

Cochise College Center for Lifelong Learning

Excel: Intermediate

For Lifelong Learners

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Introduction

Welcome to **Excel: Intermediate!**

This course is designed for learners who are comfortable with the basics and are ready to add new tools to their Excel skillset. In this hands-on class, you'll learn how to manage larger datasets, apply logical formulas to automate decision-making, and use lookup functions to connect information across sheets. You'll also create professional summaries and build clear, effective charts to communicate your results.

Whether you're tracking projects, managing teams, or analyzing department performance, the skills you build here will make your spreadsheets faster, smarter, and easier to use.

What You'll Learn

By the end of this class, you will be able to:

- Organize and control large datasets using Excel tables
- Apply logical formulas that automatically label and categorize data
- Use lookup functions to connect information across multiple sheets
- Create professional summary reports with charts and visualizations
- Format worksheets for clear presentation and printing

Prerequisites

This course assumes you are comfortable with:

- Basic Excel navigation and cell editing
- Using simple formulas with cell references
- Creating and formatting basic spreadsheets
- Preparing a worksheet for printing

If you need a refresher on these skills, consider reviewing Excel: Fundamentals before continuing.

Module 1: Data Management

Good data management is the foundation of every successful Excel project. In this module, you'll learn how to organize and control your information by creating Excel tables, sorting and filtering records, and calculating simple summaries. These skills

are essential for keeping growing datasets clear, searchable, and accurate.

You'll work with a real-world training tracker to practice essential techniques that will make larger projects easier to manage later. Whether you're preparing data for analysis or simply trying to stay organized, mastering these basics will set you up for success.

Activity 1.1: Load the Training Tracker

Getting Started

1. Click in the Windows search bar at the bottom of the screen
2. Type **Excel**
3. When the search dialog appears, click the **Excel app** link
4. Click **Blank workbook**

Import Training Data

1. Click Data → Get & Transform Data → Get Data → From File → From Text/CSV
2. Find the *Student Files* folder and click **20-data**, then click **Import**
3. In the *Load and Transform Data* dialog box, click **Load**
4. Repeat the import process for **21-data**
5. Close the *Queries & Connections* panel by clicking the **X** in its top right corner

Save Your Work

1. Click File → Save As → Browse
2. Navigate to your desired file location
3. Save the file as **20-Training**

Activity 1.2: Format the Workbook

Rename Worksheets

1. Right-click the *Sheet2* tab (called *21-data* in Excel 365) at the bottom of the page
2. Select **Rename**

3. Enter **Classes** as the new worksheet name
 4. Right-click the *Sheet3* tab (called *20-data* in Excel 365)
 5. Select **Rename** and enter **Employees**
 6. Right-click the *Sheet1* tab and select **Delete**
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🔗 Organize and Name Tables

1. Click and drag the *Employees* tab to the left of the *Classes* tab
2. Click the *Classes* tab
3. In Table Design → Properties → Table Name, enter **Classes**
4. Click the *Employees* tab
5. In Table Design → Properties → Table Name, enter **Staff**
6. Press **Ctrl+Home** to return to cell A1
7. Save the workbook

Activity 1.3: Sort and Filter Data

🔗 Sort by Department

1. In the *Employees* worksheet, click the **down-arrow** at the top of the *Department* column
 2. Click **Sort A to Z**
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🔿 Filter for Pending Status

1. Click the **down-arrow** at the top of the *Status* column
 2. Uncheck all boxes except *Pending*, then click **OK**
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📊 Add Summary Information

1. Click Table Design → Table Style Options → Total Row
2. Notice that the total row automatically updates to show the total of the *Assessment Score*
3. Click in cell **E18**, then click the **down-arrow** and select **None**
4. Click in cell **C18**, then click the **down-arrow** and select **Count**
5. Click the **down-arrow** at the top of the *Status* column

6. Check **Select All**, then click **OK**
7. Notice that the count in **C18** changes when you show all records
8. To disable the Total row, click Table Design → Table Style Options → Total Row
9. Save the workbook

What You Accomplished

You've successfully:

- Imported CSV data and created a properly organized workbook
- Named your tables for easy reference in formulas
- Sorted data alphabetically by department
- Filtered to show only employees with pending training status
- Added a total row that automatically counts filtered records

These data management skills form the foundation for all advanced Excel work. Clean, organized data makes every other task easier and more reliable.

