



Excel® VBA



24-Hour Trainer

Video Lessons on DVD

Tom Urtis

www.it-ebooks.info

EXCEL® VBA 24-HOUR TRAINER

| | |
|---|-------|
| INTRODUCTION | xxvii |
| ▶ SECTION I UNDERSTANDING THE BASICS | |
| LESSON 1 Introducing VBA | 3 |
| LESSON 2 Getting Started with Macros | 9 |
| LESSON 3 Introducing the Visual Basic Editor | 19 |
| LESSON 4 Working in the VBE..... | 27 |
| ▶ SECTION II DIVING DEEPER INTO VBA | |
| LESSON 5 Object-oriented Programming — An Overview..... | 43 |
| LESSON 6 Variables, Data Types, and Constants | 49 |
| LESSON 7 Understanding Objects and Collections | 61 |
| LESSON 8 Making Decisions with VBA | 69 |
| ▶ SECTION III BEYOND THE MACRO RECORDER: WRITING YOUR OWN CODE | |
| LESSON 9 Repeating Actions with Loops | 85 |
| LESSON 10 Working with Arrays | 99 |
| LESSON 11 Automating Procedures with Worksheet Events..... | 111 |
| LESSON 12 Automating Procedures with Workbook Events | 123 |
| LESSON 13 Using Embedded Controls | 135 |
| LESSON 14 Programming Charts | 151 |
| LESSON 15 Programming PivotTables and PivotCharts | 163 |
| LESSON 16 User Defined Functions..... | 183 |
| LESSON 17 Debugging Your Code..... | 195 |

Continues

| | | |
|---------------------|--|-----|
| ► SECTION IV | ADVANCED PROGRAMMING TECHNIQUES | |
| LESSON 18 | Creating UserForms | 215 |
| LESSON 19 | UserForm Controls and Their Functions | 231 |
| LESSON 20 | Advanced UserForms | 249 |
| LESSON 21 | Class Modules | 263 |
| LESSON 22 | Add-Ins | 279 |
| LESSON 23 | Managing External Data | 295 |
| LESSON 24 | Data Access with ActiveX Data Objects | 307 |
| LESSON 25 | Not Gone, Not Forgotten. | 315 |
| ► SECTION V | INTERACTING WITH OTHER OFFICE APPLICATIONS | |
| LESSON 26 | Overview of Office Automation from Excel | 327 |
| LESSON 27 | Working with Word from Excel | 333 |
| LESSON 28 | Working with Outlook from Excel | 343 |
| LESSON 29 | Working with Access from Excel | 353 |
| LESSON 30 | Working with PowerPoint from Excel | 363 |
| APPENDIX | What's on the DVD? | 371 |
| INDEX | | 375 |

Excel[®] VBA

24-HOUR TRAINER

www.it-ebooks.info

Excel[®] VBA
24-HOUR TRAINER

Tom Urtis



WILEY

Wiley Publishing, Inc.

www.it-ebooks.info

Excel® VBA 24-Hour Trainer

Published by
Wiley Publishing, Inc.
10475 Crosspoint Boulevard
Indianapolis, IN 46256
www.wiley.com

Copyright © 2011 by Wiley Publishing, Inc., Indianapolis, Indiana

Published by Wiley Publishing, Inc., Indianapolis, Indiana

Published simultaneously in Canada

ISBN: 978-0-470-89069-1
ISBN: 978-1-118-08764-0
ISBN: 978-1-118-08760-2
ISBN: 978-1-118-08755-8

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at <http://www.wiley.com/go/permissions>.

Limit of Liability/Disclaimer of Warranty: The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation warranties of fitness for a particular purpose. No warranty may be created or extended by sales or promotional materials. The advice and strategies contained herein may not be suitable for every situation. This work is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional services. If professional assistance is required, the services of a competent professional person should be sought. Neither the publisher nor the author shall be liable for damages arising herefrom. The fact that an organization or Web site is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or website may provide or recommendations it may make. Further, readers should be aware that Internet websites listed in this work may have changed or disappeared between when this work was written and when it is read.

