



University Information
Technology Services

Microsoft Office Excel 2016 for Mac

Intro to Formulas & Basic Functions

University Information Technology Services

Learning Technologies, Training & Audiovisual Outreach

Copyright © 2016 KSU Division of University Information Technology Services

This document may be downloaded, printed, or copied for educational use without further permission of the University Information Technology Services Division (UITs), provided the content is not modified and this statement is not removed. Any use not stated above requires the written consent of the UITs Division. The distribution of a copy of this document via the Internet or other electronic medium without the written permission of the KSU - UITs Division is expressly prohibited.

Published by Kennesaw State University – UITs 2016

The publisher makes no warranties as to the accuracy of the material contained in this document and therefore is not responsible for any damages or liabilities incurred from UITs use.

Microsoft product screenshot(s) reprinted with permission from Microsoft Corporation.

Microsoft, Microsoft Office, and Microsoft Excel are trademarks of the Microsoft Corporation.

University Information Technology Services

Microsoft Office: Excel 2016 for Mac Intro to Formulas and Basic Functions

Table of Contents

Introduction	4
Learning Objectives.....	4
Functions and Formulas.....	5
Basic Information	5
How to Specify Individual Cells	5
How to Specify a Group of Cells.....	5
Entering a Formula.....	6
Editing a Formula	7
Basic Functions.....	8
Insert Function Button	11
Auto Calculate	13
AutoSum.....	14
Additional Help	15

Introduction

This booklet is the companion document to the Excel 2016: Intro to Formulas and Basic Functions workshop. It includes and definitions for formulas and functions, and covers the various aspects of creating formulas and the basic functions used in Excel.

Learning Objectives

After completing the instructions in this booklet, you will be able to:

- Understand formulas
- Create formulas
- Understand functions
- Use basic functions
- Know the difference between formulas and functions

Note: This document frequently refers to right-click. If your set-up does not include a mouse with two buttons, Mac users can configure their single-button mouse to do a right-click by accessing the *System Preferences > Mouse* settings and setting the right-button to **secondary button**. Right-click can also be enabled by holding **Control + click**.

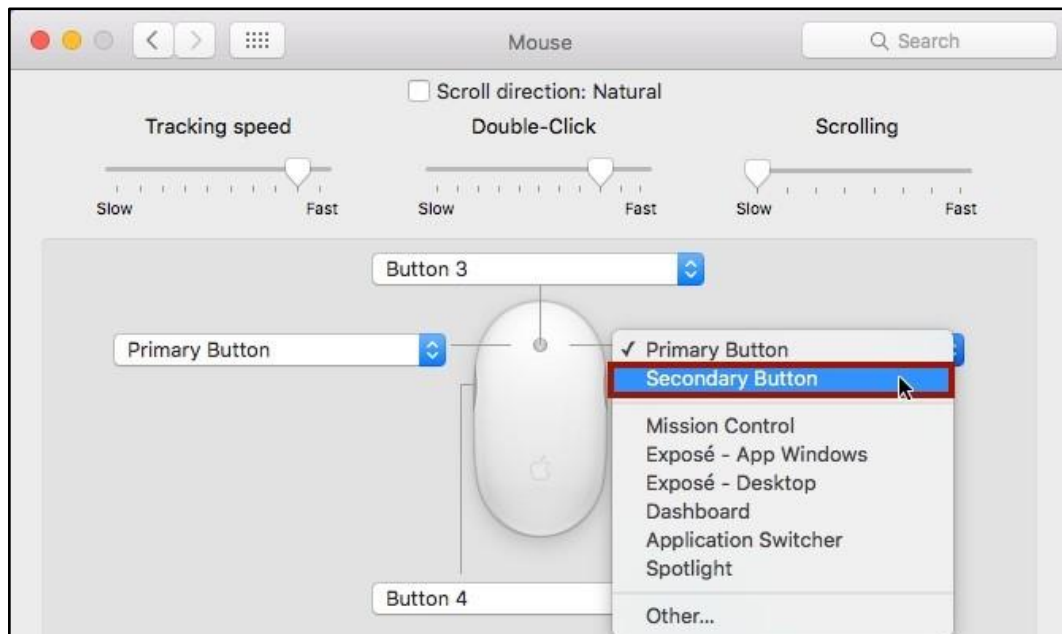


Figure 1 - Mouse Settings

Functions and Formulas

A formula performs calculations or other actions on the data in your worksheet. A function is a preset formula in Excel. It is important to understand the following information about functions and formulas.

