



Excel Skills for Business Informatics

Excel-Fertigkeiten für Wirtschaftsinformatik

VBS Oberstufe

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Table of Contents | Inhaltsverzeichnis

1. Excel Basics | Excel-Grundlagen

1.1 Basic Calculations | Grundlegende Berechnungen

1.2 Cell References | Zellbezüge

2. Data Organization | Datenorganisation

2.1 Filtering Data | Filtern von Daten

2.2 Sorting Data | Sortieren von Daten

2.3 Subtotals | Teilergebnisse

3. Data Formatting | Datenformatierung

3.1 Custom Number Formats | Benutzerdefinierte Zahlenformate

3.2 Conditional Formatting | Bedingte Formatierung

4. Excel Functions | Excel-Funktionen

4.1 Aggregation Functions | Aggregationsfunktionen

4.2 Counting Functions | Zählfunktionen

4.3 IF Function | WENN-Funktion

4.4 Date Functions | Datumsfunktionen

5. Practical Examples | Praktische Beispiele

1. Excel Basics | Excel-Grundlagen

1.1 Basic Calculations | Grundlegende Berechnungen



Mathematical Operations in Excel

Excel allows various mathematical operations directly in cells using formulas. All formulas start with =

Operation	English	Deutsch	Formula Example
+ Addition	Addition	Addition	=A1+B1
- Subtraction	Subtraction	Subtraktion	=A1-B1
× Multiplication	Multiplication	Multiplikation	=A1*B1
÷ Division	Division	Division	=A1/B1