For general information on our other products and services please contact our Customer Care Department within the United States at (877) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Library of Congress Control Number: 2011922792

Trademarks: Wiley and the Wiley logo are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates, in the United States and other countries, and may not be used without written permission. Excel is a registered trademark of Microsoft Corporation. All other trademarks are the property of their respective owners. Wiley Publishing, Inc. is not associated with any product or vendor mentioned in this book.

www.it-ebooks.info

To Bill and Mary Urtis

www.it-ebooks.info

ABOUT THE AUTHOR



TOM URTIS is a Microsoft Office developer and programming expert with over 20 years of experience in developing customized Office programs with Visual Basic for Applications (VBA) and Application Programming Interface (API). In 2000 Tom founded Atlas Programming Management (www.atlaspm.com), an Office solutions company in Silicon Valley that specializes in Excel to provide consulting, project development, training, and support for a diverse international clientele. As an Excel trainer, Tom created the Excel Aptitude Test (XAT, www.xatcorp.com), which measures knowledge of Excel for a customized training curriculum based on the test score.

Tom is co-author of *Holy Macro! It's 2,500 Excel VBA Examples*, and he has served as a technical editor and consultant for other Excel books and training materials. Tom received the Most Valuable Professional award for Excel from Microsoft in 2008, and it has been renewed each year thereafter in recognition of his Excel skills and contributions to the Excel community. Tom is one of some 100 Excel experts worldwide who hold the Excel MVP award.

A native of New York state, Tom is a graduate of Michigan State University, and has lived and worked in the San Francisco Bay Area for 30 years. Tom is an avid sports fan and collector of rare sports memorabilia, and he enjoys the outdoor life that California offers. He can be reached by email, at tom@atlaspm.com.

ABOUT THE TECHNICAL EDITOR

MIKE ALEXANDER is a Microsoft MVP and the author of several books on advanced business analysis with Microsoft Access and Excel. He has more than 15 years of experience consulting and developing Office solutions. In his spare time he runs a free tutorial site, www.datapigtechnologies.com, where he shares basic Access and Excel tips with the Office community.

CREDITS

EXECUTIVE EDITOR

Carol Long

PROJECT EDITOR

Christopher J. Rivera

DEVELOPMENT EDITOR

Kezia Endsley

TECHNICAL EDITOR

Michael Alexander

PRODUCTION EDITOR

Kathleen Wisor

COPY EDITOR

Kim Cofer

EDITORIAL DIRECTOR

Robyn B. Siesky

EDITORIAL MANAGER

Mary Beth Wakefield

FREELANCER EDITORIAL MANAGER

Rosemarie Graham

ASSOCIATE DIRECTOR OF MARKETING

David Mayhew

PRODUCTION MANAGER

Tim Tate

**VICE PRESIDENT AND EXECUTIVE
GROUP PUBLISHER**

Richard Swadley

**VICE PRESIDENT AND EXECUTIVE
PUBLISHER**

Barry Pruett

ASSOCIATE PUBLISHER

Jim Minatel

PROJECT COORDINATOR, COVER

Katie Crocker

COMPOSITOR

JoAnn Kolonick,
Happenstance Type-O-Rama

PROOFREADER

Louise Watson, Word One

INDEXER

Robert Swanson

COVER DESIGNER

Michael Trent

COVER IMAGE

© Richard Cano

ACKNOWLEDGMENTS

THE PRODUCTION OF THIS BOOK was made possible by the combined efforts of highly talented people, starting with the entire Wiley Publishing team. Thanks to Carol Long, the Executive Editor, who got the project approved and kept the process moving from start to finish. Thanks to Mike Alexander, who introduced me to Wiley Publishing and was the Technical Editor. Thanks to Ed Connor and Christopher Rivera, the Project Editors, and to Kim Cofer, who edited copy. Thanks to Kezia Endsley, the Design Editor. Thanks to Rosemarie Graham, Carol Kessel, Mary Beth Wakefield, and Ashley Zurcher of Wiley Publishing for all their assistance. Many thanks to the Excel development team at Microsoft Corporation for improving Excel with each new release of Office, while considering suggestions from Excel users. Finally, a special thanks to the global Excel community. You've shown me creative ways to use Excel over the years, and taught me how to explain technical concepts to beginning Excel users.