Module 1 Checklist

1. Successfully imported CSV files and saved as an Excel workbook
2. Renamed worksheet tabs with meaningful names
3. Applied descriptive names to Excel tables
4. Sorted data using table column headers
5. Applied filters to focus on specific records
6. Used the Total Row to display counts and summaries
7. Reset filters to view all records again

Module 2: Logical Formulas and Conditional Formatting

Now that your data is organized, it's time to make it smarter. In this module, you'll learn how to add logic to your spreadsheets using simple formulas that automatically label and categorize your data. You'll also apply conditional formatting to highlight important information at a glance.

These skills make it easier to spot trends, identify problem areas, and guide decision-making without manually scanning large lists. They also help organize messy real-world data for easier analysis. With just a few steps, you can turn an ordinary table into a dynamic tool that draws attention exactly where it's needed.

Activity 2.1: Add a "Needs Training" Column

+ Create the New Column

1. On the *Employees* worksheet, click in cell **F1**
2. Enter **Needs Training**
3. Auto-size *Column F*

</> Add the IF Formula

1. Click in cell **F2**
2. Enter the formula: **=IF([@Status]="Pending", "Yes", "No")**
3. Press Enter and notice that Excel automatically fills the formula down to cell **F17**
4. Save the workbook

Understanding the IF Formula

The formula **=IF([@Status]="Pending", "Yes", "No")** works like this:

- **[@Status]** looks at the Status column in the current row
- **"Pending"** is what we're checking for
- **"Yes"** is what appears if the condition is true
- **"No"** is what appears if the condition is false

This creates an automatic yes/no flag that updates whenever the original data changes.

Activity 2.2: Highlight Pending Employees

🔧 Apply Conditional Formatting

1. Select the range **F2:F17**

2. Click Home → Styles → Conditional Formatting → Highlight Cells Rules → Text that Contains
3. In the dialog box, enter **Yes**
4. Choose **Light Red Fill with Dark Red Text**
5. Click **OK**
6. Press **Ctrl+Home** to return to cell A1
7. Save the workbook

Activity 2.3: Count Pending Employees

Create Overview Headers

1. Click in cell **J1** and enter **Overview**
2. Click Home → Font → Bold (or press **Ctrl+B**)
3. In cells **J2:L2**, enter: **Department, Status, Count**
4. Select **J2:L2** and apply bold formatting
5. In cells **J3:J6**, enter: **Admin, Field Ops, IT, Marketing**
6. Select **J3:J6** and apply bold formatting

Add COUNTIFS Formulas for Pending Status

1. Click in cell **K3** and enter **Pending**
2. Use autofill to copy **K3** down to **K4:K6**
3. Click in cell **L3**
4. Click Formulas → Function Library → More Functions → Statistical → COUNTIFS
5. In the COUNTIFS dialog box, enter:
Criteria Range 1: staff[department]
Criteria 1: Admin
Criteria Range 2: staff[status]
Criteria 2: Pending
6. Click **OK** (Note: L3 will display 0 since no Admin staff are pending)

7. Copy and paste **L3** to **L4**
 8. Click in **L4**, then in the formula bar, change "Admin" to **Field Ops**
 9. Using the same technique, create formulas for IT and Marketing in **L5:L6**
 10. When completed, **L3:L6** should display: 0, 4, 1, 1
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✓ Add Completed Status Counts

1. Click in **M2** and enter **Status**
 2. Click in **N2** and enter **Count**
 3. Click in **M3** and enter **Completed**
 4. Use autofill to copy **M3** down to **M4:M6**
 5. Copy and paste **L3:L6** to **N3**
 6. Click in **N3**, then in the formula bar, change "Pending" to **Completed**
 7. Edit the formulas in **N4:N6** to count Completed status for each department
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🔧 Format the Overview

1. Select the entire worksheet by clicking the triangle in the top-left corner
2. Double-click between any two column headers to auto-adjust all column widths
3. Save the workbook

What You Accomplished

You've successfully:

- Created an IF formula that automatically labels employees who need training
- Applied conditional formatting to visually highlight important information
- Used COUNTIFS to summarize data based on multiple criteria
- Built a professional overview section that updates automatically

These logical formulas and formatting techniques help you quickly identify patterns and make data-driven decisions. Your spreadsheet now works smarter, not harder.

