chr "United Kingdom" "United Kingdom"
  : int 305 305 305 305 305 305 305 305 305 305
```



## Scientific methods and approaches

- Spatiotemporal biodiversity analyses involving fossil occurrence databases such as the Paleobiology Database and the PaleoReefs Database (curated in Erlangen)
- One-of-a-kind collection of carbonate thin sections, fossil preparation and thin section laboratory, complete with a wide range of microscope imaging facilities
- Phylogenetic inference for the analysis of genomic and morphological data
- Micro-computed tomography for 3D and non-invasive analysis of specimens, sclerochronology for paleoclimate and biomineralization studies (MicroMill)
- Paleontological and phylogenetic software (e.g. R extension package) development
- Internationally renowned stable isotope laboratory with focus on paleoclimate and paleoenvironmental reconstructions
- Intensive field-based training and multiple fieldwork opportunities (e.g. Sweden, Italy, Poland)



**FAU**

Friedrich-Alexander-Universität  
Faculty of Sciences

## Paleobiology – Climate and Earth Systems International Master in Geosciences

### About the University (FAU) and Erlangen

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) is located in the southern part of Germany. According to the Reuters Ranking 2019, FAU is the most innovative university in Germany, and 14th in the world.

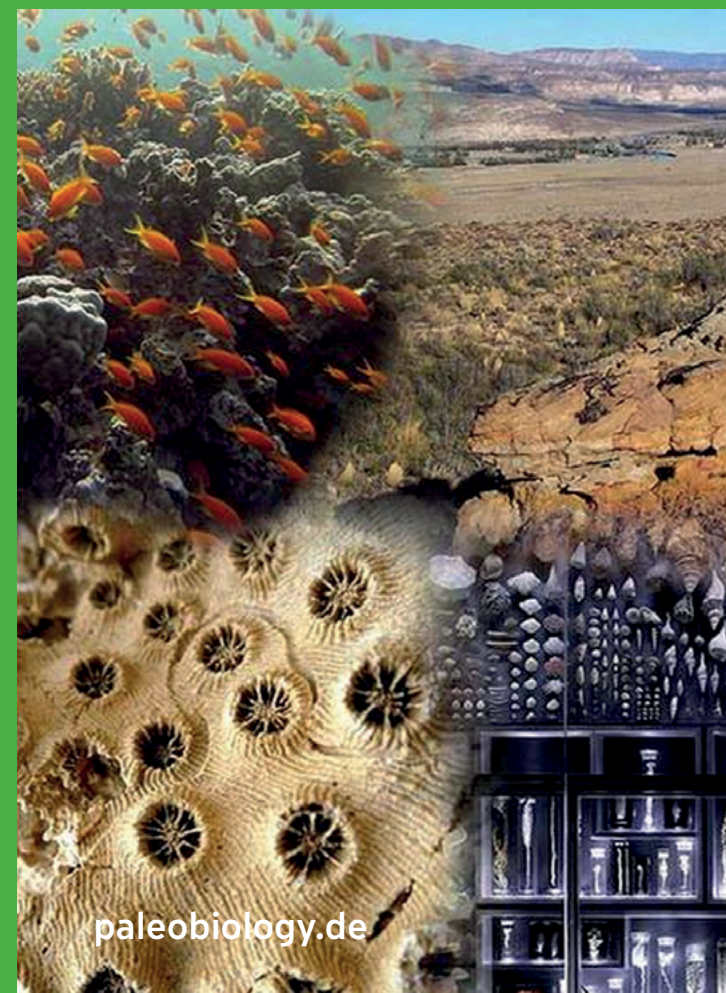
There is no tuition fee for the Master in Geosciences in which our paleobiology program is included, and there are multiple scholarship options for students to support themselves during their stay in Germany. Part-time jobs both as student helpers and outside the University provide excellent opportunities for additional income. Erlangen is a very international city where English can often be used in your daily life outside of the university. Learning German does improve the experience of living in Germany, and the FAU offers free German courses for its students.

