Introduction to Excel

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NULab for Texts, Maps, and Networks

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Workshop Agenda

- Objectives
  - Understand what Excel is
  - Learn how to use basic Excel functions
- About Excel
- Important Vocabulary and Functions
- Demonstration

Slides, handouts, and data available at **https://bit.ly/32uofgV**

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What is Excel?

Excel is a program that is used to create and edit spreadsheets. In Excel, data is organized into rows and columns; this data can be presented and analyzed using Excel's functions, such as pivot tables, charts, formulas, and more.

Why Excel?

Excel is an excellent way to store, organize, and analyze data and metadata (data about data). Although it is particularly useful for budgeting and finance because many of its functions revolve around numerical data, Excel is used quite often across the disciplines.

In humanities and social science contexts, you might use Excel to pursue research interests, particularly for materials that are provided as spreadsheets (census data, bibliographies, and more).

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Common Ways to Use Excel

Excel and Google Sheets have become programs that many use daily. Here are just some of the ways that you can stay organized by using Excel:

- Budgeting for events in your personal life
- Collaborative task-tracking (Google Sheets is especially helpful for this)
- Outlining content to be written for a website
- Analyzing data stored in .csv (comma separated value) files
- Collecting and analyzing survey information

Important Vocabulary

- **Workbook**: the overall Excel file that you are creating
- **Sheet**: the different sheets inside the workbook; these can be renamed
- **Row**: the horizontal and numerical rows
- **Column**: the vertical and alphabetical columns
- **Cell**: the boxes that each have an ID based on their row and column placements (A1, A2, A3, etc).

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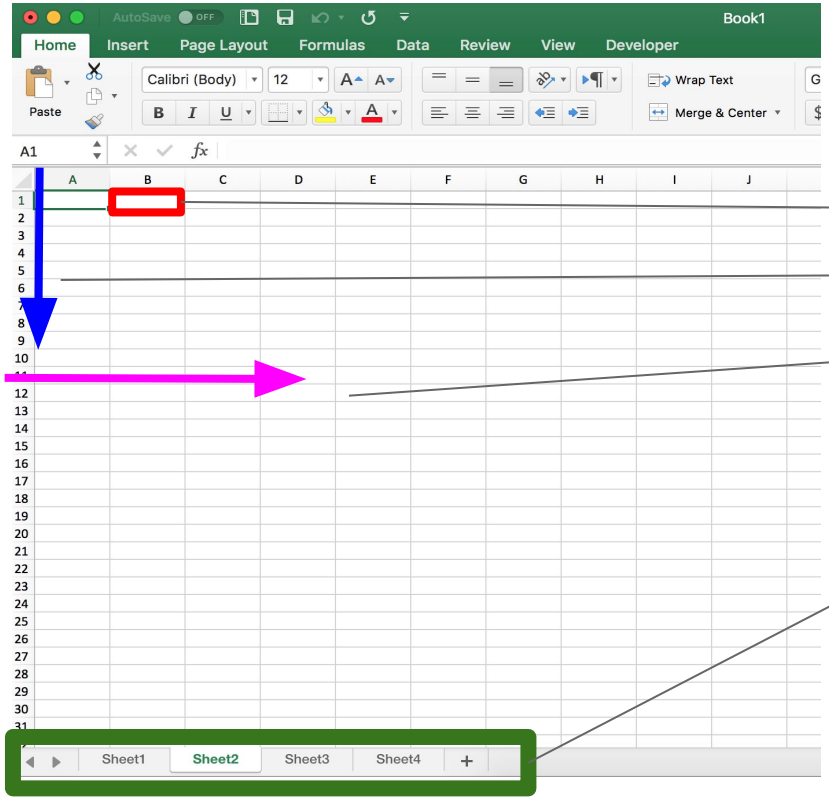
Anatomy of Excel



CELL

COLUMN

ROW

SHEET

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Important Excel Features

- **Function:** Used to calculate and analyze numerical data using mean, median, standard deviation, addition, subtraction, and other forms of arithmetic.
- **Tables and Pivot Tables:** Used to filter, analyze, and calculate numerical data, and present different results based on functions and data chosen.
- **Charts:** Used to visualize data with bar charts, scatter plots, and other formats.

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How to Select Data

If you have a long dataset, it can be hard to drag your mouse down to the bottom of the dataset. Click

SHIFT + COMMAND/CONTROL + DOWN ARROW (or whatever direction)

The end of the data will be selected in the direction of the arrow you choose.

