Microsoft Excel 2016

Module 1: Getting Started with Excel

A Guide to this Instructor's Manual:

We have designed this Instructor's Manual to supplement and enhance your teaching experience through classroom activities and a cohesive module summary.

This document is organized chronologically, using the same headings in **blue** that you see in the textbook. Under each heading you will find (in order): Lecture Notes that summarize the section, Teacher Tips, Classroom Activities, and Lab Activities. Pay special attention to teaching tips and activities geared towards quizzing your students, enhancing their critical thinking skills, and encouraging experimentation within the software.

In addition to this Instructor's Manual, our Instructor's Resources also contains PowerPoint Presentations, Test Banks, and other supplements to aid in your teaching experience.

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Module Objectives

Students will have mastered the material in this module when they can:

- Open and close a workbook
- Navigate through a workbook and worksheet
- Select cells and ranges
- Plan and create a workbook
- Insert, rename, and move worksheets
- Enter text, dates, and numbers

- Undo and redo actions
- Resize columns and rows
- Enter formulas and the SUM and COUNT functions
- Copy and paste formulas
- Move or copy cells and ranges

- Insert and delete rows, columns, and ranges
- Create patterned text with Flash Fill
- Add cell borders and change font size
- Change worksheet views
- Prepare a workbook for printing
- Save a workbook with a new filename

Introducing Excel and Spreadsheets

LECTURE NOTES
- Introduce the terminology associated with spreadsheets and Excel
- Show the parts of the Excel window
- Discuss the commands available in Backstage view
- Explain how to open an existing workbook
- Demonstrate how using keyboard shortcuts can help you work faster
- Remind students how to access the Help system
- Review the difference between Touch Mode and Mouse Mode

TEACHER TIP
This first section will familiarize students with the basic parts of Excel and show them a very simple worksheet. Suggest that they think of each worksheet as a large sheet of paper. Just as a book is comprised of sheets of paper, so too, is an Excel workbook comprised of worksheets. Because all sorts of calculations can be made in the Excel spreadsheet, it is much more flexible than a paper spreadsheet.

Have students familiarize themselves with the names of all the parts of the Excel window. These names will be used over and over again throughout the text, so their understanding of key terms such as these will help them to build their knowledge and execute assignments with ease.

CLASSROOM ACTIVITIES
Group Activity: Print a copy of the spreadsheet shown in the Visual Overview with the key terms blanked out. Have students work in groups to fill in the key terms in the appropriate places.
Quick Quiz:
1. A(n) _____ is a collection of text and numbers laid out in a rectangular grid. (Answer: spreadsheet)
2. You press the _____ key to display the Key tips, which are labels that appear over each tab and command on the ribbon. (Answer: Alt)

Exploring a Workbook

LECTURE NOTES
- Review the difference between a worksheet and a chart sheet
- Explain how to change the active sheet
- Demonstrate the various ways to navigate within a worksheet
- Discuss how to select a cell range

CLASSROOM ACTIVITIES
Quick Quiz:
1. A(n) _____ contains a chart that provides a visual representation of worksheet data.
(Answer: chart sheet)
Each cell is identified by a(n) _____, which is based on the cell's column and row location.
(Answer: cell reference)

Closing a Workbook

LECTURE NOTES
- Review how to close a workbook

CLASSROOM ACTIVITIES
Quick Quiz:
1. On the ribbon, click the _____ tab to display Backstage view. (Answer: File)
2. What are the shortcut keys to close a file? (Answer: Ctrl+W)

Planning a Workbook

LECTURE NOTES
- Discuss the purpose of a planning analysis sheet
- Review the questions that help you think about the workbook's purpose

TEACHER TIP
Be sure to cover the planning process. Students often want to skip the whole planning process. Be sure to emphasize its importance and the fact that it will actually save them time in the long run.

CLASSROOM ACTIVITIES
Class Discussion: Brainstorm with the students to think of examples where a workbook would be beneficial (for example, to keep track of income for a fund drive for their club).
Group Activity: Divide the class into groups. Ask each group to go over the planning and analysis of one of the above examples and prepare a list of questions that need to be answered with the workbook. After several minutes, have the groups share their findings with the rest of the class.

