Knight Foundation School of Computing and Information Sciences

Course Title: Computer Data Analysis   **Date:** 11/9/2021

Course Number: CGS 2518

Number of Credits: 3

Subject Area: Service Course	Subject Area Coordinator: Jill Weiss **email:** jweiss@cis.fiu.edu
Catalog Description: A hands-on study of how to use a modern spreadsheet program to analyze data, including how to perform queries, summarize data, and solve equations. For non-technical students. Not acceptable for CS students.	
Textbook: Parsons, Oja, Ageloff, Carey, DesJardins, New Perspectives on Microsoft Excel 2013: Introductory, 1st Ed (978-1-285-16936-1) or New Perspectives Microsoft Office 365 & Excel 2016: Comprehensive, 1st Ed (978-1-337-01706-0)	
References:	
Prerequisites Courses: None	
Corequisites Courses: None	

Type: General Elective

Prerequisite Topics: (none)

Course Outcomes:
1. Identify the common interface components of all Microsoft Office programs
2. Demonstrate ability to construct and use formulas.
3. Manipulate a spreadsheet program to analyze data, develop charts and graphics to display data results in a visual manner.
4. Import and export data to and from Excel
5. Analyze financial or corporate performance data from a spreadsheet.

Relationship between Course Outcomes and Program Outcomes

BS in Computer Science: Program Outcomes Graduates of BS in CS will attain, by the time of graduation:	Course Outcomes
a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.	2
b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	3, 5
c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	
d) An ability to function effectively on teams to accomplish a common goal.	
e) An understanding of professional, ethical, legal, security and social issues and responsibilities.	
f) An ability to communicate effectively with a range of audiences.	
g) An ability to analyze the local and global impact of computing on individuals, organizations, and society.	
h) Recognition of the need for and an ability to engage in continuing professional development.	
i) An ability to use current techniques, skills, and tools necessary for computing practice.	1, 3, 4
j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.	
k) An ability to apply design and development principles in the construction of software systems of varying complexity.	

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan:
http://www.cis.fiu.edu/programs/undergrad/cs_assessment/

Outline

Topic	Number of Lecture Hours	Outcome

1. Getting Started with Excel 2013
    What is Excel Used for
    Using the menu system
    The Quick Access Toolbar
    The structure of a worksheet or workbook
    Using the Formula bar
    Using the Status bar
    Navigation and mouse pointers
    Shortcut menus and the Mini toolbar
    Using the built-in help
    Creating new files
	2	O1

2. Entering Data
    Exploring data entry and editing techniques
    Entering data with AutoFill
    Working with dates and times
    Using Undo and Redo
    Adding comments
    Using Save or Save As
	2	O2

3. Creating Formulas and Functions
    Creating simple formulas: Totals and averages
    Copying a formula for adjacent cells
    Calculating year-to-date profits
    Creating a percentage-increase formula
    Working with relative, absolute, and mixed references
    Using SUM and AVERAGE
    Using other common functions
	3	O2, O6

4. Formatting
    Exploring font styles and effects
    Adjusting row heights and column widths
    Working with alignment and Wrap Text
    Designing borders
    Exploring numeric and special formatting
    Formatting numbers and dates
    Conditional formatting
    Creating and using tables
    Inserting shapes, arrows, and other visual elements
	2	O2

5. Adjusting Worksheet Layout and Data
    Inserting and deleting rows and columns
    Hiding and unhiding rows and columns
    Moving, copying, and inserting data
	2	O4

Finding and replacing data		

6. Printing
    Exploring the Page Layout tab and view
    Previewing page breaks
    Working with Page Setup and Printing controls
	1	O1

7. Introduction to Charting
    Creating charts
    Exploring chart types
    Formatting charts
    Working with axes, labels, gridlines, and other chart elements
    Creating in-cell charts with sparklines
	5	O3

8. Adjusting Worksheet Views
    Freezing and unfreezing panes
    Splitting screens horizontally and vertically
    Showing necessary informaiton with the outlining feature
	2	O4

9. Multiple Worksheets and Workbooks
    Displaying multiple worksheets and workbooks
    Renaming, inserting, and deleting sheets
    Moving, copying, and grouping sheets
    Using formulas to link worksheets and workbooks
    Locating and maintaining links
	2	O4

10. IF, VLOOKUP, and Power Functions
    Using IF functions and relational operators
    Getting approximate table data with the VLOOKUP function
    Getting exact table data with the VLOOKUP function
    Using the COUNTIF family of functions
	6	O2,O6

11. Security and Sharing
    Unlocking cells and protecting worksheets
    Protecting workbooks
    Assigning passwords to workbooks
    Sharing workbooks
    Tracking changes
	1	O1

12. Database Features
    Sorting data
    Inserting subtotals in a sorted list
    Using filters
    Splitting data into multiple columns
    Removing duplicate records
	3	O5,O6

13. Pivot Tables
    Creating PivotTables
    Manipulating PivotTbale data
    Grouping by date and time
    Grouping by other factors
	3	O5

Using slicers to clarify and manipulate fields Using PivotCharts		

14. Data Analysis Tools
        Using Goal seek
        Using Solver
        Using Scenario Manager
        Using Data Tables
	2	O6

Course Outcomes Emphasized in Laboratory Projects / Assignments

Projects and assignments will interactive lessons presented by students, as well as programming, projects done individually and collaboratively. Teaching demonstrations should be completed in a laboratory environment that includes short lectures by the instructor.

1. Identify the common interface components of all Microsoft Office programs
2. Demonstrate ability to construct and use formulas.
3. Manipulate a spreadsheet program to analyze data, develop charts and graphics to display data results in a visual manner.
4. Import and export data to and from Excel
5. Analyze financial or corporate performance data from a spreadsheet.

Outcome	
1	Identify the common interface components of all Microsoft Office programs
2	Students will create Excel spreadsheets that use Excel formulas, functions, tables, and lists
3	Students will create charts and graphics in Excel
4	Students will work with multiple worksheets and workbooks
5	Students will import and export data to and from Excel
6	Students will perform financial analysis on data

Oral and Written Communication:
- N/A

Theoretical Contents:
- N/A

Problem Analysis Experiences:
- Weekly tutorial labs and worksheets

Solution Design Experiences:
- Weekly tutorial labs and worksheets