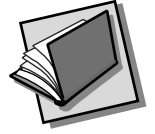


INSTRUCTOR REFERENCE



Save Time with Functions Using Excel



SAVE TIME WITH FUNCTIONS USING EXCEL

Course Number: 058203
Course Edition: 2.0
For software version: 97

ACKNOWLEDGEMENTS

Project Team

Curriculum Developer and Technical Writer: Marie McKenna • **Copy Editor:** Kristi Gaylord • **Layout Technicians:** Shane Dale, Isolina Salgado and Danielle Dell'Anno • **Quality Assurance Analyst:** Carrlee Schwartz • **Managing Editor, Solution Series:** Cheryl Russo

Administration

Senior Director of Content and Content Development: William O. Ingle • **Director of Certification:** Mike Grakowsky • **Director of Design and Web Development:** Joy Insinna • **Manager of Office Productivity and Applied Learning:** Cheryl Russo • **Manager of Databases, ERP, and Business Skills:** Mark Onisk • **Director of Business Development:** Kent Michels • **Instructional Design Manager:** Susan L. Reber • **Manager of Publishing Services:** Michael Hoyt

NOTICES

DISCLAIMER: While Element K Press LLC takes care to ensure the accuracy and quality of these materials, we cannot guarantee their accuracy, and all materials are provided without any warranty whatsoever, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. The name used in the data files for this course is that of a fictitious company. Any resemblance to current or future companies is purely coincidental. We do not believe we have used anyone's name in creating this course, but if we have, please notify us and we will change the name in the next revision of the course. Element K is an independent provider of integrated training solutions for individuals, businesses, educational institutions, and government agencies. Use of screenshots or another entity's product name or service in this book is for editorial purposes only. No such use should be construed to imply sponsorship or endorsement of the book by, nor any affiliation of such entity with Element K.

TRADEMARK NOTICES: Element K and the Element K logo are trademarks of Element K LLC. Excel is a registered trademark of Microsoft Corporation in the U.S. and other countries; the Microsoft Corporation products and services discussed or described may be trademarks of Microsoft Corporation. All other product names and services used throughout this book may be common law or registered trademarks of their respective proprietors.

Copyright © 2001 Element K Content LLC. All rights reserved. Screenshots used for illustrative purposes are the property of the software proprietor. This publication, or any part thereof, may not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, storage in an information retrieval system, or otherwise, without express written permission of Element K, 500 Canal View Boulevard, Rochester, NY 14623, (585) 240-7500, (800) 434-3466. Element K Press LLC's World Wide Web site is located at www.elementkcourseware.com.

This book conveys no rights in the software or other products about which it was written; all use or licensing of such software or other products is the responsibility of the user according to terms and conditions of the owner. Do not make illegal copies of books or software. If you believe that this book, related materials, or any other Element K materials are being reproduced or transmitted without permission, please call 1-800-478-7788.

HELP US IMPROVE
OUR COURSEWARE

Your comments are important to us. Please contact us at Element K Press LLC, 1-800-478-7788, 500 Canal View Boulevard, Rochester, NY 14623, Attention: Product Planning, or through our Web site at <http://support.elementkcourseware.com>.



INSTRUCTOR REFERENCE

Welcome to the Element K Content training team.

Our goal is to provide you with the best computer training available—and we know exactly what that takes. Our corporate heritage is based in training. In fact, we use our courseware every day, in classes just like yours, so you can be confident that the material has been tested and proven to be effective.

If you have any suggestions on how we can improve our products or services, please contact us.

ABOUT THIS WORKBOOK

Save Time with Functions Using Excel is a hands-on workbook that will help students complete tasks more efficiently by using a variety of worksheet functions.

PREREQUISITES

We designed *Save Time with Functions Using Excel* for the student who is comfortable with personal computers, educated in Excel 97 or 2000, and who needs to learn how to use some of Excel's most useful worksheet functions and time-saving techniques. Students should take:

- *Excel 97: Worksheets.*
- Or *Excel 2000: Worksheets.*
- Or have equivalent knowledge.

Students participating in this Lab should be familiar with the following skills:

- Creating and saving a worksheet.
- Opening an existing worksheet and using simple editing techniques.
- Creating formulas by using some of Excel's basic built-in functions, including Sum and Average.
- Navigating and selecting ranges in a worksheet.
- Changing the appearance of data using formatting techniques.
- Moving and copying formulas and other data.



OBJECTIVES

When students are done working their way through these Labs, they'll be able to:

- Create formulas and perform calculations involving date and time.
- Create formulas and perform calculations involving date and time.
- Do some data analysis using Excel's Statistical functions.
- Handle formulas that sometimes result in errors; use Excel's auditing features.

ABOUT THE SOLUTION SERIES LAB MODEL

Element K Content's Solution Series Lab workbooks provide focused, business-oriented activities for experienced software users. Our goal is to provide students with several software tips and techniques that they might not find in a typical training manual or in an off-the-shelf reference book. Students will have the opportunity to tie together skills and theories, and transfer their knowledge to common business situations. Students can even experiment with their own data files in this learning environment.

