

# Advanced Topics in Databases

Summer

(in German: Advanced Topics in Databases )

**Module-ID: FIN-INF-120277**

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

|                                     |                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Link:</b>                        | <a href="#">LSF</a>                                                                                                                                                                                                                                                                                                             |
| <b>Limited accessibility:</b>       |                                                                                                                                                                                                                                                                                                                                 |
| <b>Responsibility:</b>              | Gunter Saake                                                                                                                                                                                                                                                                                                                    |
| <b>Lecturer:</b>                    | David Broneske                                                                                                                                                                                                                                                                                                                  |
| <b>Classes:</b>                     | <ul style="list-style-type: none"><li>• Lecture <i>Advanced Topics in Databases</i></li><li>• Exercise <i>Advanced Topics in Databases</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. DE: Fachliche Spezialisierung</li><li>- M.Sc. VC: Computer Science</li></ul> |

## Intended learning outcomes:

The students ...

- understand selected advanced topics in databases

- know state-of-the-art solutions for current problems in database research
- assess advanced solutions for current database systems
- can apply advanced methods in database implementation techniques

### Content:

Topics of the lecture will frequently change in accordance with current research directions in the database community and represent cutting-edge aspects. Current Topics:

- Main-memory database algorithms and techniques
- Heterogeneous processing in database systems
- Advanced indexing and storage techniques
- Storage techniques for NoSQL database systems

### Workload:

56h contact hours + 124h self-study

| Pre-examination requirements:            | Type of examination: | Teaching method / lecture hours per week (SWS):                                                   |
|------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------|
| Successful participation in the exercise | Oral exam            | <ul style="list-style-type: none"> <li>• 2 SWS Lecture</li> <li>• 2 SWS Exercise class</li> </ul> |

| Prerequisites according to examination regulations: | Recommended prerequisites:                                                                                                                                                        |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| none                                                | <ul style="list-style-type: none"> <li>• Knowledge about database foundations and about principles of internal database operations</li> <li>• Basic programming skills</li> </ul> |

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

### Comments:

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