



Microsoft Excel 5.0 Session 1

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Introduction

Excel Session 1 is a course created for CAL PACT participants to learn more about the features of Excel. The course covers simple introductory material and applies to both the Windows and Macintosh computer platforms. This document serves as a supplement and future reference to the class.

Skills needed to take this class

- how to use the mouse
- how to use the Windows computing environment

Skills and concepts learned in this class

- what is Excel
- using menus and toolbars within Excel
- data entry and manipulation
- basic formatting
- sorting data
- printing and customizing print-outs

Conventions used in this document

Menus and menu commands are separated by a vertical bar (|). In the document they will appear as **Menu | Command**. An example of this is "Select **File | New...**"

What is Excel?

Microsoft Excel is a spreadsheet program that records, analyzes, and calculates data. The power of Excel comes from its ability to eliminate repetitive calculations and automatically update data. Excel can also organize and present data using a variety of graphs and charts.

The following are some of Excel's major features:

Worksheet

A worksheet can store, manipulate, calculate, and analyze data such as numbers, text, and formulas.

Database

A database can conveniently sort, search, and manage a large amount of information on a worksheet.

Charts

Charts can quickly and visually present worksheet data.

Macros

Macros can automate frequently performed tasks and perform specialized calculations.

Excel is Good but...

Excel works best with data values. As a consequence of this, Excel will not plot mathematical functions effectively (such as $f(x) = x^2$). However, to better organize the results of a survey (or experiment) you took, Excel would be a wonderful tool.

Excel is inadequate as a large scale database (such as repetitive records exceeding fifty entries that include both text and number entries). Excel does have some rudimentary database functions, although there are other database programs on the market which allow easier formatting and presentation of records.

Opening Excel Files**Opening a New Workbook**

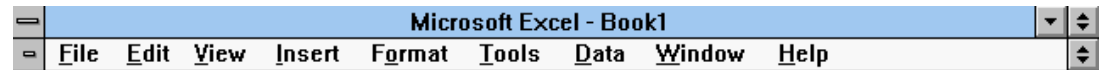
Launching Excel should automatically open a new workbook called Book 1. If Excel did not open a new workbook or if you would like a new workbook, select **File | New...**

Opening an existing Excel File

To open an existing Excel file, select **File | Open...** Direct Excel to the file you want to open.

Understanding Your Screen

Menu Bar



All commands available in Excel are contained in the menu bar. The commands are categorized into nine main menus headings as shown in the figure above. Contents of each menu can be displayed by clicking once on the name of the menu in the menu bar.

To activate any menu command click on a menu name on the menu bar to reveal the “pull-down” menu. The pull-down menu displays a list of commands available within each category. Move the mouse to highlight the desired command and click the mouse button to activate the command.

Toolbars



The toolbar is another way to execute commands with a single click of a mouse button. Toolbars allow quick access to commonly used commands, providing an alternate to using the menu bar.

To select which toolbars appear on the screen or to customize the toolbar, go to **View | Toolbars....**

Formula Bar



The formula bar displays the location and data of the active cell. The contents within the cell can be edited here. When data values such as characters or numbers are entered in a cell of the spreadsheet, the information will be displayed in the formula bar and on the spreadsheet. If formulas are entered in a cell of the spreadsheet, the formula bar will display the actual formula while the spreadsheet will display the results of the formula.

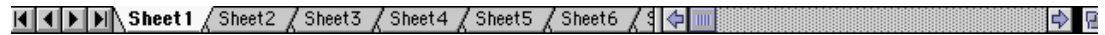
Status Bar



The left side of the status bar displays a brief description of the currently selected command or the current activity in progress. The right side indicates whether a keyboard mode such as Overwrite (OVR), Number Lock

(NUM) or Cap Lock (CAPS), etc., is active.

Scroll Bar



The Scroll Bar allows you to scroll in between sheets or within the sheet currently selected. To rename a sheet, double click on the sheet tab.

Column headings

A	B	C
---	---	---

Row headings

1
2
3

Column headings are referenced by letters; row headings are referenced by numbers. References to cells are made by citing the column letter followed immediately by the row number. Following are examples of cell references:

Cell reference

Cell A1

Cells A1 to H7

Cells A1 and H7

The cells being referenced

Reference to the single cell in column A, row 1

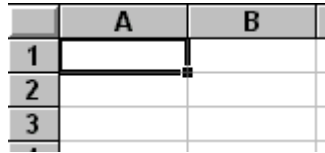
Reference to the range of cells beginning with the cell in column A, row 1 and ending with the cell in column H, row 7.