Starting a New Workbook

LECTURE NOTES
- Demonstrate how to create a new workbook
- Discuss what makes a worksheet name descriptive
- Show how to rename a worksheet
- Review how to insert a worksheet
- Demonstrate how to move a worksheet
- Explain how to delete a worksheet
- Remind students what a shortcut menu is and how to use one

TEACHER TIP

Another way for your students to move a worksheet is to right-click the sheet tab and click Move or Copy. Excel opens the Move or Copy dialog box. From this dialog box students can move the selected sheet to a new location in the current workbook or to a new location in a different workbook.

CLASSROOM ACTIVITIES

Class Discussion: What is good practice with regard to placement of sheets in a workbook? (Answer: Place the most important sheets at the beginning and less important sheets at the end.) As good practice, how often should you save a workbook? (Answer: Every 10 minutes or so.) What is a shortcut menu? (Answer: A list of commands related to a selection that opens when you click the right mouse button.)

Quick Quiz:

1. True or False. When you create a new blank workbook, it is named Sheet1. (Answer: False, it is named Book1)

2. You create new workbooks from the New screen in _____ view. (Answer: Backstage)

Entering Text, Dates, and Numbers

LECTURE NOTES

- Discuss the types of content that can be entered into cells
- Show how to enter text into cells
- Demonstrate how to undo and redo an action
- Remind students how to edit cell content
- Be sure students understand the AutoComplete feature
- Describe how to display numbers as text
- Explain how to enter dates
- Discuss how to enter numbers

TEACHER TIPS

Cover the three basic general categories for data: text, numbers, and dates and times. Text data is a combination of letters, numbers, and some symbols. Numeric data is any number that can be used in a mathematical calculation. Date and time data are commonly recognized formats for date and time values. By default, text is left-aligned in cells, whereas numbers, dates, and times are right-aligned.

Excel will automatically change some dates into a default date format. For example, if your students enter the date "June 4, 2017" Excel will change the date to "4-June-17." If you enter the date using a two-digit year value such as "6/4/17" Excel will change the date to "6/4/2017." Excel refers to these date formats as short dates. Your students can control the automatic reformatting of short dates by changing Windows Regional Settings.

As soon as you begin to type a value for a cell, you enter editing mode. Explain that they must complete the edit before they can perform some other operation. Completing the edit is accomplished either by pressing the Enter key or by moving the cursor to another cell.

In addition to undoing and redoing an action, your students can also "repeat" an action. The repeat option is not added to the Quick Access Toolbar by default, but you can add it as follows:

1. Click the Microsoft Office Button and then click Excel Options.
2. Click Customize.
3. Under Choose Commands from click Popular Commands.
4. In the list of commands, click Repeat and then click Add.
5. Click OK. The repeat button is now available on the Quick Access Toolbar.

Illustrate how students can easily reverse the effect of an action by pressing the Undo button. This is a great "safety net" as long as too many actions have not been completed before you decide you want to reverse an action.

CLASSROOM ACTIVITIES
Critical Thinking Activity: How should Excel categorize telephone numbers: as text, numbers, or dates and times? Why? (Answer: Text. Because they have characters in them (dashes) and cannot be used in calculations.) How should Excel identify social security numbers? Why? (Answer: Text. Because they have other characters in them (like a dash or parentheses) and cannot be used in calculations.) How should Excel categorize dates like April 15, 2017? Why? (Answer: Date and Time. Excel interprets the cell entry "April 15, 2017" as a date and not as text because of the format.)
Quick Quiz:
1. _____ is any numerical value that can be used in a mathematical calculation. (Answer: Numeric data)
2. What does a green triangle in a cell indicate? (Answer: A potential error)

LAB ACTIVITIES
Walk students through entering some sample values into cells and then have them try their hand at entering telephone numbers, social security numbers, and dates. Have them experiment with different characters (like parentheses) to see how Excel treats this type of data.