CONTENTS

INTRODUCTION

xxvii

PART I: UNDERSTANDING THE BASICS

| | |
|---|-----------|
| CHAPTER 1: INTRODUCING VBA | 3 |
| What Is VBA? | 3 |
| A Brief History of VBA | 4 |
| What VBA Can Do for You | 5 |
| Automating a Recurring Task | 5 |
| Automating a Repetitive Task | 5 |
| Running a Macro Automatically if Another Action Takes Place | 5 |
| Creating Your Own Worksheet Functions | 5 |
| Simplifying the Workbook's Look and Feel for Other Users | 5 |
| Controlling Other Office Applications from Excel | 6 |
| Liabilities of VBA | 7 |
| Try It | 8 |
| CHAPTER 2: GETTING STARTED WITH MACROS | 9 |
| Composing Your First Macro | 9 |
| Accessing the VBA Environment | 9 |
| Using the Macro Recorder | 12 |
| Running a Macro | 16 |
| The Macro Dialog Box | 16 |
| Shortcut Key | 17 |
| Try It | 17 |
| Lesson Requirements | 18 |
| Step-by-Step | 18 |
| CHAPTER 3: INTRODUCING THE VISUAL BASIC EDITOR | 19 |
| What Is the VBE? | 19 |
| How To Get Into the VBE | 20 |

| | |
|---|-----------|
| Understanding the VBE | 20 |
| The Project Explorer Window | 21 |
| The Code Window | 21 |
| The Properties Window | 22 |
| The Immediate Window | 22 |
| Understanding Modules | 22 |
| Using the Object Browser | 23 |
| Exiting the VBE | 24 |
| Try It | 25 |
| CHAPTER 4: WORKING IN THE VBE | 27 |
| <hr/> | |
| Toolbars in the VBE | 27 |
| Macros and Modules | 28 |
| Locating Your Macros | 28 |
| Understanding the Code | 29 |
| Editing a Macro with Comments and Improvements to the Code | 30 |
| Deleting a Macro | 33 |
| Inserting a Module | 33 |
| Renaming a Module | 34 |
| Deleting a Module | 36 |
| Locking and Protecting the VBE | 36 |
| Try It | 37 |
| Lesson Requirements | 37 |
| Step-by-Step | 37 |
| <hr/> | |
| PART II: DIVING DEEPER INTO VBA | |
| <hr/> | |
| CHAPTER 5: OBJECT-ORIENTED PROGRAMMING — AN OVERVIEW | 43 |
| <hr/> | |
| What “Object-Oriented Programming” Means | 43 |
| The Object Model | 44 |
| Properties | 45 |
| Methods | 46 |
| Collections | 46 |
| Try It | 47 |
| <hr/> | |
| CHAPTER 6: VARIABLES, DATA TYPES, AND CONSTANTS | 49 |
| <hr/> | |
| What Is a Variable? | 49 |
| Assigning Values to Variables | 50 |
| Why You Need Variables | 50 |

| | |
|---|-----------------|
| Data Types | 51 |
| Understanding the Different Data Types | 51 |
| Declaring a Variable for Dates and Times | 53 |
| Declaring a Variable with the Proper Data Type | 53 |
| Forcing Variable Declaration | 54 |
| Understanding a Variable's Scope | 56 |
| Local Macro Level Only | 56 |
| Module Level | 56 |
| Application Level | 57 |
| Constants | 57 |
| Choosing the Scope and Lifetime of Your Constants | 58 |
| Try It | 58 |
| Lesson Requirements | 58 |
| Step-by-Step | 58 |
| <hr/> CHAPTER 7: UNDERSTANDING OBJECTS AND COLLECTIONS | <hr/> 61 |
| Workbooks | 61 |
| Worksheets | 62 |
| Cells and Ranges | 63 |
| SpecialCells | 64 |
| Try It | 65 |
| Lesson Requirements | 65 |
| Step-by-Step | 65 |
| <hr/> CHAPTER 8: MAKING DECISIONS WITH VBA | <hr/> 69 |
| Understanding Logical Operators | 69 |
| AND | 70 |
| OR | 70 |
| NOT | 71 |
| Choosing Between This or That | 72 |
| If...Then | 72 |
| If...Then...Else | 73 |
| If...Then...Elseif | 74 |
| Select Case | 74 |
| Getting Users to Make Decisions | 76 |
| Message Boxes | 76 |
| Input Boxes | 77 |
| Try It | 78 |
| Lesson Requirements | 78 |
| Step-by-Step | 78 |

