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| **Week#** | **Dates** | **Topics** | **Notes** |
| 1 | 01/09/23 - 01/13/23 | Introduction to Database Systems and Database System Architectures | Ch. 1 |
| 2 | 01/17/23 - 01/20/23 | Data Storage | Ch.12 |
| 3 | 01/23/23 - 01/27/23 | File Store and Indexing | Ch.13, 14 |
| 4 | 01/30/23 - 02/03/23 | B Tree and B+ Tree | Ch.14 |
| 5 | 02/06/23 - 02/10/23 | Hashing | Ch.14 |
| 6 | 02/13/23 - 02/17/23 | Query Execution | Ch.15 |
| 7 | 02/20/23 - 02/24/23 | Query Optimization | Ch.16 |
| **8** | **02/27/23 - 03/03/23** | **Mid-Term Exam** |  |
| 9 | **03/06/23 - 03/10/23** | **Spring Break (No Classes)** |  |
| 10 | 03/13/23 - 03/17/23 | Transaction | Ch.17 |
| 11 | 03/20/23 - 03/24/23 | Concurrency Control | Ch.18 |
| 12 | 03/27/23 - 03/31/23 | Recovery System | Ch.19 |
| 13 | 04/03/23 - 04/07/23 | Performance Tuning, NoSQL Databases | Ch. 25 |
| 14 | 04/10/23 - 04/14/23 | OLAP and Data Warehouse |  |
| **15** | **04/17/23 - 04/21/23** | **Final Exam** |  |
| 16 | 04/24/23 - 04/28/23 | Group Project Presentations (I) |  |
| 17 | 05/01/23 - 05/05/23 | Group Project Presentations (II) |  |

**Schedule:**

**Assessment: Total 500 points**

1. Assignments 200 points
2. Graduate Course Project 100 points
3. Mid Term Exam 100 points
4. Final Exam 100 points

**Notes:**

**Programming Assignments (100 points):**

1. Index File Processing
2. Query Parser and Compiler
3. MongoDB (NoSQL Database)
4. Neo4j (NoSQL Database)

**Written Assignments (100 points):**

1. Data Storage
2. B+ Tree
3. Hashing
4. Query Execution
5. Query Optimization
6. Transaction
7. Concurrency Control
8. Recover Systems

**Graduate Course Group Project (100 points-NoSQL Database Systems and Web based framework):**

**(Documents, Key Value, Column Family, and Graph data models)**

1. Group Name and Members (n <=4, n = number of members)
2. Project name
3. Business rules and project description
4. Database models and descriptions
5. Presentation and final Report

**Mid-Term Exam (100 points)**

**Final Exam (100 points)**

**\*\*\* Late Submission for Assignments Penalty 50% \*\*\***

**In-Person Class Meetings (Off-line) for Spring 2023 Schedule.**

**CS 5600: Advanced Database Systems**

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| **CRN** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| 23915 W8:30-11:10AM | 01/11 | 01/25 | 02/08 | 02/22 | 03/22 | 04/05 | 04/26 |
| 23916 W8:30-11:10AM | 01/18 | 02/01 | 02/15 | 03/15 | 03/29 | 04/12 | 05/03 |
| 21992 W12:10-2:50PM | 01/11 | 01/25 | 02/08 | 02/22 | 03/22 | 04/05 | 04/26 |
| 21783 W12:10-2:50PM | 01/18 | 02/01 | 02/15 | 03/15 | 03/29 | 04/12 | 05/03 |
| 21784 R8:30-11:10AM | 01/12 | 01/26 | 02/09 | 02/23 | 03/23 | 04/06 | 04/27 |
| 21993 R8:30-11:10AM | 01/19 | 02/02 | 02/16 | 03/16 | 03/30 | 04/13 | 05/04 |
| 21994 F8:30-11:10AM | 01/13 | 01/27 | 02/10 | 02/24 | 03/24 | 04/07 | 04/28 |
| 21995 F8:30-11:10AM | 01/20 | 02/03 | 02/17 | 03/17 | 03/31 | 04/14 | 05/05 |
| 21996 F12:10-2:50PM | 01/13 | 01/27 | 02/10 | 02/24 | 03/24 | 04/07 | 04/28 |
| 23223 F12:10-2:50PM | 01/20 | 02/03 | 02/17 | 03/17 | 03/31 | 04/14 | 05/05 |

Note: CRN 23680 – TBA.

**Zoom Meeting ID: 328 993 7962 for attend the online classes.**

**https://ucmo.zoom.us/j/3289937962**