Basic Information

A formula and a function always begins with an equal sign (=). The data Excel will use to calculate a function is enclosed in parentheses (). Formulas do not include parentheses.

	Formula	
	=A1+A2+A3	
	Function	
	=SUM(A1:A3)	

Figure 2 - Formulas & Functions

How to Specify Individual Cells

When there is a comma (,) between cell references in a function, Excel uses each cell to perform the calculation. For example, the function =SUM (A1, A2, A3) is the same as the formula =A1+A2+A3.

	Function	
	=SUM(A1,A2,A3)	

Figure 3 - Using Commas to Separate Cell References

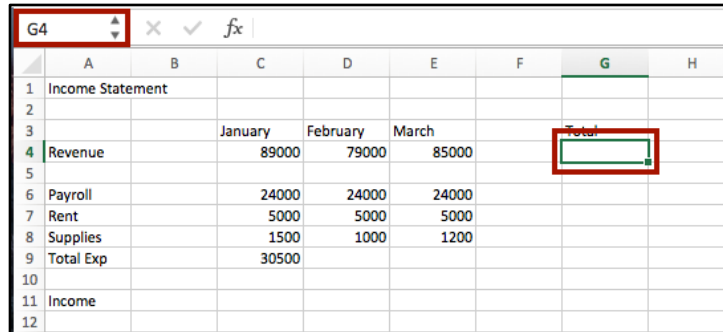
How to Specify a Group of Cells

When there is a colon (:) between cell references in a function, Excel uses the specified cells and all cells between them to perform the calculation. For example, the function =SUM (A1:A3) is the same as the formula =A1+A2+A3 (See Figure 2).

Entering a Formula

The following instructions explain how to enter a formula:

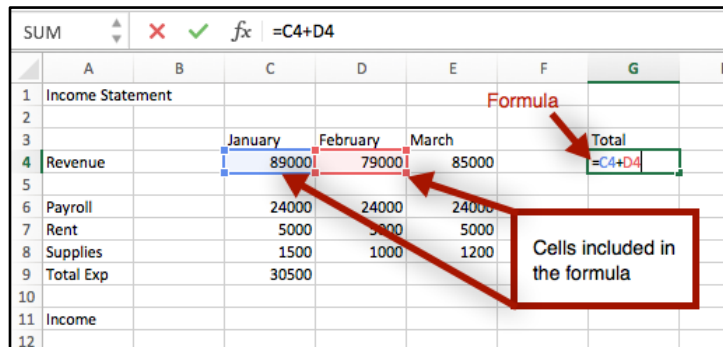
1. Click on the **cell** where you want to enter a formula. This is where the answer will appear. In Figure 4, cell G4 has been selected.



	A	B	C	D	E	F	G	H	
1	Income Statement								
2									
3			January	February	March		Total		
4	Revenue		89000	79000	85000				
5									
6	Payroll		24000	24000	24000				
7	Rent		5000	5000	5000				
8	Supplies		1500	1000	1200				
9	Total Exp		30500						
10									
11	Income								
12									

Figure 4 - Select Cell for Formula

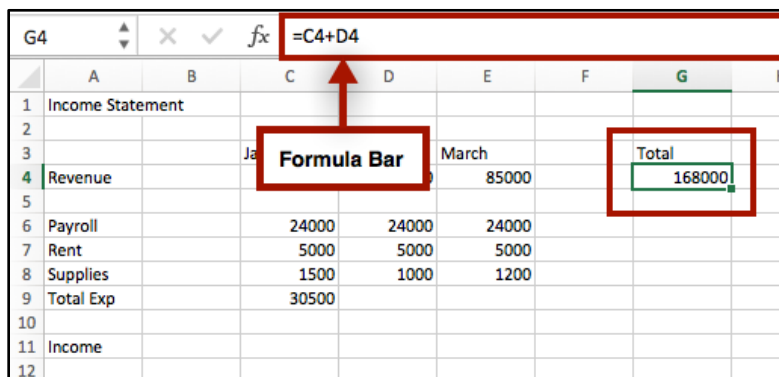
2. Type an **equal sign (=)** to begin the formula (See Figure 5).
3. Then type the **formula: =C4+D4**, (See Figure 5).