Reference to the cell in column A, row 1 **and** the cell in column H, row 7.

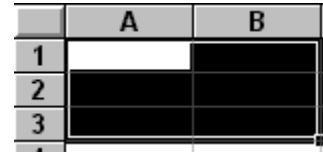
Cell Selection

Cell selection, also called cell highlighting, is one of the most important skills to master in Excel. Whenever a command is activated, Excel executes the command on the selected region of cells. A cell region can consist of one cell or a range of multiple cells. See Table 1 - Cell Selection for a guide on cell selection. Mastering cell selection allows for an increase in productivity and a decrease in user error.

Inside a region of selected cells, there is always an active cell. Active cells are most commonly denoted by a thick border around the cell. When one cell is selected, the cell is both selected and the active cell. When a multiple cell region is highlighted, one cell inside the selected region is still the active cell. Since highlighting causes the selected region to appear in black, the active cell is denoted by the white background inside the selected region. See the following figures which visualize the difference.



Cell A1 is selected and is also the active cell





Cells A1 through B3 are selected, but A1 is the active cell

Action	Selection Method
Selecting a single cell	<ul style="list-style-type: none"> Click on the cell using the mouse Use the arrow keys to move to the desired cell
Selecting an entire row	Click on the row header of the row to select
Selecting an entire column	Click on the column header of the column to select
Selecting an entire worksheet	Click on the box in the upper left where the column and row headers meet
Selecting multiple adjacent cells	<ul style="list-style-type: none"> Drag the mouse over the cells to select Use the mouse and select the first cell (the top left cell), then hold down the shift key and select the last cell (the bottom right cell)
Selecting multiple adjacent columns or rows	<ul style="list-style-type: none"> Drag the mouse over the row/column header of the rows/columns you want to select Use the mouse and select the first row/column header of the desired row/column, then hold down the shift key and select the last row/column header of the row/column desired
Selecting multiple non-adjacent cells	Use the mouse and select the first cell, then hold down the control key for Windows or the command key for Macs and select the rest of the cells
Selecting multiple non-adjacent rows or columns	Use the mouse and select the first row/column header of the desired rows/column, then hold down the control key for Windows or the command key for Macs and select the rest of the rows/columns desired.

Data Entry

To enter data in a cell, select the cell and begin typing. Notice that typing data causes the data to appear both in the cell of the spreadsheet and in the formula entry bar. As data is entered, Excel changes into formula entry mode. This is denoted by the red X, the green check, and the fx button

which appear inside the formula entry bar. To complete a cell entry or an edit, click the *enter box*  or press ENTER. To cancel an entry or edit, click the *cancel box*  or press ESC.

Note: When Excel is in formula entry mode, many commands are not available for use. Remember to exit formula entry mode by accepting the entry or cancelling the entry before selecting commands.

To enter data quickly into several adjacent cells, first select the range of cells (by highlighting the range). Make cell entries, one after another in successive cells. See Table 2 - Basic Controls for a quick reference guide on moving around in Excel.

Table 2: Basic Controls

Action	General Scrolling	When Highlighted
Move up one cell	up arrow	shift+return
Move down one cell	down arrow	return
Move right one cell	right arrow/tab	tab
Move left one cell	left arrow/shift+tab	shift+tab

Important reminder: Do not use the arrow keys after cells are highlighted. Using the arrow keys will result in selecting a new active cell.

Editing Cell Entries

After data has been entered into a cell, the data can be edited. By selecting a cell and typing, the new entry will completely replace the existing data. To avoid this, there are various ways to edit portions of the data in a cell. See Table 3 - Cell Editing for a guide on editing cells.