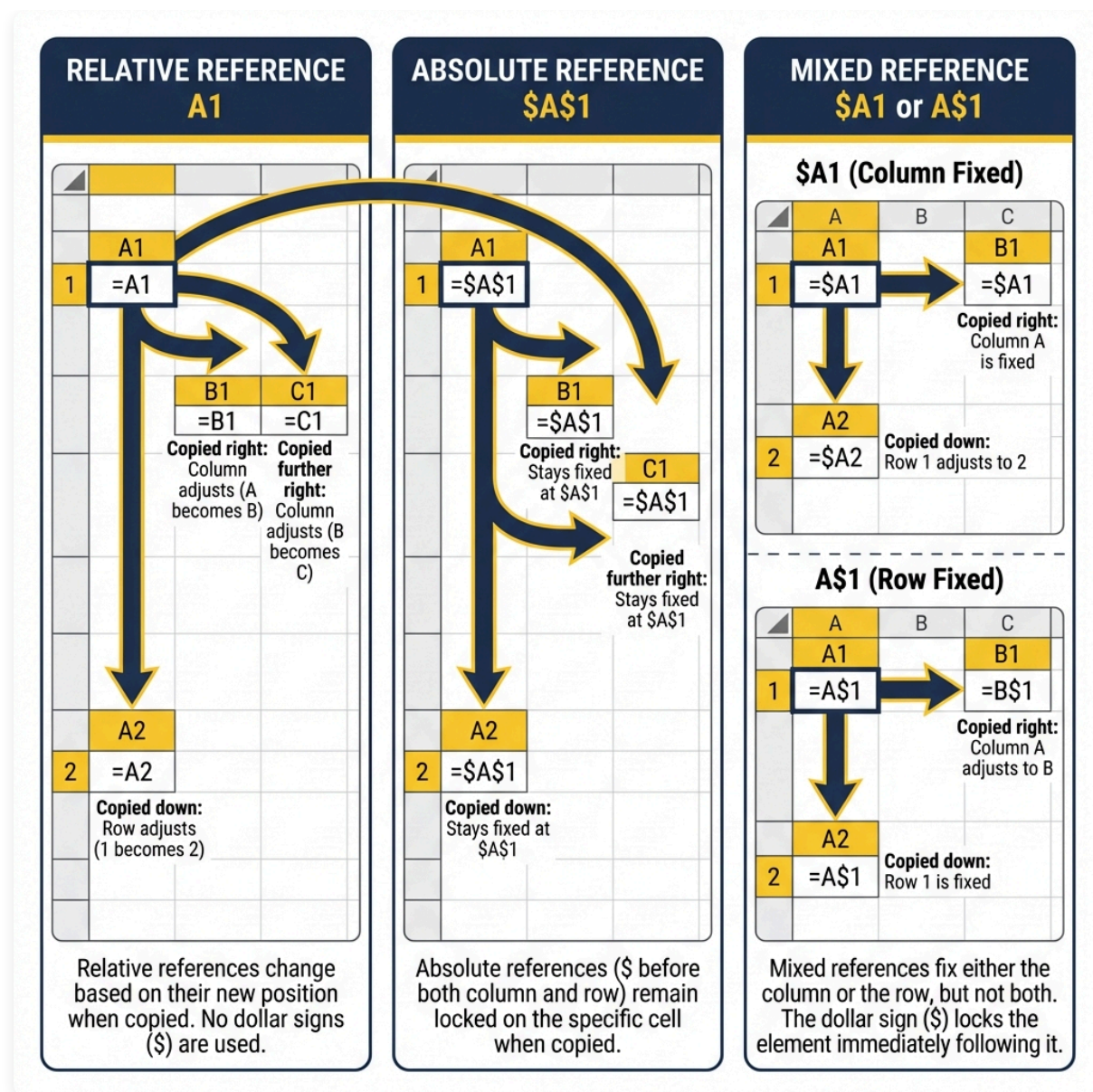
1.2 Cell References | Zellbezüge



Definition: Cell Reference

EN: A cell reference indicates the location of a cell or range in a worksheet.

DE: Ein Zellbezug gibt den Speicherort einer Zelle oder eines Zellbereichs an.



Types of cell references: Relative, Absolute, and Mixed

Type	Example	Behavior when copied
Relative	A1	Changes (A1 → B1 → C1)
Absolute	\$A\$1	Stays constant
Mixed	\$A1 or A\$1	Column or row stays fixed

**Exam Tip**

EN: Press **F4** after typing a cell reference to toggle between reference types!

DE: Drücken Sie **F4** nach Eingabe eines Zellbezugs, um zwischen Bezugsarten zu wechseln!

2. Data Organization & Analysis | Datenorganisation & -analyse

2.1 Filtering Data | Filtern von Daten




Definition: Filtering

EN: Filtering displays only rows meeting specific criteria, temporarily hiding others.

DE: Filtern zeigt nur Zeilen an, die bestimmte Kriterien erfüllen.

How to Apply Filters in Microsoft Excel

1. Select data range



	A	B	C	D
1	Name	Department	Salary	
2	John Smith	Sales	\$65,000	
3	Jane Doe	Marketing	\$72,000	
4	Mike Lee	Sales	\$68,000	
5	Sarah Jones	Engineering	\$85,000	
6	Chris Wong	Finance	\$70,000	
7				
8				

2. Click **Data** tab



3. Click **Filter** button



Step-by-step: Applying filters in Excel

Filter Types | Filtertypen

- **Table Filters:** Dropdown arrows in column headers | Dropdown-Pfeile in Spaltenüberschriften
- **Number Filters:** Greater than, Less than, Between | Größer als, Kleiner als, Zwischen
- **Text Filters:** Contains, Begins with, Ends with | Enthält, Beginnt mit, Endet mit



Practical Examples

- Filter female employees earning more than €40,000
- Show only "AHS" branch data
- Find models sold in Germany AND Italy (filter multiple columns)

2.2 Sorting Data | Sortieren von Daten



Definition: Sorting

EN: Sorting arranges data in a specified order (alphabetical, numerical, chronological).

DE: Sortieren ordnet Daten in einer bestimmten Reihenfolge an.

Sort Type	Description EN	Beschreibung DE
Single-level	Sorts by one column	Sortiert nach einer Spalte
Multi-level	Primary, secondary, tertiary keys	Primäre, sekundäre, tertiäre Schlüssel

2.3 Subtotals | Teilergebnisse (TEILERGEBNIS)



Definition: SUBTOTAL Function

Syntax: =TEILERGEBNIS(function_num; range)

Returns a subtotal that **ignores rows hidden by filters**. Function numbers: 9 = SUM, 2 = COUNT, 1 = AVERAGE

