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| **ELEMENT** | **CONTENT** |
| DEPARTMENT | CIS |
| AUTHOR (S) | Joan Spasyk, Jean F. Hakim |
| COURSE NUMBER | **CIS 3010** |
| COURSE TITLE | **Database Systems** |
| SHORT TITLE | Database Sys |
| COURSE LEVEL | 3000 |
| DATE CREATED |  |
| CHECKED/CHANGED | 4/10/2017 |
| PREREQUISITES | CIS 1151 and 2261 or 2271 |
| COREQUISITES |  |
| RESTRICTIONS |  |
| SPECIAL FEES | No |
| CREDITS | 4 |
| HOURS | 3 hours of lecture, 2 hours of lab |
| SEMESTER | Spring |
| COURSE DESCRIPTION | This course covers methods for designing relational databases; the use of SQL to define and access a database; and the use of production-level database management systems to implement a relational database system. The student is required to complete a project in which they either implement a real-world example relational database or research a specific database topic not covered during class. Additional topics that may be discussed as time and class interest permit include: integrating databases into applications or websites; alternative database paradigms; database design/engineering tools; and underlying implementation of databases. |
| SUGGESTED TEXTS |  |
| OPTIONAL TEXTS | *Head First SQL*; Lynn Beighley  *SQL Fundamentals*; John J. Patrick  *SQL Pocket Guide*; Johnathan Gennick |
| COURSE OUTCOMES | The successful student will be able to:   1. Demonstrate use of the SQL language to define and access relational data 2. Demonstrate at least one database modeling technique (e.g., entity-relationship model) 3. Implement a real-world relational database of significant complexity 4. Develop a database from a given set of specifications 5. Understand database administration, performance, and Big Data |
| COURSE CONTENT | 1. Introduction to databases 2. The relational model 3. Introduction to SQL 4. Row/column function 5. Joins 6. Subqueries 7. Database design 8. Database normalization 9. Referential integrity 10. Physical database design 11. ADO.NET/PHP 12. SQL set operations/views 13. Multiuser systems 14. Database security 15. Projects |
| LAB/STUDIO OUTCOMES |  |
| LAB/STUDIO CONTENT | 1. Database engine setup 2. Row/col functions 3. Loading data 4. Subqueries and outer joins 5. Data modeling 6. Referential integrity 7. Sequences and triggers 8. Review final projects 9. Set operations views 10. Final projects |
| LECTURE CAPACITY | 32 |
| LAB CAPACITY | 16 |
| GRADED OR P/NP | Graded |
| EVALUATION | Attendance, exams, written assignments, project |
| DELIVERY METHOD | LEC, LAB |
| ROOM REQUIREMENTS | Computer lab for lab |
| AUTHOR’S NOTES |  |