Table 3: Cell Editing

Editing Feature	Method(s)
Replace the contents of a cell	Select the cell and make the new entry
Change a portion of the data in a cell	<ul style="list-style-type: none"> • Move the mouse pointer into the formula entry bar. The pointer will change into an I-bar. Click the mouse and a flashing cursor will appear in the the formula entry bar • Move the mouse over the cell and double click on the cell • In a Windows environment, select the cell and press "F2" on the keyboard

Manipulating Cells

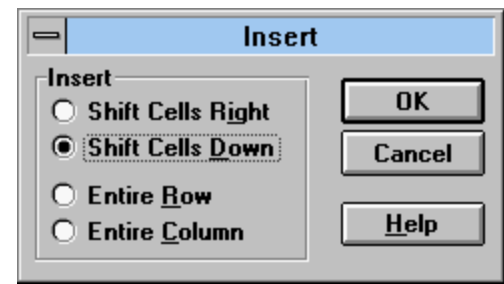
Insert

After data is entered on the worksheet, it is possible to insert blank cell(s) or row(s) between occupied cells to make room for new data or to include more white space in the data area. Blank cells, rows, or columns can be inserted anywhere on the worksheet.

To insert a new cell or cells:

1. Select the location and number of cells you want to insert.
2. Select **Insert | Cells...** *or* use the key stroke Ctrl + Plus Sign on the keypad for Windows or Command+I for Macs.

3. The Insert dialog box opens to choose which way the existing cell(s) must shift to make room for the new cell(s). There is also the option to insert new row(s) which will shift the existing cells of the currently selected row(s) down; insert new columns is another available command which will shift all the cells of the currently selected column(s) to the right.



To insert new rows or columns:

1. Select the row or column heading(s) where the new row(s) or column(s) will be inserted.
2. Select **Insert | Rows** or **Insert | Columns** *or* use the key stroke Ctrl + Plus Sign on the keypad for Windows or Command +I for Macs.
3. Excel formats the inserted cell(s) the same as the cells around them.

To insert a new sheet(s):

Select **Insert | Worksheet**.

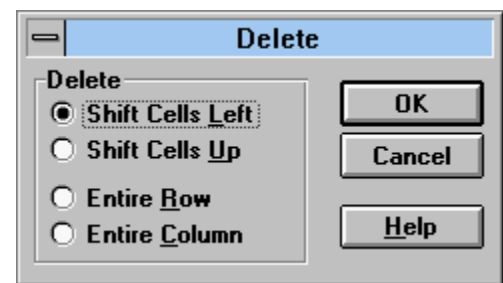
Delete

Use the Delete command to remove cells from the worksheet and delete the space occupied by those cells. Unlike copying or cutting data, deleted cells are not stored on the clipboard. Use the Cut and Paste command discussed later to move data to a new location.

To delete a cell or cells:

1. Select the location and number of cells to delete.
2. Select **Edit | Delete...** or use the key stroke Control + Minus Sign on the keypad for Windows or Command + K for Macs.

3. The Delete Dialog Box opens.
Choose which way to shift the existing cells. There is also the option to delete the entire row which will shift the remaining rows up or delete the entire column which will shift the remaining column to the left.



To delete rows or columns:

1. Select the row or column heading(s) of the row(s) or column(s) to delete.
2. Select **Edit | Delete...** or the key stroke Control + Minus Sign on the keypad for Windows or Command + K for Macs.

To delete a work sheet:

Select **Edit | Delete Sheet**.

Clear

Clearing a cell clears the contents, formats, or notes, or all three from that cell, but leaves the cleared cell in the structure of the worksheet.

To clear a cell, row, or column:

1. Highlight the intended cell, row, or column to clear.
2. Select **Edit | Clear**.
3. At this point either select All, Contents, Formats, or Notes.

Important things to remember:

- It is usually better to delete a whole sheet than to clear a sheet of all its contents.
- To clear a selection of its content only, hit the Delete button on your keyboard. For the Mac, you may also use Command + B.

What is the difference between Clear and Delete?


If a cell's contents are cleared, there is no data in the cell and the cell remains. However when a cell is deleted, the cell is completely removed and adjacent cells move to close up the space that was occupied by the deleted cell. This causes two main problems:

- Aesthetics - Clearing a cell allows the cell to remain while deleting a cell will cause that cell to be replaced by an adjacent cell. This result shifts your worksheet data around.
- Formulas - if the formula " $=A1*B1$ " is in a cell, clearing cell A1 or B1 will produce the #REF! error on the worksheet to indicate that the formula needs to be adjusted.

This is a common error among Excel users who try to clear the existing cell of old data or formats in order to enter a new set of data or formats. By deleting the existing cell instead of clearing the cell, they no longer have the correct cell or space to enter new information.


Copy

Use this command to make a copy of the selected cell(s) which automatically places them on the Clipboard.