3. Data Formatting | Datenformatierung

3.1 Custom Number Formats | Benutzerdefinierte Zahlenformate

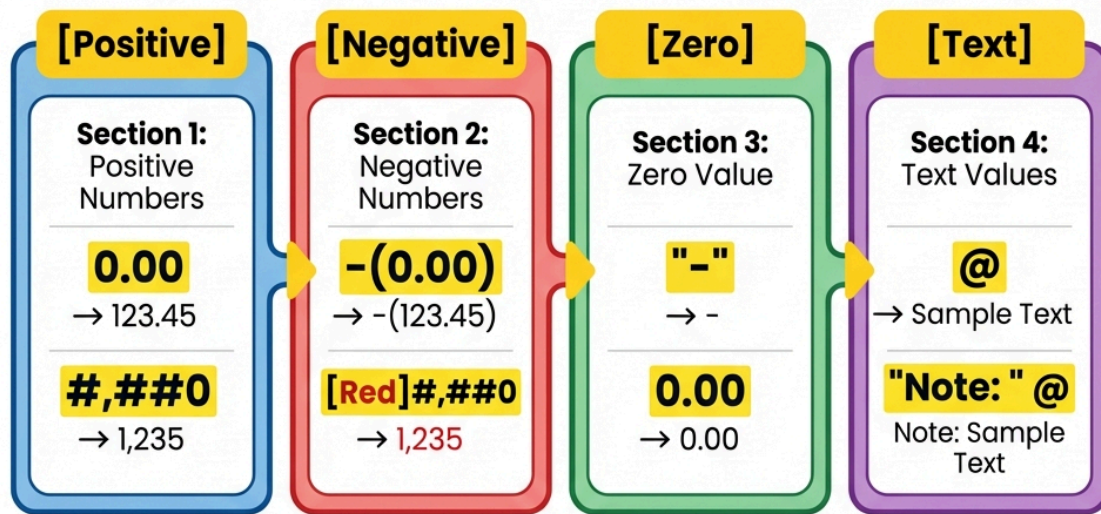
**Definition: Custom Number Formats**

EN: Custom formats display numbers in specific ways without changing their underlying value.

DE: Benutzerdefinierte Formate zeigen Zahlen auf bestimmte Weise an, ohne deren Wert zu ändern.

EXCEL CUSTOM NUMBER FORMAT STRUCTURE

Understanding the Four-Section Syntax: [Positive];[Negative];[Zero];[Text]



PLACEHOLDER SYMBOLS



Optional Digit (#)

Displays digit if present; otherwise, shows nothing.

#.## → 12.3 → 12.3



Required Digit (0)

Always displays a digit, padding with zeros if necessary.

0.00 → 5 → 5.00



Text Placeholder (@)

Represents any text value entered into the cell.

"Unit: " @ → Kg → Unit: Kg

Mastering Excel Custom Formats for Enhanced Data Presentation. | Print-Ready Learning Material

The four-section structure of custom number formats

Format Syntax | Format-Syntax



[Positive];[Negative];[Zero];[Text]

Symbol	Meaning	Bedeutung
#	Optional digit (no leading zeros)	Optionale Ziffer (keine führenden Nullen)
0	Required digit (shows zeros)	Erforderliche Ziffer (zeigt Nullen)
@	Text placeholder	Textplatzhalter
[Color]	Font color (e.g., [Red])	Schriftfarbe (z.B. [Rot])

Examples | Beispiele

Desired Output	Format Code
80 m ²	0" m ² "
27881 EUR	0" EUR"
1,75% p.a.	0,00"% p.a."
1.250 Liter	#.##0" Liter"
00012369 (8-digit)	00000000
Negative in red	[Blue]#.##0;[Red]-#.##0

3.2 Conditional Formatting | Bedingte Formatierung



Definition: Conditional Formatting

EN: Automatically applies formatting (colors, icons, data bars) based on cell values.

DE: Wendet automatisch Formatierungen basierend auf Zellwerten an.

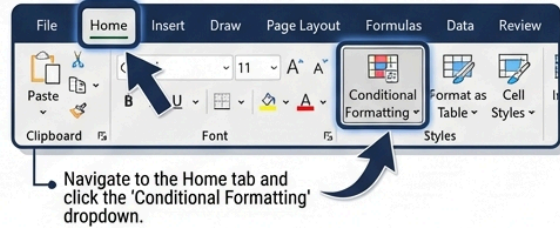
Step-by-Step: Applying Conditional Formatting in Excel

1 Select Cells with Data

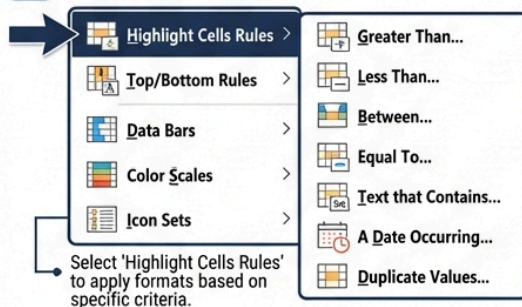
	A	B	C	D	E	F
1	Item	Sales	Target			
2	Item1	500	700			
3	Item2	850	800			
4	Item3	420	750			
5	Item4	990	900			
6	Item5	600	600			
7	Item6	750	750			
8						

Click and drag to highlight the data range you want to format.

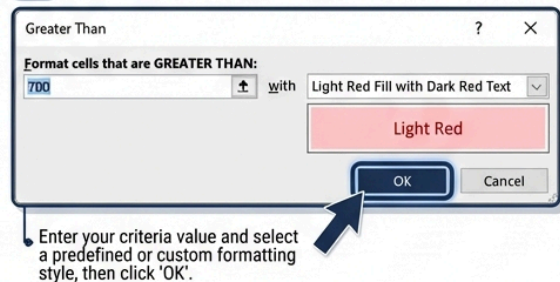
2 Home Tab → Conditional Formatting Menu



3 Choose Rule Type



4 Set Condition and Format



Example Output: Highlight Cells Rules in Action

	A	B	C
1	Item	Sales	Target
2	Item 1	500	500
3	Item 2	850	850
4	Item 3	420	420
5	Item 4	980	980
6	Item 5	600	600
7	Item 6	750	750

