091157 Data Analysis and Visualization with Microsoft® Excel® Revision 1.0 to 1.1

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Section/Lesson/Topic Section	Name	Change Type
Throughout the course		• Reference to the subscription is changed from "Office 365" to "Microsoft 365". • Images updated to align with new Office UI. • Data Files updated per changes to course content. • Year values in screenshots, data files, etc., updated to be more recent. • Slides updated to use latest LO widescreen template and updates made per changes to course content.
Frontmatter	Course-Specific Technical Requirements—Software	• Office requirement is now more general to include any current version of Office.
	Setting Up the Course	• Adjusted setup steps to stay signed into Office when using Microsoft 365. • Added steps to turn on the "new experience" interface for Microsoft 365 versions of Office.
Lesson 1, Topic A	Data Science	• Clarified the descriptions of some of the listed tools.
	Data Visualization	• Reworded the sentence about humans processing visualizations more quickly than text.
	ACTIVITY: Analyzing Data	• Corrected the name of the workbook file in Step 3. • Adjusted the data file so that the Quarterly Sales worksheet is selected by default, as implied by Step 4a. • Moved the questions in Steps 5b, c, and d to their own question step elements. • Removed the worksheet references in the Total Sales column formulas so that the calculations no longer break when sorting by Month.
Lesson 1, Topic B	How to Create and Modify Tables	• Specified that the checkboxes are in the Table Style Options tab group for the "Add or Remove Table Components" procedure, Step 2. • Consolidated Steps 2 and 3 in the "Insert Rows or Columns in the Middle of a Table" and "Delete Rows or Columns from the Middle of a Table" procedures.
Lesson 1, Topic C	Sort Data	• Added image to the "Multi-Column/Multi-Row Sorting" supporting block showing a three-level sort.

Lesson 2, Topic A	Chart Types	- Clarified how to insert charts. - Reordered chart types table to align with how charts are ordered in the Insert Chart dialog box. - Reworded the second column for some of the chart types for consistent sentence construction.
	ACTIVITY: Creating Charts	- Corrected screenshot in Step 4d so that the chart selection does not include the Totals column. Also affects the chart in the solution file. - Reworded Steps 5a and 5b to account for the fact that the chart helps you see approximate sales totals for each month; for the precise figures, they should reference the table.
Lesson 2, Topic B	How to Modify and Format Charts	Mentioned the context of being in the Alt Text pane in Step 3 of the "Add Alternative Text to a Chart" procedure.
	ACTIVITY: Modifying and Formatting Charts	Removed extraneous instructions in Step 5b for selecting a new chart style.
Lesson 2, Topic C	Chart Goal	Clarified figure caption.
	Chart Selection—What to Choose	Made "heatmap" and "slopegraph" glossary terms as they were not previously defined. Added corresponding definitions to glossary.
	Guidelines for Creating Explanatory Charts	Added lead-in sentences.
	ACTIVITY: Applying Best Practices in Chart Design	- Added image in Step 8f. - Removed student note in Step 14e about manually adding line breaks, as this isn't necessary once you resize and reposition the text box.
Lesson 3, Topic A	Cell and Range Names	Added instructor note about emphasizing to students that range names can include both absolute and relative references.
	ACTIVITY: Analyzing Data with Formulas	- Fixed screenshot in Step 3c to show cell F5 selected, rather than F6. - Removed Step 10b and moved its ribbon tab reference to the following step.
Lesson 3, Topic B	Function Categories	In the table, for the "Compatibility" function category description, clarified which versions of Excel the compatibility functions pertain to.
	ACTIVITY: Analyzing Data with Functions	- Added a general instructor note about results differing from the screenshots due to the use of the current date. - Removed student note in Step 1c as redundant. - Changed what students need to select in Step 1d to get the Help docs. - Changed references to "Help" pane to "Search" pane.