1. Select the desired cell(s).
2. Select **Edit | Copy**, or click on , or use the key stroke Control + C for Windows or Command + C for Macs.
3. The selection is stored on the clipboard and is available for pasting. Copied cell(s) will have a moving dashed rectangle around it.


Cut

Use this command to remove the selected cell(s). Any cut cells automatically move to the Clipboard.

1. Select the desired cell(s)
2. Select the **Edit | Cut**, or click on , or use the key stroke Control + X for Windows or Command + X for Macs.
3. The selection is stored on the Clipboard and is available for pasting. Cut cell(s) will have a moving dashed rectangle around it.

Paste

Use this command to place the contents of the Clipboard into the selected cell(s). The Paste command is only functional after cells have been cut or copied onto the clipboard.

1. Select the cell where the Clipboard contents will be placed. Select either:
 - a paste area equal to the size of the copied or cut cell(s) (i.e. 2x2 or 4x4) or
 - the first cell where the copied or cut cell(s) will be pasted. The cells on the clipboard are pasted in the same order in which they were copied or cut.
2. Select **Edit | Paste**, or click on , or use the key stroke Control + V for Windows or Command + V for Macs.

Important Note: The pasted cells will overwrite any existing cells.

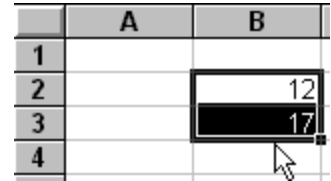
Paste Special

Use this command to place only the format or data of a copied cell. Select **Edit | Paste Special** and choose the desired option.

Drag and Drop

Drag and drop is the same thing as copying and moving cells, only faster.

1. Select the desired cell(s).
2. Move the mouse to the edge of the highlighted area. The pointer will change from a cross to an arrow.

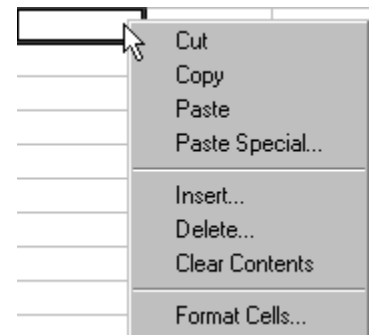


3. Click on the selection and hold the mouse button down. Drag the mouse to the new position desired for the selected cells. Release the mouse button to move the cells. To copy the cells, hold the Control key on the keyboard and then release the mouse button.

Quick Edit Menu

To activate the Quick Edit Menu:

1. Move the pointer over the cell to change or highlight a selection.
2. Click once on the cell selection with the Right Mouse Button in Windows. Since the mouse on the Mac only has one button, activate the menu by holding down the Control key while clicking the mouse on the cell selection.
3. Move the mouse pointer to the command desired and click the mouse button to activate.



