

DSA5104 Principles of Data Management and Retrieval

Week	Topic (<i>Subject to change</i>)	Note
1	<ul style="list-style-type: none">• Overview• Introduction to Database Systems and Relational Model	
2	<ul style="list-style-type: none">• Introduction to Database Systems and Relational Model• SQL I<ul style="list-style-type: none">◦ Intro of MySQL	
3	<ul style="list-style-type: none">• SQL II	Homework 1
4	<ul style="list-style-type: none">• Entity-Relationship Model & Relational Database Design	
5	<ul style="list-style-type: none">• Advanced Topics in RDBMS<ul style="list-style-type: none">◦ Transactions◦ Query Processing◦ Hashing & Indexing <p>Quiz</p>	
6	Semi-structured Data Management <ul style="list-style-type: none">• XML• JSON• XPath & XQuery	Project
7	<ul style="list-style-type: none">• Spark SQL + DataFrames	
8	<ul style="list-style-type: none">• Complex Data Types & Big Data I<ul style="list-style-type: none">◦ Object Orientation◦ Textual Data◦ Spatial Data <p>Quiz</p>	Homework 2
9	<ul style="list-style-type: none">• HBase	
10	<ul style="list-style-type: none">• MongoDB (Document-Database)	
11	<ul style="list-style-type: none">• Complex Data Types & Big Data II<ul style="list-style-type: none">◦ Key-value pairs	

	<ul style="list-style-type: none"> ○ Hadoop MapReduce ○ Graph Database <p>Quiz</p>	
12	<ul style="list-style-type: none"> ● Modern Data Stack <ul style="list-style-type: none"> ○ ETL / ELT ○ ELK 	

Grading

- Homework 30%
 - ✓ Week 3 (15%)
 - ✓ Week 7 (15%)
- Project 35%
- Quiz 30%
 - ✓ Week 5
 - ✓ Week 8
 - ✓ Week 11
 - ✓ The highest two scores are considered (each 15%)
- Course Participation 5%