		• Changed tenure result in Step 3h.
	ACTIVITY: Working with Logical Functions	• Corrected first sentence of the scenario to say that the goal bonus rate is 1% and not 4% (the commission rate). • Corrected the cell reference in Step 1f to select C4, the bonus rate (instead of the commission rate). • Added more info after Step 2d explaining that the RepProdSales named range uses both absolute and relative references, as well as why each type is used. • Added an instructor note for Step 2d explaining that instructors can use direct cell references instead of the RepProdSales named range if they prefer.
Lesson 3, Topic C	How to Analyze Data Using Data Validation, Forms, and Controls	• Added new Step 1 in the "Add the Form Command to the Quick Access Toolbar" procedure for showing the QAT.
	ACTIVITY: Implementing Forms and Controls	• Added steps to show the QAT, as it is hidden by default in the latest versions of Office. • Modified steps to account for the QAT now being below the ribbon. • The instructor note for Step 3 now correctly refers to the Expense field instead of the Order ID field. • For the Step 3c result, made it clearer that the amount was recorded incorrectly beforehand as part of the scenario, rather than the amount shown in the form being incorrect as compared to the worksheet. • In Step 7, changed "North American" to "Miscellaneous".
Lesson 3, Topic D	Lookup Functions	• Corrected salary value in the text based on what's shown in the figure.
	Vector LOOKUP	• Removed table from the figure and made it into an actual table element.
	Array LOOKUP	• Tagged "array" as a glossary term. • Corrected the array lookup formulas so that they now return the expected results. Previously they used A1:H4 as the lookup vector, whereas the data actually goes from A1:H5. • Removed table from the figure and made it into an actual table element.
	XLOOKUP	• New KB. This function effectively replaces VLOOKUP and HLOOKUP.
	XLOOKUP—Advanced Applications	• New KB. Demonstrates using XLOOKUP beyond just a standard VLOOKUP equivalent.
	VLOOKUP	• Removed KB. Some of the material still lives on in "XLOOKUP" and "XLOOKUP—Advanced Applications".

	HLOOKUP	• Removed KB. Some of the material still lives on in "XLOOKUP" and "XLOOKUP—Advanced Applications".
	The Range Lookup Argument—The Importance of True and False	• Renamed KB to "The Importance of the Match Mode Argument". • Reworded material to align it with XLOOKUP.
	The INDEX Function	• Changed the examples in the table to match the examples in the figure.
	The MATCH Function	• Changed the examples in the table and in the figure so that they match.
	INDEX and MATCH vs. VLOOKUP	• Removed KB. The material is no longer relevant as XLOOKUP is able to dynamically adjust lookup array and return array range references when new columns are added or deleted. Also, nesting MATCH inside INDEX only supports this behavior if a new column is added to the beginning of the dataset.
	The TRANSPOSE Function	• Renamed KB to "The TRANSPOSE Function and Dynamic Array Formulas". • Reworded to account for the fact that you no longer need to select the output range and press Ctrl+Shift+Enter. You can just select a single cell where the array should begin, and press Enter. • Added more material on dynamic array functions and the concept of spill. Made the former a glossary term.
	How to Use Lookup Functions	• Adjusted the "Transpose a Dataset Using the TRANSPOSE Function" procedure to account for dynamic array formula behavior.
	ACTIVITY: Using Lookup Functions	• Changed Step 3 to use XLOOKUP instead of VLOOKUP. • Changed Step 6 to use XLOOKUP instead of VLOOKUP + MATCH. • Reduced and consolidated Steps 7 and 8. Rather than spend time having students fix absolute vs. relative reference errors, the XLOOKUP formula in Step 6 already uses these references correctly. • Added an optional step at the end of the activity for a more advanced application of XLOOKUP, using a right-to-left lookup with a match mode. • In the data file, created three new named ranges that work with XLOOKUP: Month, ProdSales, and ProdTotals. • In the data file, removed MonthData and MonthHeaders named ranges as they are no longer used.
Lesson 4, Topic A	Pivoting	• Corrected the subtotal and total sale numbers in the figure.
	PivotTable Creation	• PivotTable creation is now split between multiple dialog boxes, so reworded the material to account for this.