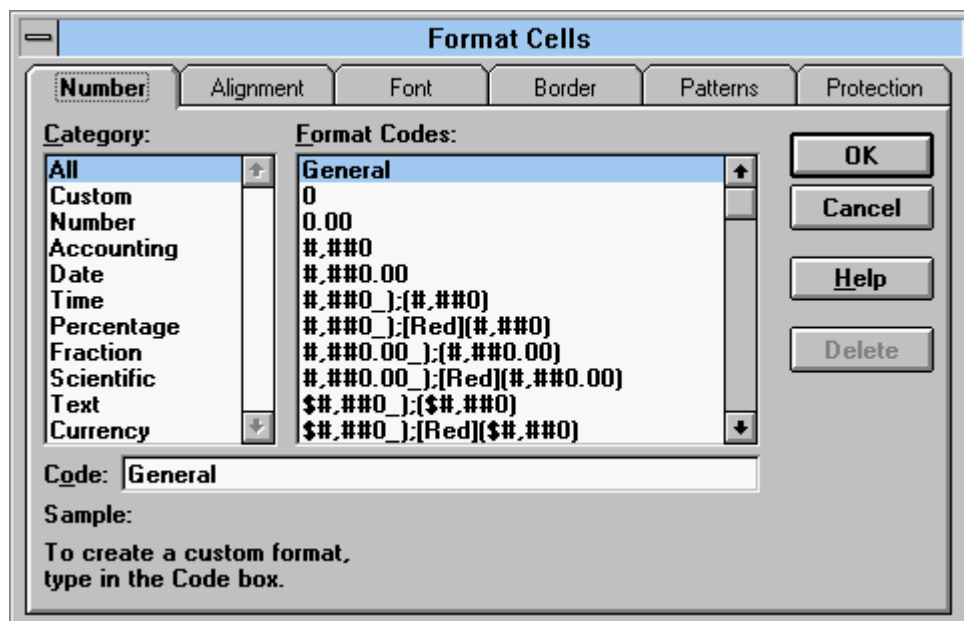
Cell Formatting

Cell formatting allows for a change in the appearance of data in a worksheet such as formatting numbers to designate dollar amounts, percentages, decimals, or change the font, size, style, color, and alignment of data in a cell.

Cell formatting can also change the appearance of the cells in the worksheet by adding color or borders to cells.




To activate the Format Cells Menu:



Highlight the cells desired and select **Format | Cells...**. The following window will appear. Many of the common formatting command can be accessed through the formatting toolbar.



Important Note: As with all editing, first highlight the area to which the formatting will be applied.

Number

The number format designates how data is displayed in Excel. Cell data can be converted from decimals into percent , or into currency  without having to type a \$ sign in front of every single entry. Excel can also customize how data is displayed, such as the appearance of commas  or




the number of decimal places that will appear. In the toolbar this button  will decrease the number of decimals shown by one and this button  will increase the number of decimals shown by one.

Excel also offers other options to format data such as date, time, fraction, scientific, text and even custom formatting.


The **Code Box** in the Format window shows the code being used for the selected cells. If necessary, edit the format by clicking in the box and entering the necessary code.

The **Sample Box** displays the sample of the format selected, in other words it shows how the data will look on the spreadsheet. If there is no data in the active cell, a sample will not be shown.

Alignment







The alignment format allows data to be left aligned , centered , or right aligned  within a cell(s). Highlight the range of cells and select the alignment desired. In addition, text within a cell can be centered between a range of blank cells.

To center text within a range of cells:

1. Enter the data to center in the left most cell.
2. Highlight the range of cells to center across.
3. Click on the  button *or* select **Format | Cells...** Choose the **Alignment** tab and select **Center across section**.

The **Alignment** menu also allows the orientation and vertical alignment of data to change.


Fonts

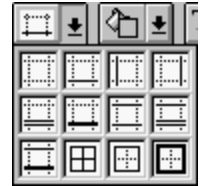
The **Fonts** format allows changes in the font , the size , the style  (underline),  (italics),  (bold), and the color . The **Font** tab also allows font effects such as strike through, superscript, subscript, outline, shadow and double underline.

Border

The **Border** tab enhances the worksheet's visual presentation by adding borders to cells. Remember that adjoining cells share borders. For example, placing a bottom border on one cell produces the same effect as placing a top border on the cell below it.


To add borders to cells, rows, columns, or sheets:

1. Select the area that the border will be applied to.
2. Select  or select **Format | Cells...** and choose the Borders tab.
3. Through the toolbar, select the desired border; through the Border tab, select the line size desired and click in the areas where the line should be applied.



The Border tab gives a better selection of lines and a choice of colors.

Patterns

The Pattern tab and the toolbar button  applies color in the background of a selection or applies a shade (color shades available) within the selection in order to produce a higher impact document.

Important Note: Unless the document is printed on a color printer, the colors will be translated into shades of gray during printing.

Protection

Use the Protection tab to lock any cell(s) from being changed. Before cells can be locked, the entire sheet must be protected. To protect the entire sheet select **Tools | Protection**. Return to the Protection tab after the sheet has been protected.

Width and Height

To manually change the height or width of a cell:

1. Select the cell to format.
2. Select **Format | Row | Height** or **Format | Column | Width**.
3. Enter the new value for the height or width.

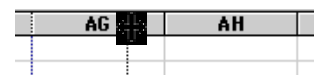
Changing a cell width will automatically change the width of the whole column. Changing a cell height will automatically change the height of the entire row.

Use AutoFit to change the width of a column and height of a row.

Choose **Format | Row | AutoFit** or **Format | Column | AutoFit** to automatically fit a cell to the largest entry in the row or column. This change will affect the entire row or column.

To Change Column Width and Row Height without using the Format menu

1. Place the mouse on the line between the column or row headers of the column/row to format and the following column/row (e.g. in order to AutoFit column D place the mouse on the line between the column D and E headers)
2. The mouse pointer will change into a line with a double-headed arrow.
3. Drag the symbol to the desired height or width to adjust the size *or* double click the mouse button to AutoFit the entire row or column.