	A	B	C	D	E	F	G	H	
1	Income Statement								
2									
3			January	February	March		Total		
4	Revenue		89000	79000	85000		=C4+D4		
5									
6	Payroll		24000	24000	24000				
7	Rent		5000	5000	5000				
8	Supplies		1500	1000	1200				
9	Total Exp		30500						
10									
11	Income								
12									

Figure 5 - Entering Formulas

4. Press **Enter**. The results of the calculation will appear in the selected cell (See Figure 6).
5. To view the formula, click the **cell containing the formula** and it will appear in the formula bar.



	A	B	C	D	E	F	G	H	
1	Income Statement								
2									
3			January	February	March		Total		
4	Revenue		89000	79000	85000		168000		
5									
6	Payroll		24000	24000	24000				
7	Rent		5000	5000	5000				
8	Supplies		1500	1000	1200				
9	Total Exp		30500						
10									
11	Income								
12									

Figure 6 - Formula Bar

Editing a Formula

Sometimes you may need to change a formula to include additional cells, remove cells, etc. The following instructions explain how to edit a formula.

1. Click the **cell** containing the formula you want to edit. The formula will be shown inside the *formula bar* (See Figure 7).
2. Click inside the **formula bar** and make the necessary changes. In Figure 7, E4 was added to the formula.

	A	B	C	D	E	F	G
1	Income Statement						
2							
3			January	February	March		Total
4	Revenue		89000	79000	85000		=C4+D4+E4
5							
6	Payroll		24000	24000	24000		
7	Rent		5000	5000	5000		
8	Supplies		1500	1000	1200		
9	Total Exp		30500				
10							
11	Income						
12							

Figure 7 - Editing a Formula

3. When finished, press **Enter** on your keyboard. The answer will appear in the selected cell.

	A	B	C	D	E	F	G	H	
1	Income Statement								
2									
3			January	February	March		Total		
4	Revenue		89000	79000	85000		253000		
5									
6	Payroll		24000	24000	24000				
7	Rent		5000	5000	5000				
8	Supplies		1500	1000	1200				
9	Total Exp		30500						
10									
11	Income								
12									

Figure 8 - Edited Formula

Basic Functions

Functions let you perform calculations without typing long, complex formulas. The following instructions explain how to use some basic functions in Excel.

- **SUM** - Adds a list of numbers (See Figure 9)

Function - =SUM(B3:B7) (See Figure 9)

Result - 441.6 (See Figure 9)

	A	B	C	D	E	F
1	GRADES					
2						
3	Math	89				
4	History	75.6				
5	Science	82				
6	English	95				
7	Geography	100				
8						
9	Total Grade (SUM)	441.6				
10						
11						
12						

Figure 9 - Entering the SUM Function

- **AVERAGE** - Calculates the average value of a list of numbers (See Figure 10)

Function - =AVERAGE(B3:B7) (See Figure 10)

Result - 88.32 (See Figure 10)

	A	B	C	D	E	F
1	GRADES					
2						
3	Math	89				
4	History	75.6				
5	Science	82				
6	English	95				
7	Geography	100				
8						
9	Average	88.32				
10						
11						
12						

Figure 10 - Entering the AVERAGE Function

- **MAX** - Finds the largest value in a list of numbers (See Figure 11)
Function - =MAX(B3:B7) (See Figure 11)
Result - 100 (See Figure 11)

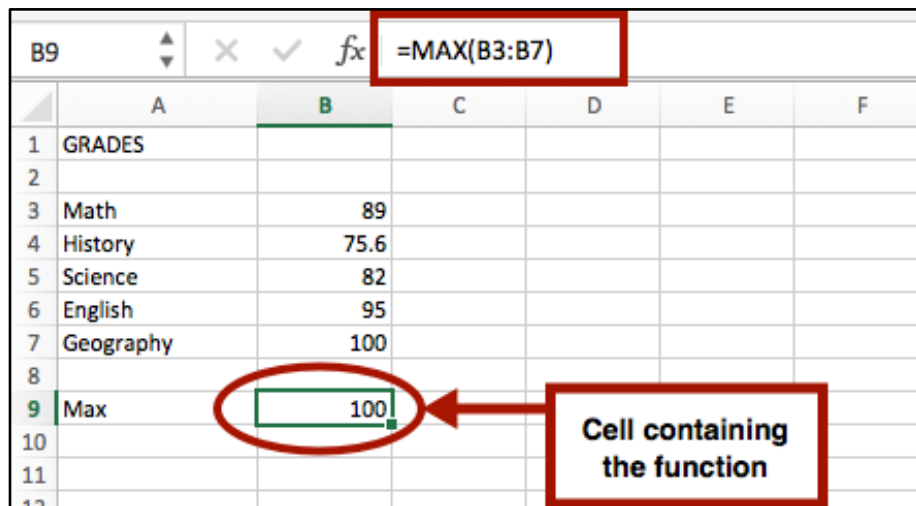


Figure 11 - Entering the MAX Function

- **MIN** - Finds the smallest value in a list of numbers (See Figure 12)
Function - =MIN(B3:B7) (See Figure 12)
Result - 75.6 (See Figure 12)