**PART III: BEYOND THE MACRO RECORDER:
WRITING YOUR OWN CODE**

| | |
|--|------------|
| CHAPTER 9: REPEATING ACTIONS WITH LOOPS | 85 |
| What Is a Loop? | 85 |
| Types of Loops | 86 |
| For...Next | 87 |
| For...Each...Next | 88 |
| Exiting a For... Loop | 89 |
| Looping In Reverse with Step | 90 |
| Do...While | 91 |
| Do...Until | 91 |
| Do...Loop...While | 93 |
| Do...Loop...Until | 94 |
| While...Wend | 94 |
| Nesting Loops | 94 |
| Try It | 95 |
| Lesson Requirements | 96 |
| Step-by-Step | 96 |
| CHAPTER 10: WORKING WITH ARRAYS | 99 |
| What Is an Array? | 99 |
| What Arrays Can Do for You | 101 |
| Declaring Arrays | 102 |
| The Option Base Statement | 103 |
| Boundaries in Arrays | 104 |
| Declaring Arrays with Fixed Elements | 104 |
| Declaring Dynamic Arrays with ReDim and Preserve | 105 |
| Try It | 107 |
| Lesson Requirements | 107 |
| Step-by-Step | 107 |
| CHAPTER 11: AUTOMATING PROCEDURES WITH WORKSHEET EVENTS | 111 |
| What Is an “Event”? | 111 |
| Worksheet Events — an Overview | 112 |
| Where Does the Worksheet Event Code Go? | 112 |
| Enabling and Disabling Events | 114 |

| | |
|--|------------|
| Examples of Common Worksheet Events | 115 |
| Worksheet_Change Event | 115 |
| Worksheet_SelectionChange Event | 116 |
| Worksheet_BeforeDoubleClick Event | 116 |
| Worksheet_BeforeRightClick Event | 117 |
| Worksheet_FollowHyperlink Event | 117 |
| Worksheet_Activate Event | 117 |
| Worksheet_Deactivate Event | 118 |
| Worksheet_Calculate Event | 118 |
| Worksheet_PivotTableUpdate Event | 119 |
| Try It | 119 |
| Lesson Requirements | 119 |
| Step-by-Step | 119 |

CHAPTER 12: AUTOMATING PROCEDURES WITH WORKBOOK EVENTS 123

| | |
|---|------------|
| Workbook Events — An Overview | 123 |
| Where Does the Workbook Event Code Go? | 123 |
| Entering Workbook Event Code | 125 |
| Examples of Common Workbook Events | 126 |
| Workbook_Open Event | 126 |
| Workbook_BeforeClose Event | 127 |
| Workbook_Activate Event | 127 |
| Workbook_Deactivate Event | 128 |
| Workbook_SheetChange Event | 128 |
| Workbook_SheetSelectionChange Event | 128 |
| Workbook_SheetBeforeDoubleClick Event | 129 |
| Workbook_SheetBeforeRightClick Event | 129 |
| Workbook_SheetPivotTableUpdate Event | 130 |
| Workbook_NewSheet Event | 130 |
| Workbook_BeforePrint Event | 130 |
| Workbook_SheetActivate Event | 131 |
| Workbook_SheetDeactivate Event | 131 |
| Workbook_BeforeSave Event | 131 |
| Try It | 132 |
| Lesson Requirements | 132 |
| Step-by-Step | 132 |

| | |
|--|------------|
| CHAPTER 13: USING EMBEDDED CONTROLS | 135 |
| Working with Forms Controls and ActiveX Controls | 135 |
| The Forms Toolbar | 136 |
| The Control Toolbox | 140 |
| Try It | 144 |
| Lesson Requirements | 144 |
| Step-by-Step | 144 |
| CHAPTER 14: PROGRAMMING CHARTS | 151 |
| Adding a Chart to a Chart Sheet | 152 |
| Adding an Embedded Chart to a Worksheet | 154 |
| Moving a Chart | 155 |
| Looping Through All Embedded Charts | 157 |
| Deleting Charts | 158 |
| Renaming a Chart | 159 |
| Try It | 160 |
| Lesson Requirements | 160 |
| Step-by-Step | 160 |
| CHAPTER 15: PROGRAMMING PIVOTTABLES AND PIVOTCHARTS | 163 |
| Creating a PivotTable Report | 163 |
| Hiding the PivotTable Field List | 167 |
| Using the Report Filter Area | 167 |
| Formatting Numbers in the Values Area | 168 |
| Why It's Called a PivotTable | 170 |
| Creating a PivotChart | 171 |
| Understanding PivotCaches | 173 |
| Manipulating PivotFields in VBA | 176 |
| Manipulating PivotItems with VBA | 177 |
| Creating a PivotTables Collection | 177 |
| Try It | 178 |
| Lesson Requirements | 178 |
| Step-by-Step | 179 |
| CHAPTER 16: USER DEFINED FUNCTIONS | 183 |
| What Is a User Defined Function? | 183 |
| Characteristics of User Defined Functions | 184 |
| Anatomy of a UDF | 184 |
| UDF Examples That Solve Common Tasks | 185 |