Sorting

This function alphabetizes or numerically sorts data in an **ascending** or **descending** format. The sort command can arrange:

- Numbers
- Text (text with numbers)
- Logical values

- Error values
- Blanks

Highlight the cells which contain the data to be sorted and select **Data | Sort**. A Sort window will appear with three categories to customize the sort:



1. Sort By

Enables the choice of the primary sorting criteria. The column can be sorted in either descending or ascending order.

Ascending: The lowest number or beginning letter of the alphabet will appear first.

Descending: The highest number or end of the alphabet will appear first.

2. Then By

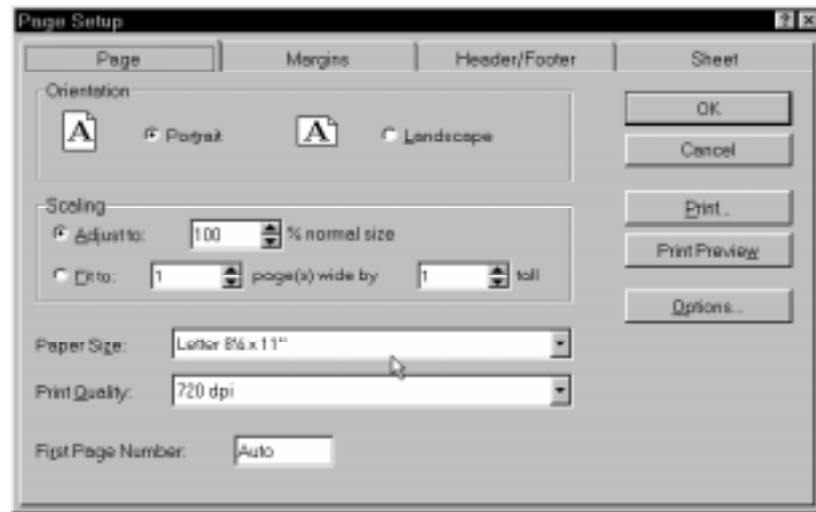
This command follows the initial sort. These fields specify a secondary or tertiary criteria in case duplicate records are found.

3. My List Has

If the worksheet has column labels, select the **Header Row** option. If the worksheet has no labels then select the **No Header Row** option. The purpose for this box is to determine whether the first row of your list is excluded or included when the data is sorted.

Adjusting Page Setup

Landscape or Portrait

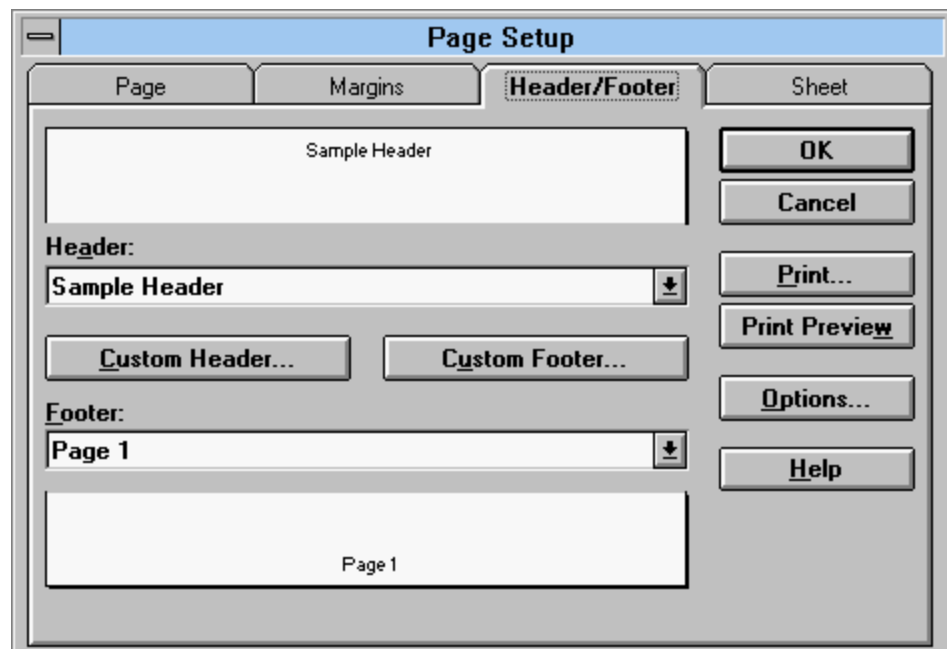


Excel by default prints the worksheet in the portrait orientation. To change between landscape and portrait, select **File | Page Setup** and select the **Page** tab. Choose the option for the desired orientation.