Resizing Columns and Rows
LECTURE NOTES
- Demonstrate how to change column widths
- Review how to use AutoFit
- Discuss how to wrap text in a cell
- Explain how to change row heights
- Show how to change row heights

CLASSROOM ACTIVITIES
  Quick Quiz:
    1. A(n) _____ is a single point on a computer monitor or printout. (Answer: pixel)
    2. What is the default column width? (Answer: 8.43 characters)
    3. _____ changes the column width or row height to display the longest or tallest entry within the column or row. (Answer: AutoFit)
    4. True/False: When text wraps within a cell, the row height increases. (Answer: True)

Performing Calculations with Formulas

LECTURE NOTES
  - Discuss the parts of a formula
  - Demonstrate how to enter a formula
  - Explain the order of operations
  - Show how to copy and paste a formula

TEACHER TIP
Stress to students that a formula always needs to begin with an = sign.

Cover the operations and their operators listed in the module. It is very important that students understand the kinds of operations used in worksheets. In addition, the order of operations is very important. Students should understand that if they do not follow the rules of the order of operations, they could receive unexpected results..

Excel contains a wealth of keyboard shortcuts designed to work with formulas. Here are a few:

  · In a highlighted row, select all the cells that do not match the formula in the active cell (CTRL+\)
  · In a highlighted column, select all the cells that do not match the formula in the active cell (CTRL+SHIFT+\)
  · Select all of the cells directly referenced by the formula in the active cell (CTRL+[ )
  · Select all cells directly or indirectly referenced by formulas in the active cell (CTRL+SHIFT+{)
  · Select cells that contain formulas that directly reference the active cell (CTRL+])
  · Select cells that contain formulas that directly or indirectly reference the active cell (CTRL+SHIFT+})

Using these keyboard shortcuts is an effective way of displaying the relationship between a formula and the cell it references.

CLASSROOM ACTIVITIES
Quick Quiz:
1. In the order of operation rules, Excel first calculates the value of any operation within parentheses, and then it applies _____. (Answer: A)
    A. exponentiation
    B. addition
    C. multiplication and division
    D. subtraction
2. A(n) _____ is a mathematical expression that calculates a value. (Answer: formula)
3. True/False: A worksheet can contain the following type of data: text, numeric values, dates, and calculated values. (Answer: True)
Critical Thinking Activity:
- If you forget to put an = sign at the beginning of a formula, what will appear in the cell? (Answer: The actual data you entered, not the calculation)
- What is the result of the formula =40+10*4? (Answer: 80)
- What is the result of the formula =(40+10)*4 (Answer: 200)
- What is the result of the formula =40/10-4 (Answer: 0)

Simplifying Formulas with Functions
LECTURE NOTES
- Introduce function syntax
- Demonstrate how to enter functions with AutoSum

TEACHER TIP
Discuss that a function is a predefined, or built-in, formula for a commonly used calculation. Each Excel function has a name and syntax. The syntax specifies the order in which you must enter the different parts of the function and the location in which you must insert commas, parentheses, and other punctuation.

The AutoSum feature allows you to quickly enter a sum in a cell. Explain that the SUM function is the most widely used function and the AutoSum allows you to automate the process. Explain that when you choose the AutoSum feature, Excel will "guess" which cells should be included in the sum. Caution students to check the AutoSum range to make sure it is really what they want.

Your students can use the AutoSum button to insert any function into the active cell. To select a function, click the AutoSum button and then click More Functions and choose the function from the Insert Function dialog box. Excel will automatically insert the cell reference of the row or column into the function (if appropriate).

CLASSROOM ACTIVITIES
    Quick Quiz:
    1. Every function follows a set of rules, or _____. (Answer: D)
        A. operations
        B. arguments
        C. reference
        D. syntax
    2. True/False: Functions are used to simplify formulas. (Answer: True)
    Group Activity: Divide students into groups of two or three. Assign each group one of the functions. Ask each group to use the help available in the dialog box to research their assigned function. They should learn what the function does, what data is needed, and an example of how to use the function. In addition, have each group try to think of a situation in which they would use their assigned function. After about ten minutes, ask each group to share with the rest of the class what they have learned.