Module 2 Checklist

1. Added a logical formula using the IF function
2. Applied conditional formatting to highlight important data
3. Used the COUNTIFS function to summarize information based on multiple criteria
4. Created a formatted data overview with automatic calculations
5. Understood how table references work in formulas

Module 3: Cross-Sheet Formulas and Lookup Functions

In this final module, you'll take your Excel skills to the next level by connecting information across multiple sheets. You'll use lookup functions like VLOOKUP to pull data from one table into another and build a summary sheet that organizes key results into a clear, professional format. You'll also create charts to visualize your findings.

These techniques are powerful tools for any project that involves multiple datasets or departments, helping you combine, summarize, and present information with ease.

Understanding VLOOKUP

VLOOKUP is like asking Excel to "look over there and bring me back the answer." Here's how it works:

- **Lookup Value:** What you want to find (like a department name)
- **Table Array:** Where to look for it (another worksheet or table)
- **Column Index:** Which column to return information from
- **Range Lookup:** TRUE for approximate match, FALSE for exact match

When working across sheets, make sure your lookup table has the search value in the first column.

Activity 3.1: Lookup Course Info by Department

+ Add New Columns

1. On the *Employees* worksheet, click in cell **G1**
2. Enter **Courses Assigned**
3. Click in cell **H1** and enter **Hours Required**

Q Create VLOOKUP for Course Names

1. Click in cell **G2**
 2. Click Formulas → Function Library → Lookup & Reference → VLOOKUP
 3. In the VLOOKUP dialog box, enter:
Lookup Value: [@department]
Table Array: c1:classes
Col Index Num: 2
Range Lookup: false
 4. Click **OK**
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🕒 Create VLOOKUP for Training Hours

1. Click in cell **H2**
 2. Click Formulas → Function Library → Lookup & Reference → VLOOKUP
 3. In the VLOOKUP dialog box, enter:
Lookup Value: [@department]
Table Array: c1:classes
Col Index Num: 3
Range Lookup: false
 4. Click **OK**
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🔧 Format the Worksheet

1. Select the entire worksheet by clicking the triangle in the top-left corner
2. Double-click between any two column headers to auto-adjust all column widths
3. Click in cell **A1**
4. Save the workbook

Activity 3.2: Create a Summary Sheet

+ Add New Worksheet

1. Click the + sign to the right of the *Classes* tab
2. Right-click the new tab and select **Rename**
3. Enter **Summary**
4. Click and drag the *Summary* tab to the left, ahead of the *Employees* tab

📊 Create Summary Headers

1. In the *Summary* worksheet, enter these values in **A3:D3: Department, Completed, Pending, Total**
2. Select **A3:D3** and apply bold formatting (**Ctrl+B**)
3. In cells **A4:A7**, enter: **Admin, Field Ops, IT, Marketing**

📊 Add COUNTIFS for Completed Status

1. Click in cell **B4**
2. Click Formulas → Function Library → More Functions → Statistical → COUNTIFS
3. In the COUNTIFS dialog box, enter:
Criteria Range 1: staff[department]
Criteria 1: admin
Criteria Range 2: staff[status]
Criteria 2: completed
4. Click **OK**
5. Use autofill to copy **B4** down to **B5:B7**
6. Edit each formula to change "admin" to the appropriate department name

⚠️ Add COUNTIFS for Pending Status

1. Copy and paste **B4:B7** to **C4**
2. Click in **C4** and change "completed" to **pending** in the formula bar
3. Edit the formulas in **C5:C7** to count pending status for each department