Margin

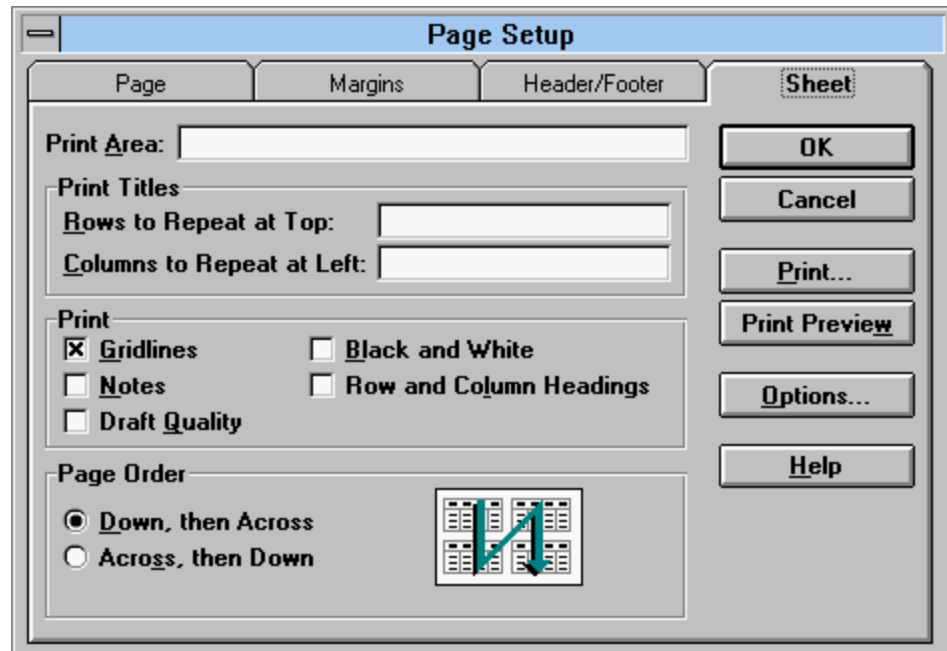
To change the margin setting, select **File | Page Setup** and select the **Margins** tab. Adjust the values for the margins on each side of the page to the desired amount.

Header and Footers



By default, Excel prints the sheet name at the top of each page and the page number at the bottom of each page. To change this, choose **File | Page Setup** and select the **Header/Footer** tab. Next to each field name there is a downward pointing arrow. Click on the arrow to reveal a list of standard header and footer options. Click on the button for custom header/footer to create a personalized header or footer

Removing those annoying gridlines



By default, Excel prints the gridlines that appear on a worksheet. To remove gridlines during printing, choose **File | Page Setup** and select the Sheet tab. Click on the Gridlines box to adjust the setting.

Setting Page Breaks

Highlight the row that will appear at the top of the new page. Select **Insert | Page Break** to insert a page divider. A dotted line will appear above the current row, representing the page-divider.

Printing

Worksheet or Workbook

To print any worksheet choose **File | Print...**

Choose between printing a selection of the worksheet, the current worksheet, or the entire workbook. Use **Print Preview** to see how the document will look before printing.

Printing a selection of the worksheet

Highlight the cells to print on the worksheet and select **File | Print...** In the dialog box, select **Print Selection**. Only the highlighted cells will print.

Scaling

Scaling allows for manual specification of the print magnification. Choose **File | Print...** and manually adjust the scaling by choosing the desired scaling percentage.

The **Fit to Page** option scales any spreadsheet or graph to fit on a specified number of pages. By specifying the number of pages wide and pages tall, Excel will automatically choose a scaling percentage. It is not necessary to set both the number of pages wide and pages tall. By leaving one of the fields blank, Excel will print using however many pages necessary. For example, setting the worksheet to fit to 1 page wide will cause Excel to fit all of the column on the width of the page, but still use as many pages necessary to print all of the rows. All scaling is done proportionately.