

# Advanced Database Models

Summer

(in German: Advanced Database Models )

**Module-ID: FIN-INF-103805**

| Abbreviation | Credit Points | Semester | Term           | Duration   | Language | Level  |
|--------------|---------------|----------|----------------|------------|----------|--------|
| ADBM         | 6             | Summer   | starting at 1. | 1 Semester | english  | Master |

|                                     |                                                                                                                                                                                                                                                                                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Link:</b>                        | <a href="#">LSF</a>                                                                                                                                                                                                                                                               |
| <b>Limited accessibility:</b>       | false                                                                                                                                                                                                                                                                             |
| <b>Responsibility:</b>              | Gunter Saake                                                                                                                                                                                                                                                                      |
| <b>Lecturer:</b>                    | Eike Schallehn                                                                                                                                                                                                                                                                    |
| <b>Classes:</b>                     | <ul style="list-style-type: none"><li>• Lecture <i>Advanced Database Models</i></li><li>• Exercise <i>Advanced Database Models</i></li></ul>                                                                                                                                      |
| <b>Applicability in curriculum:</b> | <ul style="list-style-type: none"><li>- M.Sc. INF: Informatik</li><li>- M.Sc. INGINF: Informatik</li><li>- M.Sc. WIF: Informatik</li><li>- M.Sc. DKE: Data Processing for Data Science</li><li>- M.Sc. DE: Methoden der Informatik</li><li>- M.Sc. VC: Computer Science</li></ul> |

## Intended learning outcomes:

The students ...

- understand different non-relational database models, their basic concepts, and their historical development
- understand implications of non-relational data models for query processing and application development
- use non-relational DBMS and their specific capabilities

- develop databases and according applications using non-relational databases

### Content:

- Overview and history of database models
- NF2-, object-oriented, object-relational, and semi-structured database models
- Application of the database models and design methodologies (extended ERM, UML, ODMG, XML Schema, etc.)
- Foundations of query languages (OQL, SQL:2003, XPath/XQuery, etc.) and query processing for non-relational data models

### Workload:

56 h contact hours + 124 h self-study

| Pre-examination requirements:                                                                                                           | Type of examination:   | Teaching method / lecture hours per week (SWS):                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------|
| To be eligible to take the exam, you must have completed certain prerequisites. Further details will be announced in the first lecture. | Written exam (120 min) | <ul style="list-style-type: none"> <li>• Lecture 2 SWS</li> <li>• Exercise 2 SWS</li> </ul> |

| Prerequisites according to examination regulations: | Recommended prerequisites:   |
|-----------------------------------------------------|------------------------------|
| none                                                | Database introduction course |

| Media: | Literature: |
|--------|-------------|
|        |             |

### Comments:

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