Each workbook contains a group of Labs related to a central theme. Students will have an opportunity to apply skills and push the limits of the software application while completing business tasks. Students use techniques that let them pull together some software basics and then go beyond the basics.

The Solution Series Lab model can be used in a variety of educational settings. Whether you're using the workbooks for instructor-led training, additional practice material, self-study skills enhancement, or with a distance learning class, the Solution Series Lab model provides students and instructors plenty of flexibility.



SETUP INFORMATION

Hardware and software requirements

To run this workshop, students will need:

1. An IBM or IBM-compatible computer equipped with Excel 97 or 2000
2. Excel's Analysis ToolPak installed and enabled for Lab 1

Data Files

We've created sample data files for you to use to complete this Lab. If you would like to use your own files in addition to ours, please do. The step-by-step instructions are geared toward the files we've created, but you can apply the steps to your own files during practice time.

To use our samples from the data disk or CD-ROM, copy them to a folder (for example, C:\Student) on your hard drives. If a self-extracting data file is provided, run the self-extracting data file located on the data disk. This will place the data files in a Student folder on your hard drives.

To download the files we've created, you can also go to:
<http://support.elementcourseware.com/>

A Solutions folder has been provided on the data disk. This folder contains completed files (when appropriate) to which you can compare your work.

WHAT YOU'LL FIND IN EACH WORKBOOK

- A table of contents
- An Introduction, which contains a summary of what each workbook contains
- An Overview, which provides a business case, a list of the Lab objectives, and hardware and software requirements, as well as the student prerequisites
- Labs containing introductions, objectives, setup instructions, Lab setup information, numbered steps, and conclusions
- Notes, QuickTips, and Solution Points where appropriate in each Lab
- Solution Series Review
- A QuickSteps section with procedures that correspond to each Lab

Overview

Each workbook begins with an introduction to the Labs. In this section, you'll find out about the requirements for hardware and software; student prerequisites are listed here as well.



Labs

Every workbook is broken down into Labs. Each Lab contains activities that relate to the central theme of the Lab. The main components of each Lab are as follows:

- Lab setup - At the beginning of each Lab, students will find a list detailing what they'll need to complete that particular Lab.
- Numbered steps - Students will use each Lab's detailed, numbered steps section (specific instructions) to complete the Lab.
- Solution Points - Students will find useful supporting information related to each Lab throughout the workbook. They provide helpful background or conceptual information.
- Notes - Some activities contain Notes within the numbered steps. A note signifies an important piece of information that students should be aware of while following the step-by-step instructions.
- QuickTips - QuickTips provide important reminders, tips, and short-cuts to make the tasks easier.
- Illustrations - Within each Lab, students will find illustrations that give them feedback at crucial steps.

Review

Students will find a set of review questions at the end of each workbook. These questions can be used for independent reflection, or for discussion between the students and the instructor.

QuickSteps

If students would like to complete a Lab without guided, detailed steps, they can use the procedures found in the QuickSteps section. By using this guide, they'll have an opportunity to investigate solutions, since the QuickSteps section does not contain step-by-step instructions. This is ideal for the discovery learner!

HOW TO USE THIS WORKBOOK WITH THE SOLUTION SERIES LAB MODEL

Just as you would experiment in a school laboratory, encourage students to experiment in this workshop. We recommend using the following technique when presenting Labs in the Solution Series line:

- **Introduce the workshop.** Explain how you'll run the day, and introduce the business scenario(s) that will frame the course's Labs. You may want to show final products that will be created during the Labs, so that students know where you're headed.
- **Introduce each individual Lab.** Explain the purpose of the Lab and discuss the concepts required to complete it.
- **Let students complete the Lab as they choose.** They can follow the general instructions in the QuickSteps section or the step-by-step instructions in the Lab. Students may choose to work independently or with others, depending on their learning styles.
- **Review each Lab's major components.** After students complete a Lab, review the main points with them. Ask questions to check for student understanding and then move on to set up and deliver the next Lab.

Some workbooks contain Labs that build on one another so the student creates a final product by the time they complete the last Lab. In this case, they should work through the Labs in sequence. Other workbooks simply contain Labs based on a related topic so the Labs don't need to be completed sequentially. The Teaching This Workbook section will address this point for each Lab.

TEACHING THIS WORKBOOK

Introducing the workshop

In this Excel Lab, students will use a variety of functions and techniques in different worksheets. As you prepare to run the Lab, we recommend keying the activities in advance, so that you're familiar with all of the techniques.



As you set up the day and introduce the Lab to students, you can show them the sample files they'll be working with or printouts of the completed files. As you show students the finished products, mention that they can complete the activities using either the sample data we've provided or their own data.

Sequence of Labs

The Labs in *Save Time with Functions Using Excel* build on one another, so it is suggested that students complete them in the sequence in which they are presented.