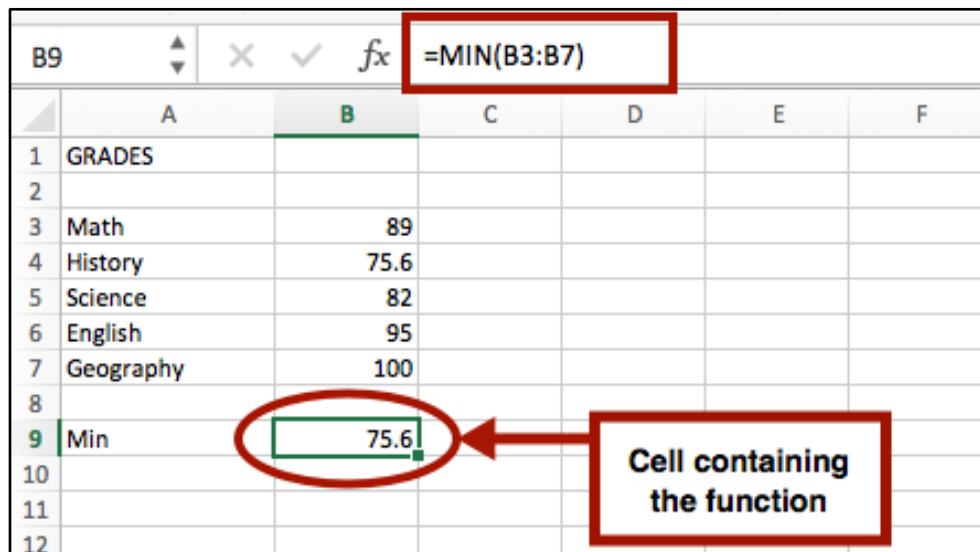


Figure 12 - Entering the MIN Function

- **COUNT** - Calculates the number of values in a list (See Figure 13)
Function - =COUNT(B3:B7) (See Figure 13)
Result - 5 (See Figure 13)

	A	B	C	D	E	F
1	GRADES					
2						
3	Math	89				
4	History	75.6				
5	Science	82				
6	English	95				
7	Geography	100				
8						
9	Count	5				
10						
11						

Figure 13 - Entering the COUNT Function

Note: COUNT will only count a cell if it contains numbers only. If used on cells with characters/letters, it will count that cell as empty.

- **ROUND** - Rounds a value to a specific number of digits (See Figure 14)
Function - =ROUND(B9, 2) (See Figure 14)
Result - 3.4 (See Figure 14)

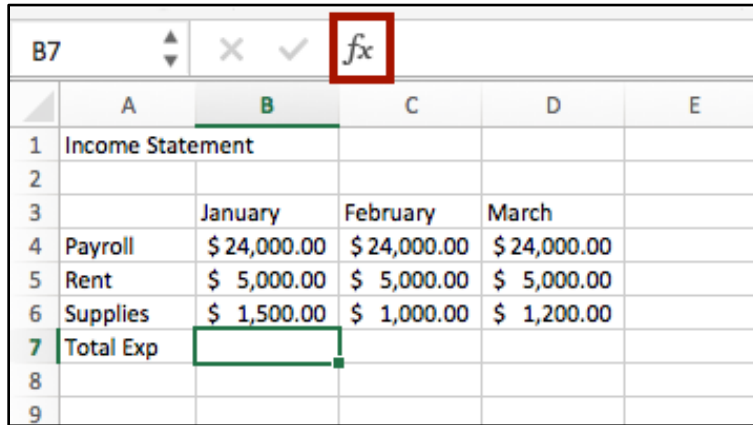
	A	B	C	D	E	F
1	GRADES					
2						
3	Math	89				
4	History	75.6				
5	Science	82				
6	English	95				
7	Geography	100				
8						
9	GPA	3.395876				
10	Cumulative GPA	3.4				
11						
12						
13						

Figure 14 - Entering the ROUND Function

Insert Function Button

The following explains how to use functions.