### More information

[paleobiology.de](http://paleobiology.de)  
[fau.eu/education/international/from-abroad/](http://fau.eu/education/international/from-abroad/)

### For enquiries please contact

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Loewenichstr. 28, 91054 Erlangen  
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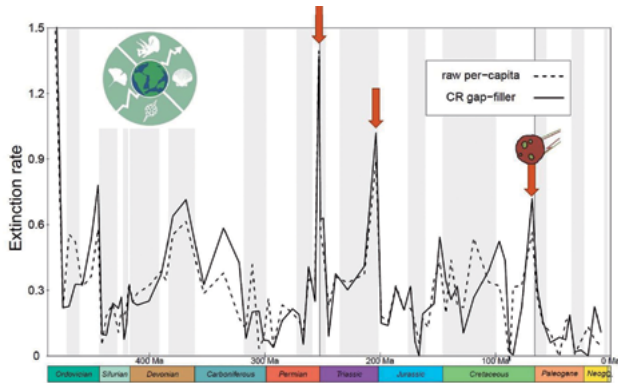


[paleobiology.de](http://paleobiology.de)



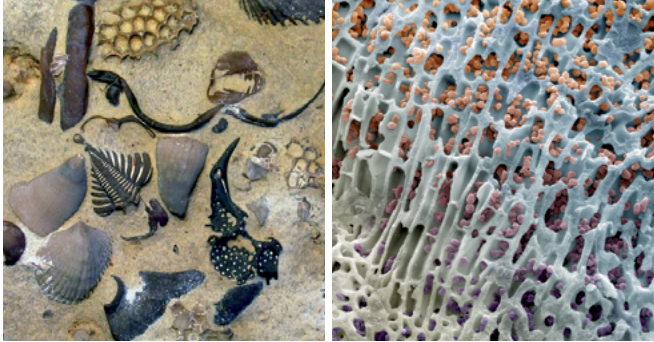
Research highlights

- Climate change-related mass extinction events
- Macroevolution and the relative contribution of biotic and abiotic factors driving patterns
- Biodiversity dynamics, modeling and prediction
- Phylogenetic and fossil sampling theory
- Marine ecosystems with an emphasis on coral reefs and coralline algae
- Carbonate rocks as archives of paleoenvironmental and paleoclimate change, reconstruction of paleo-environments
- Paleoecology and paleobiogeography of Mesozoic vertebrates (e.g. dinosaurs)
- Integration of processes at multiple time scales: from deep-time to recent



Career perspectives in paleobiology

- Universities and research institutions
- Data science and analytics
- Research funding, policy and administration
- Museums and geoparks
- Scitentific publishing houses, editorial offices, media
- Science communication and outreach



This International Master in Geosciences has two modules:

- **Paleobiology-Paleoenvironments (major)** – which provides a theoretical framework in macroevolution, ecology, paleoenvironmental reconstruction and statistical analysis
- **Climate and Earth Systems (minor)** – which consists of individual field- and specimen-based projects and provides students with skills such as preparation of funding applications, scientific writing and communication, as well as environmental and geochemical background for interdisciplinary collaborations

Goals of the program

The acute theme of global climate change and its impact on organisms and ecosystems requires a new generation of scientists. In the major module of our international Master we provide theoretical concepts of macroecology and macroevolution, as well as statistical techniques and scientific programming in paleobiology. The second pillar of this specialization focuses on the practical aspects of conducting paleoecological, paleoenvironmental and phylogenetic research. We focus on carbonate systems, which are the result of the metabolic activity of organisms and thus reflect the interplay of the biosphere and the Earth-system at large.

Our goal is to help students become internationally competitive in paleobiology and science-related fields. The Master program consists of four semesters with 30 credit points (ECTS) each. In addition to regular courses, students can choose supplementary courses (SC), including field excursions and the acquisition of transferrable skills. The last semester is dedicated to the Master thesis.

Semester	ECTS	Major: Paleobiology-Paleoenvironments				Minor: Climate and Earth Systems		SC
1	30	Morphology, systematics and ecology of invertebrates	Systematics, ecology and biostratigraphy of microfossils	Biofacies and paleoecology		Literature seminar	Geochemical proxies in paleoenvironmental analysis	Computers in geosciences*
			Methods of biostratigraphy	Oceanography				
2	30	Macroevolution	Hypothesis testing in paleobiology	Analytical paleobiology		Research project implementation	Introduction to statistical modelling	SC to choose
		Vertebrate paleobiology	Laboratory methods in paleontology			Climate and Earth system data	Phylogenetics	
3	30	Proxies in paleoenvironmental reconstructions	Geobiology of reefs	Microfacies analysis and diagenesis of carbonate rocks		Research project design	Science communication	SC to choose
		Macroecology	Programming and statistics in paleobiology					
4	30	Master thesis						

SC: Supplementary Courses; \*Elective, but highly recommended.