Introduction to Data Analytics 2023-2024 Catalog

[ARCHIVED CATALOG]

DBMS 110 - Introduction to Data Analytics

PREREQUISITES: Demonstrated readiness for college-level English and demonstrated readiness in QUANT MATH or STEM MATH - Route 2.
PROGRAM: Data Analytics
CREDIT HOURS MIN: 3
LECTURE HOURS MIN: 2
LAB HOURS MIN: 2
DATE OF LAST REVISION: Fall, 2020

Introduces students to the basic concepts of databases including the types of databases, the general database environment, and the importance of data to the business world. Discussion with hands-on activities will include database design, normalization of tables, and development of tables, queries, reports, and applications. Students will be familiarized with use of the ANSI Structured Query Language. Discussions will include database administration and data maintenance. Students will be introduced to data concepts such as data warehousing, data mining, data visualization, data analysis, and big data. Students will be required to demonstrate skills such as team building, work ethic, communications, documentation, and adaptability.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Define data and evaluate its need for decision-making in a business setting.
2. Identify, define or describe the types and nature of databases in a business setting.
3. Compare and contrast the general structure and organization of relational, hierarchical, and network database structures.
4. Demonstrate an understanding of the relational data model.
5. Given a scenario, plan, design, create and modify a database schema.
6. Document a database by creating entity-relationship diagrams (ERDs), describing the field names, field types, and relationships among tables.
7. Demonstrate an understanding of normalization techniques in the design of databases utilizing 1NF, 2NF, & 3NF.
8. Define and describe higher normal forms.
9. Discover unstructured data techniques including Key-pair and JSON.
10. Retrieve, insert, update, and manipulate data using SQL commands.
11. Define stored procedures, triggers, views and functions.
12. Identify data integrity and security requirements.
13. Discuss the concepts and use of big data, data warehousing, and data mining.
14. Discuss the use and implementation of distributed database systems.
15. Explore job opportunities in data analytics.

COURSE CONTENT: Topical areas of study include -

- Creating and Managing Data
- Multiple Table Queries
- Introduction to Database Management
- Database Design Methodology

- Database Design Normalization
- Data Security and Integrity
- ANSI Structured Query Language (SQL)
- Database Manipulation Language (DML)
- Database Definition Language (DDL)
- Business Intelligence, Data Warehousing and Mining
- Data Sources & Streams
- Relational Algebra
- 1NF, 2NF, 3NF, and BCNF
- Primary and Foreign Key Relationships
- Key-pair and JSON

Course Addendum - Syllabus (Click to expand)