Modifying a Worksheet

LECTURE NOTES
- Demonstrate how to move and copy a cell or range
- Explain how to use the COUNT function
- Show how to insert a column or row
- Discuss the difference between deleting rows and columns and clearing them
- Review how to insert or delete a range

TEACHER TIP
Explain that worksheets in a workbook are much like sheets or pages within a book. Think of them as being stacked on top of one another and you just peruse through them like you flip the pages of a book. As with other features in Excel, there is more than one way to move, copy, and work with worksheets.

CLASSROOM ACTIVITIES
    Quick Quiz:
        1. The _____ function calculates how many unique items are include in a range? (Answer: C)
        A. NUMBER
        B. SUM
        C. COUNT
        D. ITEMS
        2. True/False: Deleting a column or row is not the same as clearing a column or row. (Answer: True)
    Class Discussion: To insert a column or row in Excel, what are the steps to follow? (Answer: Select the column(s) or row(s) where you want to insert the new column(s) or row(s); Excel will insert the same number of columns or rows as you select. In the Cells group on the Home tab, click the Insert button (or right-click a column or row heading or selected column and row headings), and then click Insert on the shortcut menu.)

Using Flash Fill
LECTURE NOTES
    • Demonstrate how to use Flash Fill

CLASSROOM ACTIVITIES
    Quick Quiz:
        1. When does Flash Fill work best? (Answer: When the pattern is clearly recognized from the values in the data.)
        2. True/False: Flash Fill enters formulas, not text. (Answer: False)

Formatting a Worksheet
LECTURE NOTES
    • Discuss how formatting changes a workbook's appearance
    • Demonstrate how to add cell borders
    • Show how to change the font size

CLASSROOM ACTIVITIES
    Quick Quiz:
        1. _____ changes a workbook's appearance so that the content of a worksheet is easier to read. (Answer: Formatting)
        2. True/False: The default font size for worksheets is 12 points. (Answer: False, the default is 11 points.)
    Class Discussion: What is the purpose of adding borders around cells that contain content? (Answer: It makes the worksheet content easier to read.)

Printing a Workbook

LECTURE NOTES
- Demonstrate how to change worksheet views
- Discuss the difference between portrait orientation and landscape orientation
- Review how to set the scaling options
- Remind students how to set the print options

TEACHER TIP
Remind students that switching views does not change the information in the workbooks, just the way you view it on the screen.

Explain that the Landscape orientation is often used when printing a worksheet because there are often many columns. Printing in landscape allows you to see more columns at once.

CLASSROOM ACTIVITIES
Quick Quiz:
1. What are the three ways to view a spreadsheet?(Answer: Normal view, Page Layout view, and Page Break Preview.)
2. _____ a printout reduces the width and the height of the printout to fit the number of pages you specify by shrinking the text size as needed. (Answer: Scaling)
Class Discussion: What is the difference between portrait orientation and landscape orientation? (Answer: In portrait orientation, the page is taller than it is wide. In landscape orientation, the page is wider than it is tall.)

Viewing Worksheet Formulas

LECTURE NOTES
- Demonstrate how to display formulas instead of results in a worksheet

TEACHER TIP
Explain also that printing the formulas is usually done to check your formulas. As an instructor, you might consider having students print their formulas along with any worksheets they turn in. This way when you see an error in their results you can compare the error with their formulas to see why they are not getting the correct results.
CLASSROOM ACTIVITIES
Quick Quiz:
1. To toggle in and out of formula view, press the _____ keys. (Answer: Ctrl+` keys. The ` grave accent symbol is usually located above the Tab key on your keyboard.)
Class Discussion: Why would you want to display the formulas? (Answer: This is useful if you encounter unexpected results and want to examine the underlying formulas, or if you want to discuss your formulas with a colleague.)

