### Submodule

**Datawarehouse**

<table>
<thead>
<tr>
<th>TM abbreviation</th>
<th>DW</th>
</tr>
</thead>
</table>

### Responsible person

**Faculty**

Prof. Dr Johannes Schildgen

**Computer Science and Mathematics**

### Teacher / Lecturer

**Frequency of supply**

Prof. Dr Johannes Schildgen

### Teaching form

**Seminars (2 SWS) with exercises (2 SWS)**

### Semester of study according to curriculum

<table>
<thead>
<tr>
<th>Teaching scope</th>
<th>Teaching language</th>
<th>Work effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>[SWS or UE]</td>
<td>German/English</td>
<td>5</td>
</tr>
</tbody>
</table>

### Time commitment:

<table>
<thead>
<tr>
<th>Attendance study</th>
<th>Self-study</th>
</tr>
</thead>
<tbody>
<tr>
<td>60h</td>
<td>90h</td>
</tr>
</tbody>
</table>

### Study and examination performance

Written exam and / or written examination and / or oral examination

### Contents

This course teaches the fundamentals of data warehousing. This includes:

- Fundamentals of Data Warehouses
- Data Warehousing Architecture
- Multi-dimensional Data Modelling, Star/Snowflake Scheme
- ETL Process, Data Cleaning, Data Integration
- Data Analytics
- Advanced SQL: Grouping Sets, Window Functions, Skyline Queries

The theoretical basics taught are practised directly in practice with modern databases.

### Learning objectives: Professional competence
After successful completion of the submodule, students are able to,
- Describe the internal structure of a data warehouse, the associated OLAP process and the necessary loading processes from production operations (1),
- create smaller data warehouse systems, trigger ETL processes and perform OLAP queries (2),
- operate larger data warehouse systems, solve performance problems, control complex ETL processes and design elaborate OLAP queries and interpret their results correctly (3).

**Learning objectives: Personal competence**

After successful completion of the submodule, students are able to,
- Understand and operate complex data warehouse systems and conduct extensive analyses of their own independently (3)

**Teaching materials offered**

- Lecture notes
- PowerPoint presentation
- All programmes used in the course

**Teaching media**

- Blackboard, beamer with notebook

**Literature**

- Köppen/Sattler/Saake: Data Warehouse Technologies, 2014
- Bauer/Günzel: Data Warehouse Systems, dpunkt, 2013
- Mehrwald: Datawarehousing with SAP BW 7.3, dpunkt, 2013
- Kimball/Ross: Kimball's Data Warehouse Toolkit, Wiley&Sons, 2009
- Kemper/Baars/Mehanna: Business Intelligence, Springer, 2010
- Jockisch: Data Warehouse and SAP Business Information Warehouse, script OTH Regensburg
- Short: Data Warehousing, mitp, 1999

**Further information on the course**

Recommended prerequisites: Extensive knowledge of databases

The numbers in brackets indicate the levels to be reached: 1 - know, 2 - can, 3 - understand and apply.