

# WALTON COLLEGE

## BUSINESS ANALYTICS CERTIFICATE LEARNING OBJECTIVES

### ISYS 5113 – IT Toolkit

After completing this course, the student will be able to:

- Advanced Spreadsheet Manipulation
  - Use modern spreadsheet software to import data from various data sources (files, databases, etc.)
  - Manipulate and transform data to conform to specified requirements
  - Create simple macros for procedural data manipulation
  - Construct meaningful reports and charts from data using multi-dimensional “pivot” features
- Database Fundamentals
  - Given a set of requirements, determine the types of entities, attributes, and relationships needed to represent the underlying data
  - Given the entities, attributes, and relationships for a set of requirements, construct a conceptual data model using standard Entity Relationship Diagramming (ERD) and data modeling techniques
  - Translate a conceptual data model into a well-structured logical and physical database design using standard Entity Relationship Diagramming (ERD) and data modeling techniques
  - Utilize the Structured Query Language (SQL) to perform operations on data within a database, including creating, modifying, deleting, and retrieving desired data using single- and multi-table (join) queries

### ISYS 5503 – Decision Support and Analytics

After completing this course, the student will be able to:

- Explain the fundamental concepts and terminology of decision analytics
  - Explain business analytics (why, what, how), Volume, Velocity, and Variety, and Big Data
  - Explain management dashboards and scorecards used to support decision making
- Interpret and present analytics results to management for decision support
  - Understand decision support systems and the role of the different types of systems in today’s companies
  - Explain the use of analytics in decision making (scorecards and dashboards)
  - Explain, interpret, and apply the decision analytics (business statistics) results for decision making
  - Communicate analytics results to management
- Utilize commonly used tools of decision analytics
- Apply data analytics (and summary statistics) concepts to data
- Collect and summarize data for analysis
- Use analytics (and business statistics) to make business decisions
- Using analytics (and business statistics), develop models for business decisions
- Develop and prepare information for decision support for management scorecards and dashboards using fundamental analytics results



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### ISYS 5833 - Data Management

After completing this course, the student will be able to:

- Database Foundations
  - Describe the advantages and disadvantages of the relational database approach
  - Describe the components and architecture of relational database management systems (DBMS)
  - Explain the differences between types of database architectures
  - Describe the fundamental activities performed by data and database administrators
  - Describe the activities involved in database development, and their relationship to information systems development activities
- Intermediate Database Topics
  - Utilize SQL Data Definition Language (DDL) to create and maintain relational databases
  - Utilize SQL Data Manipulation Language (DML) to create, read, update, and delete data in relational databases
  - Construct SQL queries of moderate to high complexity to retrieve data from a relational database
- Data Warehousing
  - Explain the fundamental concepts and need for data warehouses
  - Create a dimensional model to represent data warehouse requirements, and implement the model in a relational DBMS
  - Integrate data from multiple sources using an ETL tool to load data into a data warehouse
  - Utilize Online Analytical Processing (OLAP) and SQL to visualize and analyze data contained in a data warehouse
- Emerging Topics
  - Describe the concept of in-memory computing, and explain the implications on database and data warehouse design and use.
  - Explain ethical decision making with its components and be able to further develop an ethical decision making model as an IT professional, specifically with regard to data (e.g. security, privacy)
  - Explain the concept of cloud computing and its implications for data management
  - Describe how “big data”, relational databases, and data warehouses relate to data mining and business analytics



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## BUSINESS ANALYTICS CERTIFICATE LEARNING OBJECTIVES

### ISYS 5843 - Business Intelligence/Knowledge Management

After completing this course, the student will be able to:

- Describe, with examples, the various components of business intelligence and knowledge management
- Present what data mining is and is not
- Demonstrate the ability to formulate business problems and transform them to data mining problems
- Provide examples of each of the data mining tasks
- Describe data mining methodologies
- Apply the role of data preparation
- Explain conceptually how the data mining algorithms work and interpret the results
  - Multiple Linear Regression
  - Decision Trees
  - Neural Networks
  - K-Nearest Neighbor
  - Logistic Regression
  - Clustering
  - Association Analysis
- Apply appropriate data mining techniques for data mining tasks to solve business problems
- Utilize appropriate data mining software to create data mining models representing data mining tasks to solve business opportunities

