



Introduction

Prof. Alfons Kemper
Chair for Database Systems (I3)
www.db.in.tum.de

TU München / Garching
[\[kemper\]@in.tum.de](mailto:kemper@in.tum.de)



Lecture

- IN4714:
 - Part of the module **Geodatabases** (BV470015)
 - Duration: 2V SWS
 - Credits: 2 ECTS

Study Programs, Modules and Courses

Study Program	Module	Courses	Exam
GuG	Spatial Databases and Visualization (BV300022), 6 ECTS	<ol style="list-style-type: none"> 1. Database System Concepts for Non-Computer Scientists 2. Spatial Databases 3. Visualisation of Geodata 	written test, 120 minutes
<ul style="list-style-type: none"> • EE • UPIÖ (Kernbereich GIS), • ... 	Geodatabases (BV470015), 3 ECTS	<ol style="list-style-type: none"> 1. Database System Concepts for Non-Computer Scientists 2. Spatial Databases 	written test, 60 minutes
<ul style="list-style-type: none"> • UPIÖ (Kernbereich Landschaftsmanagement) 	Applied Geoinformatics (BV470019T2), 6 ECTS	<ol style="list-style-type: none"> 1. Database System Concepts for Non-Computer Scientists 2. Spatial Databases 3. Applied Geoinformatics 2 	<ul style="list-style-type: none"> • Partial Exam Database Systems and Spatial Databases (50%): written test, 60 minutes • Partial Exam Applied Geoinformatics 2, Presentation + Report (50%)

Schedule

- Web page of the lecture:
db.in.tum.de/teaching/ws2022/DBSandere
- **For dates always check TUM-Online**
- 2 hours weekly
- Wednesdays, 4.45 – 6.15 p.m.
- Exam details TBA



Teaching

- Questions during class are always welcome
 - Exercise material for preparation
- Interactive class !?



Exercise Sheets

- Handed out (online) after each lecture
- Solutions are discussed in the following week
- Very good way to prepare for the exam



Content Overview

- Introduction
- Database Design
 - E/R-Modeling
 - UML-Modeling
- Relational Data Model
- Relational Query Language: SQL
- Data Integrity

Content Overview (cont.)

- Physical Data Organization
 - B-Trees
 - Hashing
- Query Execution
- Transaction Management

→ Preparation for Geodatabases,
Dr. Andreas Donaubauer, starting in January



Literature (in German)

Alfons Kemper und André Eickler
Datenbanksysteme: Eine Einführung
10. Auflage (2015)
(older editions are also ok)
Oldenbourg Verlag, München
(~ 50 Euros)

www-db.in.tum.de/teaching/bookDBMSeinf

Additional Material

tools.db.in.tum.de

- Many useful database tools

<http://hyper-db.com/interface.html>

- A SQL webinterface based on HyPer

Literature (in English)

A. Silberschatz, H. F. Korth und S. Sudarshan
Database System Concepts, 6th edition,
McGraw-Hill, 2010.
codex.cs.yale.edu/avi/db-book/db6/slide-dir/

R. Elmasri, S.B. Navathe
Fundamentals of Database Systems, 6th edition,
Addison-Wesley, 2010. (also available in
German)

R. Ramakrishnan, J. Gehrke
Database Management Systems, 3th edition,
2003.
<http://pages.cs.wisc.edu/~dbbook/>

Literature (cont.), MOOCS

J.D. Ullmann, J. Widom

A First Course in Database Systems, Prentice Hall, 3rd edition, 2007.

infolab.stanford.edu/~ullman/fcdb.html

MOOCS

- Self paced mini courses, Stanford
class.stanford.edu/courses/DB/2014/SelfPaced/about
- Datenmanagement mit SQL, HPI
open.hpi.de/courses/sql (in German)

MOOCS (cont.), Lectures online

- Informationssysteme/
Einführung in Datenbanksysteme, Uni Saarland
infosys.uni-saarland.de/datenbankenlernen/
(partly in German)
- Lecture online (german)
ETHZ, D. Kossmann, spring 2014:
<http://www.video.ethz.ch/lectures/d-infk.html>
English slides