	PivotTable Layout Options	• Corrected the figure caption.
	How to Create a PivotTable	• Adjusted steps in several of the procedures to account for changes in the dialog box for creating PivotTables.
	ACTIVITY: Creating PivotTables	• Reworded Step 6a and Step 8a to ensure the tab is selected.
Lesson 5, Topic B	ACTIVITY: Filtering Data Using Slicers and Timelines	• Adjusted path to select the "Clear Filters" button in the note in Step 2f. • Removed redundant Step 9a.
Lesson 5, Topic C	Refresh Options	• Changed "Connections" group to "Queries & Connections" group.
	ACTIVITY: Creating a Dashboard in Excel	• Specified that students should select the drop-down arrow in Step 9b.
Lesson 6, Topic A	Geographic Data	• Updated screenshot of USGS website.
	Bing Maps Integration	• Included Bing Maps add-in icon.
Lesson 6, Topic B	Format Data Series Options	• Modified the names of interface element used to access Series Options. • Added "State/Province" map area option and a note about not all options always appearing.
	ACTIVITY: Formatting and Customizing Map Charts in Excel	• Added final step to save and close the workbook.
Lesson 7, Topic A	Statistical Analysis	• Clarified description of standard deviation.
	Trendlines	• Tagged "forecasting" as a glossary term.
	Trendline Types	• Added Excel icons for each trendline type in the table so it's easier to get an idea of how each would look.
	The Format Trendline Task Pane	• Added sentence about being able to double-click the trendline to open the pane.
	How to Visualize Trendlines and Sparklines with Excel	• Changed "Sparkline Tools context tab" to "Sparkline contextual tab" in several procedures, and removed references to a "Design" tab.
Lesson 7, Topic B	All	• Changed "Data Analysis ToolPak" to "Analysis ToolPak" throughout, as this appears to be the proper name for the tool.
	Analysis ToolPak Tools	• Reworded the descriptions of "correlation" and "covariance". • Reworded the description of "histogram". • Corrected last table entry so that it says "z-Test" instead of "f-Test". • Reworded the descriptions of "t-Test" and "z-Test".
	ACTIVITY: Installing and Activating the Analysis ToolPak	• Clarified that students should be selecting the Data tab on the ribbon in Step 2a. • Students now observe the tab group in Step 2b instead of "open" it. • Removed Step 2c as there is no dialog box to close.
Lesson 8, Topic A	Microsoft Power Query	• Changed to "Power Query".

		• Removed the original opening paragraph and the short bullet list after it. • Rearranged the paragraphs so that the definition of Power Query is first, then its place in the Excel interface is discussed after. • Made "Power Query" a glossary term. Added corresponding definition to glossary.
	The Data Tab	• Added the Data Types and Analysis tab groups to the table.
	Get Data—Data Connection Options	• Replaced "Azure SQL Data Warehouse" with "Azure Synapse Analytics" in the table to align with the options. • Removed "Facebook" from the table to align with the options.
	Data Import and the Navigator	• Reworded description for the "Load" option in the table.
	The Queries & Connections Window	• Changed to "The Queries & Connections Task Pane".
	How to Connect to Data with Microsoft Power Query	• Changed to "How to Connect to Data with Power Query".
	ACTIVITY: Connecting to Data with Microsoft Power Query	• Changed to "ACTIVITY: Connecting to Data with Power Query".
Lesson 8, Topic B	Data Cleaning, Shaping, and Transformation	• Added "Notes in cells" to the bullet list of unwanted/unneeded things so that the list aligns with the slide.
	The Power Query Editor	• Moved the final paragraph up so that it's more clearly the third method of opening the Power Query Editor window.
	The Power Query Editor Home Tab	• Changed "Close & Apply" to "Close & Load" and adjusted description.
	Query Settings	• Added sentence at the end about viewing/editing transformation code from the bar at the top of the center pane.
	Power Query Table Filters	• Reworked the KB to more accurately reflect the filter options provided by Power Query.
	Options for Applying and Saving Changes	• Included "Close & Load To…" as an alternative option.
	How to Clean and Combine Data with the Power Query Editor	• Adjusted navigation path for removing rows. • Changed references to "canvas" to "center pane."
	ACTIVITY: Cleaning and Combining Data with the Power Query Editor	• Changed references to "canvas" to "center pane."