| | |
|--|------------|
| Volatile Functions | 188 |
| The Name of the Active Worksheet and Workbook | 189 |
| UDFs with Conditional Formatting | 190 |
| Calling Your Function from a Macro | 190 |
| Adding a Description to the Insert Function Dialog | 191 |
| Try It | 193 |
| Lesson Requirements | 193 |
| Step-by-Step | 193 |
| CHAPTER 17: DEBUGGING YOUR CODE | 195 |
| What Is Debugging? | 195 |
| What Causes Errors? | 196 |
| Weapons of Mass Debugging | 198 |
| The Debugging Toolbar | 198 |
| Trapping Errors | 207 |
| Error Handler | 207 |
| Bypassing Errors | 208 |
| Try It | 210 |
| Lesson Requirements | 210 |
| Step-by-Step | 210 |
| PART IV: ADVANCED PROGRAMMING TECHNIQUES | |
| CHAPTER 18: CREATING USERFORMS | 215 |
| What Is a UserForm? | 215 |
| Creating a UserForm | 216 |
| Designing a UserForm | 218 |
| Showing a UserForm | 225 |
| Where Does the UserForm's Code Go? | 225 |
| Closing a UserForm | 226 |
| Unloading a UserForm | 226 |
| Hiding a UserForm | 227 |
| Try It | 228 |
| Lesson Requirements | 228 |
| Step-by-Step | 228 |

| | |
|--|------------|
| CHAPTER 19: USERFORM CONTROLS AND THEIR FUNCTIONS | 231 |
| Understanding the Frequently Used UserForm Controls | 231 |
| CommandButtons | 232 |
| Labels | 232 |
| TextBoxes | 234 |
| ListBoxes | 236 |
| ComboBoxes | 238 |
| CheckBoxes | 240 |
| OptionButtons | 241 |
| Frames | 243 |
| MultiPages | 245 |
| Try It | 246 |
| Lesson Requirements | 246 |
| Step-by-Step | 246 |
| CHAPTER 20: ADVANCED USERFORMS | 249 |
| The UserForm Toolbar | 249 |
| Modal versus Modeless | 250 |
| Disabling the UserForm's Close Button | 250 |
| Maximizing Your UserForm's Size | 252 |
| Selecting and Displaying Photographs on a UserForm | 252 |
| Unloading a UserForm Automatically | 253 |
| Pre-Sorting the ListBox and ComboBox Items | 253 |
| Populating ListBoxes and ComboBoxes with Unique Items | 255 |
| Display a Real-Time Chart in a UserForm | 258 |
| Try It | 259 |
| Lesson Requirements | 259 |
| Step-by-Step | 259 |
| CHAPTER 21: CLASS MODULES | 263 |
| What Is a Class? | 263 |
| What Is a Class Module? | 264 |
| Creating Your Own Objects | 265 |
| An Important Benefit of Class Modules | 266 |
| Creating Collections | 268 |
| Class Modules for Embedded Objects | 269 |
| Try It | 272 |
| Lesson Requirements | 272 |
| Step-by-Step | 272 |

- [**click The Gentleman Thief**](#)
- [download African Silences](#)
- [I Don't Know What You Know Me From: Confessions of a Co-Star pdf, azw \(kindle\), epub, doc, mobi](#)
- [Computer Forensics: Investigating Wireless Networks and Devices \(Ec-Council Press Series: Computer Forensics\) online](#)
- [read The Wedding Trap \(The Trap Trilogy, Book 3\)](#)
- [**read The Essential Guide to Physics for Flash Games, Animation, and Simulations**](#)

- <http://xn--d1aboelcb1f.xn--p1ai/lib/Papillon.pdf>
- <http://patrickvincitore.com/?ebooks/Fat--Fate--and-Disease--Why-exercise-and-diet-are-not-enough.pdf>
- <http://berttrotman.com/library/Submarine-Warfare.pdf>
- <http://monkeybubblemedia.com/lib/Computer-Forensics--Investigating-Wireless-Networks-and-Devices--Ec-Council-Press-Series--Computer-Forensics-.pdf>
- <http://betsy.wesleychapelcomputerrepair.com/library/100-Heartbeats.pdf>
- <http://patrickvincitore.com/?ebooks/The-Dead-Sea-Scrolls-Deception.pdf>