+ Calculate Totals and Additional Metrics

1. Click in **D4** and enter **=B4+C4**
2. Use autofill to copy this formula down to **D5:D7**
3. Click in **E3** and enter **Total Time**
4. Apply bold formatting to **E3**
5. Click in **E4** and use Formulas → Function Library → Math & Trig → SUMIF
6. Enter: Range = **staff[department]**, Criteria = **admin**, Sum Range = **staff[training hours]**
7. Copy this formula down and edit for each department
8. Click in **F3** and enter **Average Score**
9. Apply bold formatting to **F3**
10. Click in **F4** and use Formulas → Function Library → More Functions → Statistical → AVERAGEIF
11. Enter: Range = **staff[department]**, Criteria = **admin**, Average Range = **staff[assessment score]**
12. Copy this formula down and edit for each department
13. Select **F4:F7** and apply comma number formatting
14. Auto-adjust all column widths and save the workbook

Activity 3.3: Add Charts to Visualize Data

Create a Column Chart

1. Select **A3:D7**
2. Click Insert → Charts → Recommended Chart
3. Select *Clustered Column* and click **OK**
4. Move the chart so its top-left corner is in cell **G3**
5. Triple-click the chart title and enter **Training by Department**
6. Click the **+** sign at the top right of the chart
7. Select **Axis Titles**

8. Triple-click the vertical axis title and enter **Number of Employees**

9. Triple-click the horizontal axis title and enter **Department**

Create a Pie Chart

1. Select **A3:A7**, then hold **Ctrl** and click **E3:E7**
 2. Click Insert → Charts → Recommended Chart
 3. Select *Pie Chart* and click **OK**
 4. Move the chart so its top-left corner is in cell **A9**
 5. Adjust the width so it doesn't overlap the column chart
 6. Triple-click the chart title and enter **Total Training Time**
 7. Click the **+** sign and select **Data Labels**
 8. Double-click one data label, then format it: white font color, bold, size 11
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Create a Combo Chart

1. Select **A3:A7**, then hold **Ctrl** and click **E3:F7**
2. Click Insert → Charts → Combo Chart
3. Select the first chart option
4. Move the chart so its top-left corner is in cell **G19**
5. Triple-click the chart title and enter **Training Time and Score by Department**
6. Right-click the line representing *Average Score*
7. Select **Format Data Series**
8. On the *Series Options* tab, select **Secondary Axis** (its icon looks like a column graph)
9. Close the Format panel
10. Save the workbook

Activity 3.4: Format and Print the Summary Sheet

Add Title and Headers

1. Click in **A1** and enter **Employee Training Summary**
2. Select **A1:N1**
3. Click Home → Alignment → Merge & Center
4. Apply blue fill color, white font color, bold formatting, and size 14 font
5. Select **A1:N34**
6. Click Page Layout → Page Setup → Print Area → Set Print Area
7. Click Page Layout → Page Setup → Orientation → Landscape

Prepare for Printing

1. Click Insert → Text → Header and Footer
2. Enter your name in the left header box
3. Click in the right header box and add page number using Header & Footer → Header & Footer Elements → Page Number
4. Click Header & Footer → Navigation → Go to Footer
5. In the right footer box, enter **File: 20-Training**
6. Click anywhere in the data to close header/footer mode
7. Click *Normal* view in the lower-right corner
8. Press **Ctrl+Home**
9. Click File → Print
10. Choose **Microsoft Print to PDF**
11. Select **Landscape Orientation**
12. For scaling, choose **Fit All Columns on One Page**
13. Review the print preview
14. Click **Print** and save as **20-Training** in your Student Files folder
15. Save and close the workbook

What You Accomplished

You've successfully:

- Used VLOOKUP to connect data across multiple worksheets
- Created a comprehensive summary sheet with multiple formula types
- Built three different chart types to visualize your data
- Formatted a professional worksheet for presentation and printing
- Integrated data from multiple sources into one cohesive report

These advanced skills transform raw data into actionable insights and professional presentations.