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Basic Calculations

Using **tables** or **functions**, you can find the:

- Average (arithmetic mean)
- Mode
- Median
- Standard deviation
- Min/max values
- Correlation
- Results for other basic calculations such as addition, subtraction, division, multiplication

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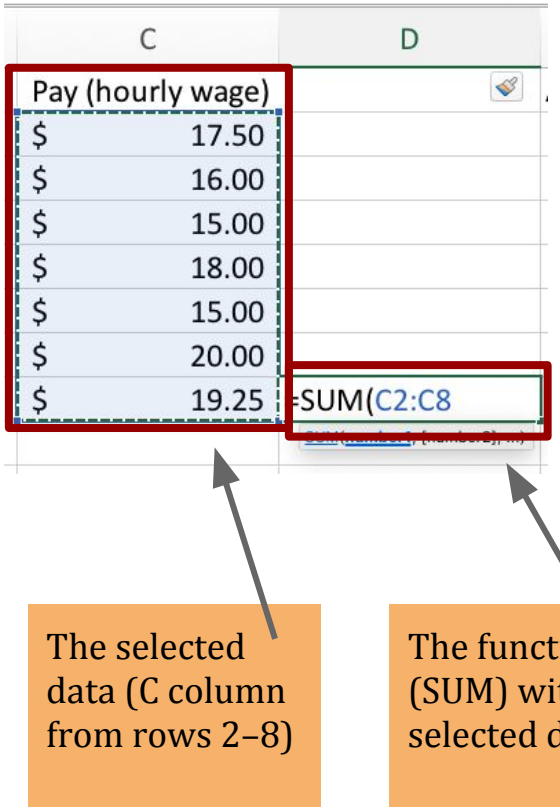
Writing Excel Functions

- In an empty cell, type = and then the proper calculation:
  - Sum: SUM(
  - Average: AVERAGE(
  - Median: MEDIAN(
  - Standard Deviation: STDEV(
- Select the range to calculate. You can enter the names of the cells manually or select the cells you want included.
- You can also write functions referencing other worksheets by using the sheet name and '!'. Example:
  - =AVERAGE(Sheet1!C2:C8)



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Sorting Data

- Sorting allows you to organize your data by a certain value
- First highlight the column you want to sort
- Select “Sort & Filter” under the “Home” tab. On the drop-down menu, select how you want to sort the values
- Once you click, a pop-up window will appear, then select “Expand the selection.” Otherwise Excel will only rearrange the cells in the column you have selected.

Select “Expand the selection”

C
Pay (hourly wage)
$ 20.00
$ 19.25
$ 18.00
$ 17.50
$ 16.00
$ 15.00
$ 15.00

Data is sorted from largest to smallest value

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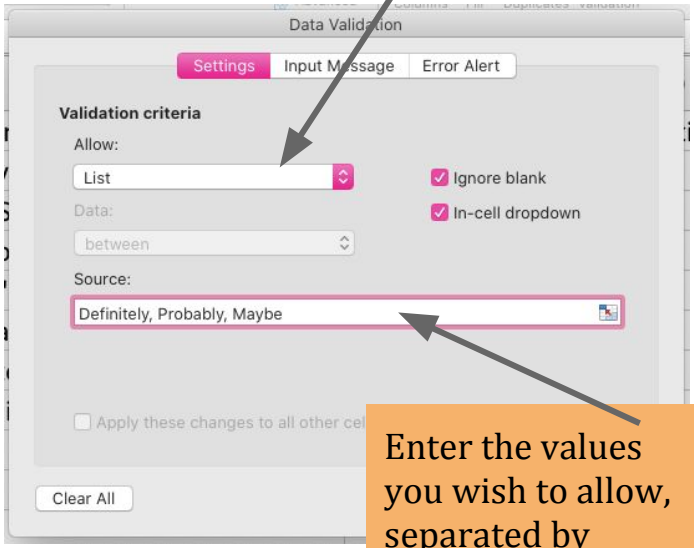
Adding Data Validation

- Data validation allows you to set a limited range of responses (either numbers or words/letters) for a selected group of cells.
- Highlight the cells to which you want to apply the data validation
- Select “Data Validation” under the “Data” tab
- Change “Allow” from “Any value” to “List” in the drop-down menu
- Type the responses you want to allow, separated by commas



