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Computer Science (COSC) 1703 Introduction to Spreadsheets—Microsoft Excel (1.5) CSU

Advisory: Eligibility for English 1000 and Reading 1005 strongly recommended

Total hours: 16 hours lecture, 24 hours lab (40 hours total)

Catalog Description: This course is an introduction to spreadsheets in the Microsoft Windows environment. This course will cover the operation and features of Microsoft Excel to solve common problems in a business environment.

Type of Class/Course: Degree credit

Text: Freund, Steven M., Mali Jones, and Joy L. Starks. *Microsoft Office 365 Excel 2016 Intermediate*: Cengage Learning, 2017.

Course Objectives:

By the end of the course, a successful student will be able to utilize Excel to complete the following tasks with a high degree of accuracy and efficiency

1. enter, edit, move, and copy cell contents including text, numbers, and formulas,
2. apply and modify cell formats,
3. modify row and column settings and formats,
4. apply styles,
5. modify page setup options for worksheets,
6. preview and print worksheets and workbooks,
7. create and modify formulas,
8. use absolute cell references in formulas,
9. use 3-D references in formulas,
10. use statistical, date and time, financial, table, logical, and database functions,
11. create, modify, and print charts,
12. create, modify, and position graphics,
13. add, delete, and rearrange sheets in a workbook,
14. add a hyperlink to a worksheet element,
15. create a worksheet database,
16. sort and filter database tables, and
17. create and apply a template.

Course Scope and Content:

- Unit I Creating a Worksheet and an Embedded Chart
- A. Describe the Excel worksheet
 - B. Enter text and numbers

- C. Use the Sum function to sum a range of cells
- D. Copy a cell using the fill handle
- E. Format a worksheet
- F. Create a chart
- G. Change a worksheet name and tab color
- H. Change document properties
- I. Preview and print a worksheet
- J. Correct worksheet errors

Unit II

Formulas, Functions, and Formatting

- A. Enter formulas using the keyboard and Point mode
- B. Apply the AVERAGE, MAX, and MIN functions
- C. Apply a theme to a workbook
- D. Apply a date format
- E. Apply conditional formatting
- F. Modify column widths and row heights
- G. Set margins, headers, and footers in Page Layout View

Unit III

What-If Analysis, Charting, and Working with Large Worksheets

- A. Rotate text in a cell
- B. Create a series
- C. Copy, paste, insert, and delete cells
- D. Format numbers using format symbols
- E. Display and format the system date
- F. Use absolute and mixed cell references in formulas
- G. Use the IF function
- H. Create Sparkline charts
- I. Create charts on separate sheets
- J. Rearrange worksheet tabs
- K. Answer what-if questions
- L. Goal seek to answer what-if questions

Unit IV

Financial Functions, Data Tables, and Amortization Schedules

- A. Control the color and thickness of outlines and borders
- B. Assign a name to a cell and use the cell name in formulas
- C. Use the financial functions PMT (payment), PV (present value), and FV (future value)
- D. Create a data table to analyze data in a worksheet
- E. Add a pointer to a data table
- F. Create an amortization schedule
- G. Analyze worksheet data by changing values
- H. Protect and unprotect worksheet ranges
- I. Use the formula checking features of Excel
- J. Hide and unhide cell gridlines, rows, columns sheets, and workbooks

Unit V

Working with Multiple Worksheets and Workbooks

- A. Use the ROUND function
- B. Utilize custom format codes
- C. Define, apply, and remove a style
- D. Add a worksheet to a workbook
- E. Add data to multiple worksheets at the same time

- F. Create formulas that use 3-D cell references
- G. Add data to multiple worksheets at the same time
- H. Add a header or footer, modify margins, and insert a page break
- I. Consolidate data by linking workbooks

Unit VI Creating, Sorting, and Querying a Table

- A. Create and manipulate a table
- B. Delete duplicate records
- C. Add calculated columns to a table
- D. Use icon sets with conditional formatting
- E. Use the VLOOKUP function
- F. Add and delete records and change field values in a table
- G. Sort a table on one field or multiple fields
- H. Query a table
- I. Apply database functions, the SUMIF function, and the COUNTIF function
- J. Use the MATCH and INDEX functions to look up a value in a table
- K. Display automatic subtotals
- L. Use Group and Outline features to hide and unhide data

Unit VII Creating Templates, Importing Data, and Working with SmartArt, Images, and Screen Shots