Module 3 Checklist

1. Used VLOOKUP to retrieve information from another worksheet
2. Created a summary sheet using COUNTIFS, SUMIF, and AVERAGEIF functions
3. Formatted summary data for clarity and readability
4. Created and formatted column, pie, and combo charts
5. Prepared a worksheet for printing with headers, footers, and proper scaling
6. Built a complete analytical dashboard

Final Words

Congratulations on completing **Excel: Intermediate**! You've taken a major step beyond basic spreadsheets, learning how to manage larger datasets, automate decisions with logical formulas, connect information across sheets with lookup functions, and present results with clear charts and summaries. These are powerful skills that save time, reduce errors, and make your work easier to understand.

The tools you've learned here are the building blocks for even more advanced Excel techniques, including PivotTables and Dashboards, which you'll explore in the next course. As you continue practicing, don't be afraid to experiment, try new functions, and find creative ways to make your spreadsheets even more effective.

Continue Your Learning Journey

Ready for the next challenge? Consider this follow-up course:

- **Excel: Advanced** —Master PivotTables, advanced charts, and data analysis tools

The analytical thinking you've developed in this course will serve you well in any of these advanced topics.

Thank you for being part of this class. Keep building your skills—you're well on your way to becoming a true Excel expert!

Appendix A: Practice Exercise: Travel Requests Dataset

If you have extra time in class, or if you'd like more practice at home, this exercise reinforces the skills you learned in Excel Intermediate. You'll work with a small dataset of employee travel requests, organize the information using tables, apply logical formulas, and highlight important data visually.

Activity 3.5: Open and Organize the Dataset

Load the Data

1. Start Excel and click **Blank Workbook**
2. Click File → Save As → Browse
3. Navigate to the Student Files folder and save as **25-Travel Requests**
4. Click Data → Get & Transform Data → Get Data → From File → From Text/CSV
5. Select **25-data.csv** and click **Import**, then **Load**
6. Close the *Queries & Connections* panel
7. Rename the worksheet tab to **Travel**
8. Delete the *Sheet1* worksheet
9. Name the table **Travel** using Table Design → Properties
10. Save the workbook

Activity 3.6: Apply Data Management Techniques

◆ Sort and Filter

1. Click the *Department* dropdown and select **Sort A to Z**
2. Click the *Approval Status* dropdown
3. Uncheck all options except **Pending**, then click **OK**
4. Add a Total Row and set the *Destination* column to show **Count**
5. Reset the Approval Status filter to show all records
6. Disable the Total Row

✎ Add Logic and Formatting

1. Click in **F1** and enter **Needs Approval**
2. In **F2**, enter: **=IF([@[Approval Status]]="Pending","Yes","No")**
3. Select **F2:F11**
4. Apply conditional formatting: Home → Styles → Conditional Formatting → Highlight Cells Rules → Text that Contains
5. Enter **Yes** and choose light red fill with dark red text

📊 Build Summary

1. In **J1** enter **Summary**
2. In **J2:L2**, create headers: **Department, Approved, Pending**
3. In **J3:J4**, enter: **IT, Sales**
4. Make all of these headings bold
5. Use COUNTIFS formulas to count approved and pending requests by department
6. Save the workbook

Appendix Checklist

1. Created and formatted an Excel Table from CSV data
2. Applied sorting and filtering to organize information
3. Added logical IF formulas to categorize data
4. Used conditional formatting to highlight key information

5. Built summary calculations with COUNTIFS functions

Appendix B: Quick Reference: Formula Patterns

IF Formula Pattern: =IF([@ColumnName]="Value", "True Result", "False Result")

VLOOKUP Pattern: =VLOOKUP([@SearchColumn], TableName, ColumnNumber, FALSE)

COUNTIFS Pattern: =COUNTIFS(Table[Column1], "Criteria1", Table[Column2], "Criteria2")

SUMIF Pattern: =SUMIF(Table[TestColumn], "Criteria", Table[SumColumn])

AVERAGEIF Pattern: =AVERAGEIF(Table[TestColumn], "Criteria", Table[AverageColumn])

Pro Tip

When working with table references like Table[ColumnName], Excel automatically adjusts the range as your table grows. This makes your formulas more reliable and easier to maintain than using cell references like A1:A100.