Lab 1: Track elapsed time

When entering yesterday's date, point out that Excel 97 (or higher) will automatically interpret the year "00" as 2000. For example, if you enter 1/5/00 as yesterday's date, Excel will interpret that date as January 5, 2000.

Even though Excel takes care of converting dates to serial values in the background for you, it's helpful to know that that's what's going on behind the scenes. With this piece of information, date arithmetic (and sorting) will make more sense. There's no need to belabor the point, but be sure to briefly explain Excel's date numbering system.

Throughout this Lab's activities, students will be instructed to use Excel's Help system. This is a very important tool to become aware of and familiar with when using functions. Point out that except for the functions you use often, you'll probably forget the syntax for functions. This is to be expected! There are a lot of functions! Encourage students to use the Help system (and the Paste Function feature) regularly for reminders on how to use functions.

In the portion of this activity that covers the Workday function, students first create a simple cell addition formula to calculate a project due date. Point out that this formula has limitations, since it doesn't exclude weekends or holidays. By using the Workday functions, Excel automatically excludes weekends. By using this function's optional holiday range, you can exclude dates of holidays, vacations, and any other dates you need to exclude. To set up our sample file so that it excludes vacation days, you could add vacation days to the list of holidays and extend the range referred to in the formula using the Workday function.





Lab 2: Get the information you need from your Excel list

At the beginning of this activity, before using Dsum, students are asked how they would add all the gross pay entries for employees who earn more than \$1,500 per week. Without Dsum, students could sort the list or apply a filter to quickly find those people; then, they could use the Sum function to add the appropriate cells. Point out that with Dsum, those steps aren't necessary.

With the Dcount function task, students are asked how they'd locate and count those who work 35 hours or fewer per week. To do this, they'd need to modify the criteria range to include ≤ 35 .

At the end of the Sumif function task, students are asked how they'd add the gross pay for all employees hired after June 1, 1998; the criteria would need to be set to $>6/1/98$.

When students use the If function, they're asked what other formula they could construct to achieve the same result. One possibility: `=If(G5<=35,"PT", "FT")`. To build an even more flexible, versatile formula, you could put the hours required for full-time employment in a separate cell, and then refer to that cell in the If formula, rather than to a fixed number.

When applying filters, if students would like to preserve any subsets of the main list, they can manually copy the filtered list to a new worksheet. An alternative is to use Excel's Advanced Filter feature.

Lab 3: Simplify statistical analysis with functions

The terms mean, median, and mode might ring an old bell for students. Take a moment to review what these terms mean. Point out that the term "average" typically refers to the mean; this is the case for Excel's Average function.

In the task where a standard deviation is calculated, students will arrive at a value of 11.0. This is the average of the distance from which this batch of scores deviates from the mean.

Students use the Min and Max functions to find the lowest and highest scores in the sample list; another technique would be to sort the list by the Score column and locate the first and last items on the list.

When counting items on the list, students will find out that 21 students took the exam and 17 passed with a grade of 70. When the passing score is changed to 65, 18 people pass.

Lab 4: Apply error-handling and auditing techniques

The Equipment Sales sample file contains a couple of error messages. The #DIV/0! appears because the Average function is being instructed to add empty cells, and then divide by zero. Since division by zero is not possible, an error message appears.

When the If and Iserror functions are combined, students can return a zero instead of the text “No Data” by simply placing a zero in the formula instead of the quoted text.

In the beginning of the auditing task, students might accidentally discover a technique for moving the cell pointer to the end of the active range. You might want to demonstrate this technique upfront by double-clicking on various edges of a cell. The cell pointer will move in the direction (left, right, up, or down) you specify (by the edge you click on) to the last active cell in the range of cells where your cell pointer is located.

YOUR NOTES:



Solution Series

REVIEW



Save Time with Functions Using Excel

Students have completed a series of activities where they used functions and time-saving techniques in a variety of business situations.

The students used the questions below to review what they have learned. The answers to the questions can be used to spark discussions with your students.



Review Questions

1. **When might you need to do calculations on date or time entries?**

This would be necessary any time you need to figure out how much time has passed.

2. **When might you use the Sumif function instead of Dsum?**

Dsum is for use with files that have been set up as Excel lists; Sumif can be used with any Excel file, regardless of how it has been set up.

3. **What can you do to remind yourself of the syntax for a Statistical function (or any Excel function)?**

You can use Excel's Help system; search for the particular function category you'd like more information on, such as Statistical. You can also use the Paste Function feature to use a dialog box that asks for just the specific arguments required to use the function of your choice.

4. **After tracing cell precedents in your formulas, you find that the error messages appearing in your worksheet are there because you don't have all of the needed data yet. What can you do so that the error messages don't appear in a preliminary report you need to send to your boss?**

There are a few things you can do. For instance, you can use the Iserror function with formulas to test whether they'll result in errors. You can combine Iserror with the If function to control what is returned in the cell whose formula results in an error.

Additional Resources

1. Additional resources are available at the Element K Journals Web site. Point your browser to <http://www.elementkjournals.com/ime>



058203 IR rev 2.0



ISBN 1-58719-041-9

