

CS 201 – Database Theory and Design

Credit Hours: 3

Scheduled hours per week

Lecture: 3

Lab:

Other:

Catalog Course Description: Introduction to database structure, organization, and retrieval. Query languages, normalization, file structures, database security, and distributed database systems will be discussed

Pre-requisites: CS 121 must be passed with a grade of C or better OR CIT 410 must be passed with a grade of C or better

Co-requisites:

Course Learning Outcomes:

Students should have an understanding of and be able to apply the following concepts:

- To understand, design, build, maintain, and troubleshoot relational databases

Topics to be studied:

<ul style="list-style-type: none"> • Database Systems • Data Models • The Relational Database Model • Entity Relationship Modeling • Advanced Data Modeling and Database Design Fundamentals • Creating Tables with SQL • Single Table Queries • Multi-Table Queries 	<ul style="list-style-type: none"> • Updating Data • Database Administration, and SQL Functions and Procedures • Database Design • Performance Tuning and Query Optimization • Business Intelligence and Data Warehousing • Big Data Analytics and NoSQL • Database connectivity and Web Technologies
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Relationship of Course to Program or Discipline Learning Outcomes:

Computer Science

✓	Ability to understand and use elements of good programming style and best practices
	Understanding of programming paradigms, such as imperative, functional, and object oriented design
✓	Ability to understand and use variables with different data types and control structures
	Ability to perform top-down design, use modular programming, string processing, elementary data structures, basic disk I/O, and recursion
✓	Ability to use data structures and algorithms to represent data relationships, data manipulation, searching, sorting, and solving complex problems
✓	Ability to design, configure, troubleshoot, and manage database tables, normalize data, and store and retrieve object attributes in a database

For general education courses, a listing of the general education competencies that are met.)

Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	✓
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	✓
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
5/3/2016	

Special requirements of the course:

You will need a computer with an Internet connection.

Additional information:

Prepared by: Charles Almond

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