- A. Create and use a template
- B. Import data from a text file, an Access database, a Web page, and a Word document
- C. Transpose data while pasting it
- D. Convert text to columns
- E. Use Find and Replace commands
- F. Draw a Clustered Cone chart
- G. Use WordArt to create a title and to create and modify shapes
- H. Insert and modify an image
- I. Insert and modify a SmartArt graphic
- J. Insert a hyperlinked screen shot

Course Scope and Content: (Laboratory)

Unit I Creating a Worksheet and an Embedded Chart

- A. Design and create an Excel worksheet
- B. Format worksheet elements using cell styles
- C. Format numeric entries using buttons on the Home tab
- D. Create an embedded chart
- E. Change the worksheet name and tab color
- F. Change document properties
- G. Preview and print a worksheet
- H. Correct worksheet errors

Unit II Formulas, Functions, and Formatting

- A. Design and create an Excel worksheet
- B. Enter worksheet formulas using the keyboard and Point mode

- C. Apply the AVERAGE, MAX, and MIN functions
- D. Apply a theme to a workbook
- E. Add borders to worksheet elements
- F. Apply conditional formatting
- G. Modify column widths and row heights
- H. Set margins, headers, and footers in Page Layout View
- I. Create a chart and insert it into a new sheet

Unit III What-If Analysis, Charting, and Working with Large Worksheets

- A. Design and create an Excel worksheet
- B. Rotate text in a cell when entering column titles
- C. Use the fill handle to create a series
- D. Use format symbols when entering assumptions
- E. Display and format the system date
- F. Use absolute and mixed cell references in formulas
- G. Use the IF function
- H. Insert a Sparkline Column chart
- I. Apply background shading and borders
- J. Create charts on separate sheets
- K. Rearrange and color worksheet tabs

Unit IV Financial Functions, Data Tables, and Amortization Schedules

- A. Design and create amortization schedule and retirement savings worksheets
- B. Add colored borders to the worksheets
- C. Assign cell names and use the cell names when entering formulas
- D. Use the financial functions PMT (payment) and FV (future value)
- E. Create a data table to analyze data in the retirement savings worksheet
- F. Add a pointer to a data table using conditional formatting
- G. Analyze worksheet data by changing values
- H. Protect and unprotect worksheet ranges
- I. Hide and unhide cell gridlines, rows, columns sheets, and workbooks

Unit V Working with Multiple Worksheets and Workbooks

- A. Use a master sheet to create a multiple-sheet workbook
- B. Add a worksheet to a workbook
- C. Create and apply custom format codes
- D. Define, apply, and remove a style
- E. Use the ROUND, SUM, and AVERAGE functions
- F. Create formulas using 3-D cell references
- G. Add data to multiple worksheets at the same time
- H. Add a header or footer, modify margins, and insert a page break

Unit VI Creating, Sorting, and Querying a Table

- A. Create an Excel worksheet designed to be used as a database table
- B. Delete workbook sheets
- C. Use icon sets with conditional formatting
- D. Use the VLOOKUP function
- E. Add and delete records and change field values in a table
- F. Perform single and multiple sorts on records in a table

- G. Perform several queries on a table
- H. Apply database functions, the SUMIF function, and the COUNTIF function
- I. Display automatic subtotals
- J. Use Group and Outline features to hide and unhide data

Unit VII Creating Templates, Importing Data, and Working with SmartArt, Images, and Screen Shots

- A. Use a template to create a multiple-sheet workbook
- B. Create formulas using 3-D cell references
- C. Use the Find and Replace command
- D. Create a chart
- E. Use WordArt to create a title and to create and modify shapes
- F. Insert and modify an image
- G. Insert and modify a SmartArt graphic

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 5 hours per week outside of the regular class time doing the following

- 1. completing assigned reading in the textbook and online course materials,
- 2. completing lab activities,
- 3. answering assigned questions, and
- 4. participating in discussion activities.

Methods of Instruction:

- 1. Lecture, demonstration, class discussion, and problem solving.
- 2. Assigned reading from the textbook and online course materials.
- 3. Assigned hands-on lab activities.
- 4. Assigned independent final project.

Methods of Evaluation:

- 1. Computational or non-computational problem-solving demonstrations, including:
 - a. Quizzes
 - b. Demonstrated ability to use Microsoft Excel through satisfactory completion of lab activities
- 2. Other examinations, including:
 - a. Multiple choice
 - b. Demonstrated ability to use software tools
- 3. Evaluation of discussion activities.