How to apply conditional formatting in Excel

Rule Types | Regeltypen

- **Highlight Cells:** Greater Than, Less Than, Text Contains
- **Top/Bottom Rules:** Top 10 Items, Bottom 10%
- **Data Bars, Color Scales, Icon Sets**
- **Formula-based:** Most flexible option



Formula Tip for Entire Rows

When using a formula for an entire row, make the column reference absolute:

`= $B2 > ZEIT(18;0;0)` — formats row if time in column B is after 18:00

Practical Examples | Praktische Beispiele

Scenario	Condition	Format
Stock < 100 kg	Less than 100	Light red fill
Initial stock > 200 kg	Greater than 200	Blue font
Orders < 35,000	Unprofitable	Red fill
Orders 35,000-60,000	Critical	Yellow fill
Orders > 60,000	Optimal	Green checkmark ✓

4. Excel Functions | Excel-Funktionen

4.1 Aggregation Functions | Aggregationsfunktionen

Function	English	Deutsch	Syntax
SUMME	Adds all numbers	Addiert alle Zahlen	=SUMME(A1:A10)
MITTELWERT	Average	Durchschnitt	=MITTELWERT(A1:A10)
MAX	Largest value	Größter Wert	=MAX(A1:A10)
MIN	Smallest value	Kleinsten Wert	=MIN(A1:A10)

4.2 Counting Functions | Zählfunktionen

Function	Counts	Zählt
ANZAHL	Cells with numbers only	Nur Zellen mit Zahlen
ANZAHL2	All non-empty cells	Alle nicht-leeren Zellen

4.3 IF Function | WENN-Funktion



Definition: IF (WENN) Function

Checks if a condition is met and returns different values for TRUE/FALSE.

Syntax: =WENN(condition; value_if_true; value_if_false)

Excel IF Function (WENN in German)

=IF(condition, value_if_true, value_if_false)



PRACTICAL EXAMPLE:



=IF(Sales>50000, "Bonus", "No Bonus")

How the IF/WENN function works

Examples | Beispiele

Scenario	Formula
Bonus if sales ≥ €50,000	=WENN(Umsatz>=50000;"Bonus";"-")
Salutation based on gender	=WENN(Geschlecht="m";"Herr";"Frau")
Pass/Fail (27+ points)	=WENN(Punkte>=27;"bestanden";"nicht bestanden")
Interest rate by balance	=WENN(Guthaben>10000;Guthaben*0,03;Guthaben*0,0225)

4.4 Date & Time Functions | Datums- & Zeitfunktionen

Function	Purpose	Zweck
HEUTE()	Current date	Heutiges Datum
DATUM(Jahr;Monat;Tag)	Create date from parts	Datum aus Teilen erstellen
JAHR(), MONAT(), TAG()	Extract date parts	Datumsteile extrahieren
DATEDIF(start;end;"d")	Days between dates	Tage zwischen Daten



Age Calculation Example

=DATEDIF(Geburtsdatum;HEUTE();"y") — Returns age in years

5. Practical Examples | Praktische Beispiele

5.1 Sales Analysis | Umsatzanalyse

- Calculate `MAX`, `MIN`, `MITTELWERT`, `ANZAHL` of offers
 - Format amounts as currency without decimals
 - Apply conditional formatting to highlight top performers

5.2 Employee Management | Mitarbeiterverwaltung

- Sort by last name, age, or salary
 - Filter specific departments (e.g., Sekretariat, Logistik)
 - Calculate salary bonuses:

`=WENN(Abteilung="Vertrieb";Gehalt*1,015;Gehalt)`
 - Count employees meeting criteria using `ANZAHL2` after filtering

5.3 Stock & Order Management | Lager- & Bestellverwaltung

- Calculate current stock: `=Anfangsbestand - Verkauf + Zugang`
 - Conditional formatting for low stock (red if < 100)
 - Icon sets for order status (✓ optimal, ▲ critical, × unprofitable)

5.4 Salary Calculations | Gehaltsberechnungen

Calculation	Formula
Individual wage	<code>=Stunden * Stundenlohn</code>
Total wages	<code>=SUMME(Lohnzahlungen)</code>
Average wage	<code>=MITTELWERT(Lohnzahlungen)</code>
% of total	<code>=Einzellohn / SUMME(Alle Löhne)</code>

5.5 Interest Calculation | Zinsberechnung



Interest Formula

Interest Amount: =Kapital * Zinssatz

New Balance: =Kapital + Zinsbetrag



Tiered Interest Example

=WENN(Guthaben>10000; Guthaben*0,03; Guthaben*0,0225)

If balance > €10,000 → 3% interest, otherwise → 2.25%



Good luck on your exam! | Viel Erfolg bei der Prüfung! 🍀

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