Miami Dade College

GENERAL INFORMATION	
Course Prefix/Number: CAP1301	Course Title: **Introduction to Analytics**
Number of Credits: 4 credits	
Degree Type	☐ B.A. ☐ B.S. ☐ B.A.S ☒ A.A. ☒ A.S. ☐ A.A.S. ☐ C.C.C. ☐ A.T.C. ☐ V.C.C
Date Submitted/Revised:	Effective Year/Term: 2008-2
☒ New Course Competency ☐ Revised Course Competency	
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework) ☒ Yes ☐ No	
The above course links to the following Learning Outcomes: ☒ Communication ☐ Social Responsibility ☒ Numbers / Data ☐ Ethical Issues ☒ Critical thinking ☒ Computer / Technology Usage ☒ Information Literacy ☐ Aesthetic / Creative Activities ☐ Cultural / Global Perspective ☐ Environmental Responsibility	
Course Description (limit to 50 words or less): This course is designed for students who require or are interested in basic aspects of data mining and analytics using domain-specific data. Students learn the computerized techniques by which to organize, manipulate, report, present, depict and analyze domain-specific data in order to find or otherwise derive information. Laboratory fee.	
Prerequisite(s): **CGS1060 use of a Desktop Database Application**	Co-Requisite(s):

Competency 1: The student will demonstrate a basic understanding of a desktop database application by:

1. Creating a new database.
2. Defining Data Types that define the data being stored.
3. Creating Tables in design view.
4. Adding and deleting records in a table.
5. Creating and modifying a Form.
6. Creating and modifying a Report.

Competency 2: The student will demonstrate the ability to process and derive inherent information from a desktop database by:

1. Creating the three types of Lookup Lists in a table.
2. Displaying related records in a sub-datasheet.
3. Creating relationships between tables and enforcing referential integrity.
4. Sorting and indexing records.
5. Creating Simple queries.
6. Creating Compound queries and using comparison operators.
7. Creating Complex queries.
8. Creating calculated values in a query.

Revision Date: 4/24/2009--5:27:25 PM **V2.1** **Sanchez, Mario PhD**

Approved By Academic Dean Date: _____ Reviewed By Director of Academic Programs Date: _____

Competency 3: The student will demonstrate how to use basic computational and scientific features of desktop database applications by:

1. Developing and implementing
    a. numerical expressions
    b. formulas
    c. conditional statements
2. Representing results in the appropriate data type and format.
3. Creating, editing and printing 2, 3 and n-dimensional graphs and charts.
4. Developing interactive functionality such as buttons, forms, menus and switchboards.

Competency 4: The student will obtain, interpret, store, and derive information from simple to moderately complex domain-specific datasets using a desktop database application by:

1. Accessing and downloading via the internet, domain-specific data from public repositories.
2. Interpreting the metadata.
3. Creating and populating a database from the data and metadata interpretation.
4. Using this database to develop and implement
    a. queries
    b. join strategies
    c. referential integrity rules
5. Developing interactive functionality such as buttons, forms, menus, and switchboards.
6. Outputting data and resultant queries as XML objects.

Competency 5: The student will perform statistical and non-statistical data analysis on domain-specific data using a desktop database application by:

1. Applying each of the following statistical methods to the data:
    a. Average, Median, Mode, Max, Min
    b. Frequency Distribution
    c. Normal and Binomial distribution
    d. Cluster Analysis
    e. Trend analysis using the least-squares method.
2. Using ordering and roll-up techniques to summarize the data.
3. Converting data into multi-dimensional information by:
    a. Creating pivot tables and pivot web-forms.
    b. Generating 2, 3 and n-dimensional graphs, charts and pivot charts referencing the pivot tables and pivot web-forms.
4. Transforming the representation of the information into web-usable objects.

Competency 6: The student will demonstrate the use and interpretation of basic analytics on the domain-specific information through the use of a desktop database by:

1. Drilling-down on pivot tables.
2. Interpreting 2, 3, and n-dimensional graphs and charts.
3. Creating and implementing what-if scenarios.
4. Performing basic data mining.
5. Creating a Form-based user interface to dynamically perform basic data mining.

Competency 7:
The student will derive new information that is not inherently modeled in the database by:

1. Performing and reporting on a capstone project that
    a. Populating a database with publicly available disparate data,
    b. Using inferential association of data across disparate tables,
    c. Creating symbolic n-dimensional representations of the data model,
    d. Utilizing the skills denoted in competencies 1-7 in order to accomplish Information Discovery,
    e. Discussing in written and oral form the relevance and degree of usefulness of the new information.