Saving a Workbook with a New Filename

LECTURE NOTES
- Demonstrate how to save a workbook with a new filename

CLASSROOM ACTIVITIES
   Quick Quiz:
      1. To save a copy of a workbook with a new filename or to a different location, you need to use
      the _____ command. (Answer: Save As)
   Class Discussion: How does the Save As command differ from the Save command? (Answer: The Save
   command updates the workbook file to reflect the latest content; when you use the Save As
   command, the previous version of the workbook remains stored as well.)

End of Module Material

- **Review Assignments:** Review Assignments provide students with additional practice of the skills they
  learned in the module using the same module case, with which they are already familiar. These
  assignments are designed as straight practice and do not include anything of an exploratory nature.
- **Case Problems:** A typical NP module has four Case Problems following the Review Assignments. Short
  modules can have fewer Case Problems (or none at all); other modules may have five Case Problems.
  The Case Problems provide further hands-on assessment of the skills and topics presented in the
  module, but with new case scenarios. There are five types of Case Problems:
  - **Apply**. In this type of Case Problem, students apply the skills that they have learned in the module
    to solve a new problem.
  - **Create**. In a Create Case Problem, students are either shown the end result (such as a finished Word
    document) and asked to create the document based on the figure provided, or, students are asked
    to create something from scratch in a more free-form manner.
  - **Challenge**. A Challenge Case Problem involves one or more Explore steps. These steps challenge
    students by having them go beyond what was covered in the module, either with guidance in the
    step or by using online Help as directed.
  - **Research**. A Research Case Problem requires students to find information on the Internet to help
    solve a problem or to include in the file they are creating.
  - **Troubleshoot**. In this type of Case Problem, certain steps of the exercise require students to identify
    and correct errors that are intentionally placed in the files. Completing these steps helps to
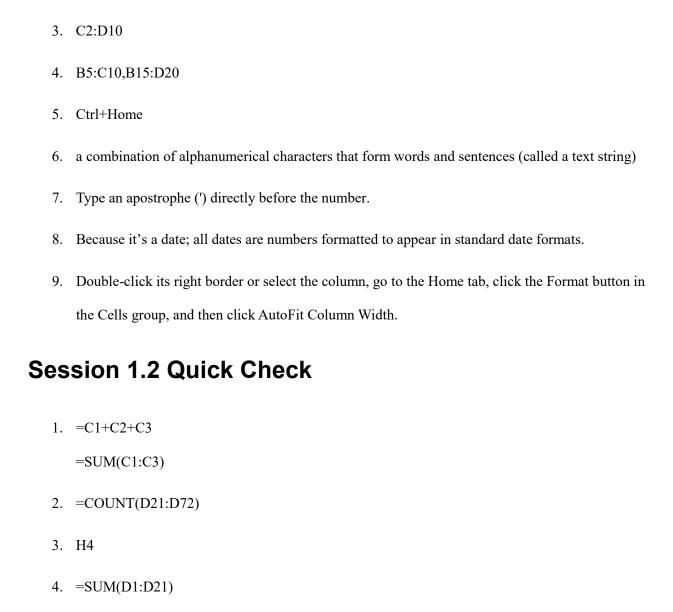   promote problem solving and critical thinking.

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Module 1 Quick Check Answers

Session 1.1 Quick Check

1. chart sheets and worksheets

2. B5

3. C2:D10

4. B5:C10,B15:D20

5. Ctrl+Home

6. a combination of alphanumerical characters that form words and sentences (called a text string)

7. Type an apostrophe (') directly before the number.

8. Because it's a date; all dates are numbers formatted to appear in standard date formats.

9. Double-click its right border or select the column, go to the Home tab, click the Format button in the Cells group, and then click AutoFit Column Width.

Session 1.2 Quick Check

1. =C1+C2+C3

   =SUM(C1:C3)

2. =COUNT(D21:D72)

3. H4

4. =SUM(D1:D21)

5. Normal view shows the columns and rows of the worksheet. Page Layout view shows the layout of the worksheet as it appears on a page. Page Break Preview shows the page breaks within the worksheet. Formula view shows formulas rather than the values returned by the formulas.

6. as dotted blue lines

7. landscape

8. Press the Ctrl+` keys to switch to formula view.

Henders

Author   Kari Essen
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Purpose   To record

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