Lesson 8, Topic C	Data Grouping	• Adjusted "New column name" in the figure so that it's "Orders by Shipping Method", as mentioned in the blue callout.
	How to Shape and Transform Data	• Changed references to "canvas" to "center pane."
	ACTIVITY: Shaping and Transforming Data	• Changed references to "canvas" to "center pane." • Removed Step 6h as the worksheet is automatically named "Rudison Sales Data".
	ACTIVITY: Comparing Imported Data	• Changed "PivotChart Fields task pane" to "PivotTable Fields" task pane in several steps. • Added instructions to close the "PivotTable Fields" pane if necessary in Step 6j. • Reworded the questions in Steps 7 and 8 to make it clearer that students should be paying attention to the relative proportion of sales figures for each company, rather than comparing companies in absolute sales figures.
Lesson 9, Topic A	Power Pivot	• Simplified the note about versions of Excel that include Power Pivot. • Removed reference to Power View in the KPIs row of the table as Power View is no longer available.
	Power Pivot Activation	• Removed reference to Power View.
	Import Filters	• Made explicit reference to the Power Pivot window and clarified how to open it.
	ACTIVITY: Installing and Activating Power Pivot	• Clarified that students should be selecting the Power Pivot tab on the ribbon in Step 2a.
Lesson 9, Topic B	Relationship Cardinality	• Clarified how Power Pivot symbolizes a one-to-many relationship.
	Measures	• Moved to Topic C, as this is where the student actually works with measures in an activity.
	Key Performance Indicators in Power Pivot	• Moved to Topic C, as this is where the student actually works with KPIs in an activity. • Changed figure to show a Sum of Total Sales KPI, as it was mentioned in the previous KB.
	How to Create Data Models with Power Pivot	• Reworked the "Import Data into the Data Model" procedure. • Added new procedure "Import Data into the Data Model from an Excel Workbook".
	ACTIVITY: Creating Data Models with Power Pivot	• Changed references to "canvas" to "center pane."

Lesson 9, Topic C	The Calculation Area	• Moved KB to after "The Power Pivot Design Tab" to keep interface material together. • Moved sentence about how to add measures to the "Measures" KB.
	Column Renaming	• Removed mention of Excel for Office 365 in the context of smart rename, as smart rename was introduced in Excel 2016. • Added instructor note about DAX being discussed in the next topic.
	ACTIVITY: Creating Power Pivots	• Changed references to "canvas" to "center pane."
Lesson 9, Topic D	Perspectives	• Removed reference to deprecated "Data Connection Wizard". The current "Table Import Wizard" doesn't appear to allow you to select a perspective.
	DAX Functions	• Clarified descriptions of AND and OR functions.
	Error Checking	• Added note about getting the X and the check mark to appear to the left of the formula.
	ACTIVITY: Performing Data Analysis and Visualizing with DAX	• Changed references to "canvas" to "center pane." • Reworked this activity. Previously, the DAX formula was calculating percentage decrease, although it was being described as percentage difference. And, it didn't match what we were trying to learn from the data according to the scenario. The formula is now a simple ratio of Rudison sales to Develetech sales so that we can see how closely Rudison comes to meeting Develetech. The KPI thresholds have also changed so that the results still show examples that are above the high threshold, below the low threshold, and in between.
Lesson 10, Topic A	Guidelines for Planning Reports in Excel	• Added lead-in sentence.
	ACTIVITY: Planning a Report in Excel	• Adjusted Workbook L10.xlsx data file to use XLOOKUP instead of VLOOKUP and different named ranges, matching the updated activity in "Analyzing Data with Formulas and Functions".
Lesson 10, Topic B	Macros	• Corrected student note about the Spotlight.
	Report Creation Automation	• Clarified how macro names should be used and formatted. • Added mention of the Description field. • Changed the figure so that the dialog box fields are filled in.
	Macro-Enabled Workbooks	• Changed the process for saving a macro-enabled workbook to align with the figure.
	How to Create Reports in Excel	• Adjusted the navigation path for inserting pictures in Step 4 of the "Add a Logo to the Report" procedure.

	ACTIVITY: Creating a Report in Excel	• Adjusted step for inserting a picture in Step 3b and added a screenshot. • Added note to remove bold formatting in Step 9d. • Moved Step 12b to a new Step 11i, as the report opens after publishing. • Added keyboard shortcut to run the macro in the student note in Step 13a.
Course Follow-Up		• Changed Power BI and Tableau course titles so that they reference the Second Editions. • Changed name of the Tableau exam to "Tableau Desktop *Certified* Associate".
Glossary	array	• Reworded definition to align with how the word is defined in the context of array lookups.
	histogram chart	• Removed superfluous glossary entry.
	regression	• Removed superfluous glossary entry.
	nesting	• Removed superfluous glossary entry.
	object properties	• Removed glossary entry; concept not referenced in course.
	text pane	• Removed glossary entry; concept not referenced in course.
	database functions	• Removed glossary entry; concept not referenced in course.