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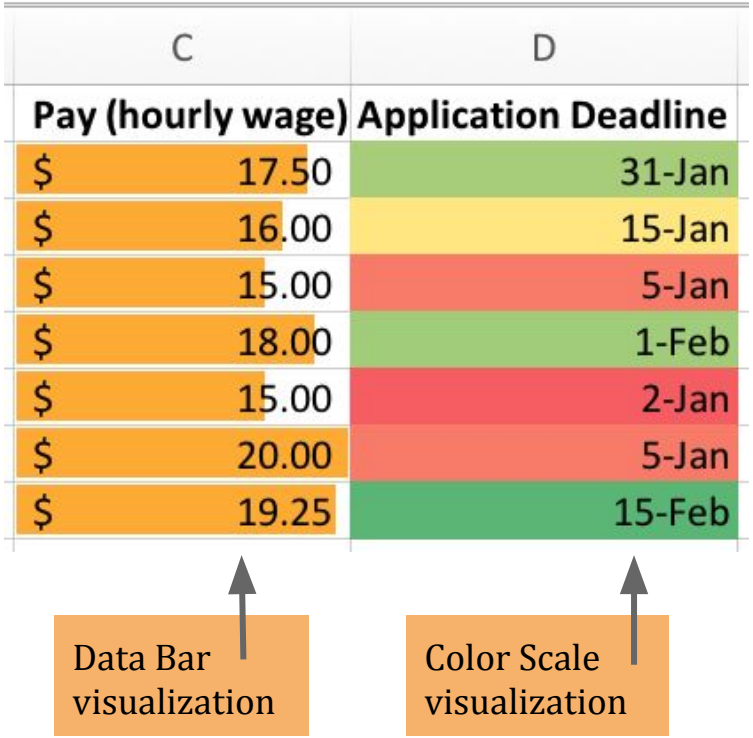
Adding Conditional Formatting

- Conditional formatting adds automatic color-coding based on your data values
- Highlight the cells to which you want to apply the conditional formatting
- Select “Conditional Formatting” under the “Home” tab and choose from a range of color-coding options
  - Options include Data Bars, Color Scales, and Icon Sets
  - You can customize colors, patterns, and more



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Creating a Table

- Tables allow you to present your information in a more polished way. They also create a visual border between your data and the rest of the spreadsheet document.
- Select all the cells that you want included in your table
- Under the “Insert” tab, select “Table”
- You can customize the appearance of your table under the “Table” tab, much as you would in Microsoft Word
- You can still modify your data once it is in a table; although tables make your data look more presentable, they are not a “finished” form

Your Turn!

Using some of the data you have collected in your co-op search process, try out the following functions in Excel:

- **Sort data** in one column, either alphabetically or by numerical value
- **Add Data Validation** to a column (either qualitative or quantitative data). Ideas include:
  - Whether the position is virtual or in person
  - Your interest level or qualification level
  - Whether you have submitted your application
- **Create and customize a table**
- **Add Conditional Formatting** to a column (must be quantitative data). Ideas include:
  - Wages
  - Application dates
  - Your interest or qualification level on a scale of 1-5

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Additional Information

The rest of the slides provide links to tutorials on what particular functions are and how to use them. This way, you can do your own research, figure out what functions might work for you in this project, and decide how you want to organize your co-op interview information and skill set information.

Also included are two Excel tutorials you may find helpful.

Conditional Formatting

https://support.office.com/en-us/article/Use-formulas-with-conditional-formatting-FED60DFA-1D3F-4E13-9ECB-F1951FF89D7F

Data Validation

https://support.office.com/en-us/article/Apply-data-validation-to-cells-29FECBCC-D1B9-42C1-9D76-EFF3CE5F7249

Pivot Tables

https://support.office.com/en-us/article/Create-a-PivotTable-to-analyze-worksheet-data-A9A84538-BFE9-40A9-A8E9-F99134456576

Creating Charts

https://support.office.com/en-us/article/video-create-a-chart-4d95c6a5-42d2-4cfc-aede-0ebf01d409a8

Excel Basics Tutorial

https://www.youtube.com/watch?v=rwbho0CgEAE&t=12s

Excel 2019 Beginner Tutorial

https://www.youtube.com/watch?v=6JnEYGxxd8w

Thank you!

If you have any questions, contact us at nulab.info@gmail.com

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