1. Click to select the **cell** where you want to enter the function on the worksheet.
2. Click the **Insert Function** button on the *Formula Bar*.



	A	B	C	D	E
1	Income Statement				
2					
3		January	February	March	
4	Payroll	\$ 24,000.00	\$ 24,000.00	\$ 24,000.00	
5	Rent	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	
6	Supplies	\$ 1,500.00	\$ 1,000.00	\$ 1,200.00	
7	Total Exp				
8					
9					

Figure 15 – Insert Function Button

3. The *Formula Builder* will appear to the right of the spreadsheet:
 - a. Under *Most Recently Used*, select a **Function** that you want to use (See Figure 16); or
 - b. Search for a function in the *search field* (e.g. SUM) (See Figure 16).
4. A description, and example on how to use the function will be displayed below (See Figure 16).
5. Click **Insert Function** (See Figure 16).

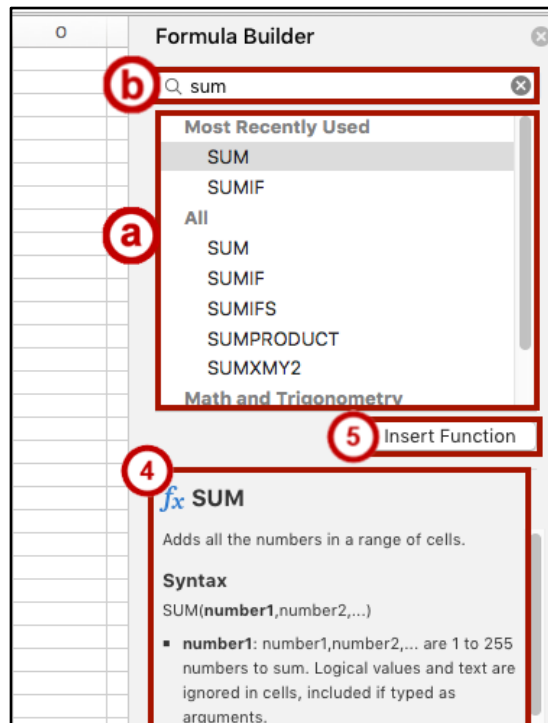


Figure 16 - Insert Function Window

6. The next step of the *Formula Builder* will appear showing *function arguments* (See Figure 17).
7. In the *Number 1* field, enter the **cell(s)** that contain the data to be used in the formula (See Figure 17).

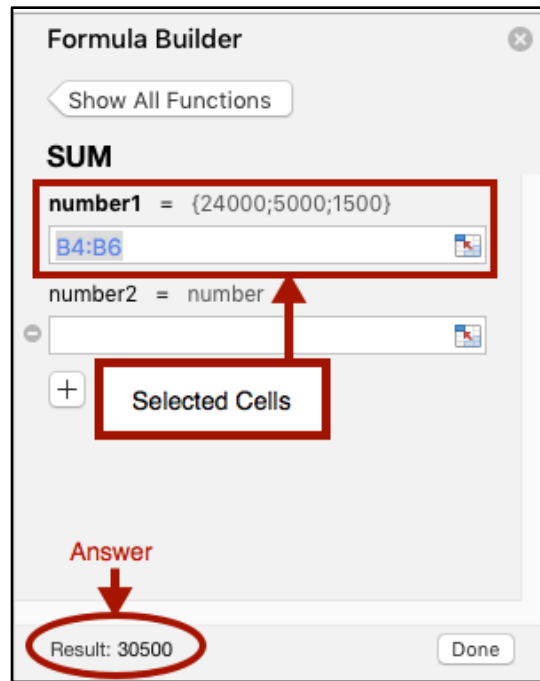


Figure 17 - Function Arguments Window

8. Click **Done**. The results of the formula will appear in the selected cell.

	A	B	C	D	E
1	Income Statement				
2					
3		January	February	March	
4	Payroll	\$ 24,000.00	\$ 24,000.00	\$ 24,000.00	
5	Rent	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	
6	Supplies	\$ 1,500.00	\$ 1,000.00	\$ 1,200.00	
7	Total Exp	\$ 30,500.00			
8					

Figure 18 - Results of the Sum Formula

Auto Calculate

The *auto-calculate* feature can be used to do quick calculations on data. The following explains how to use *auto calculate*.

1. Select the **cells** that you want to include in the calculation (See Figure 19).
2. The status bar will display the results of the cells that you selected (See Figure 19).

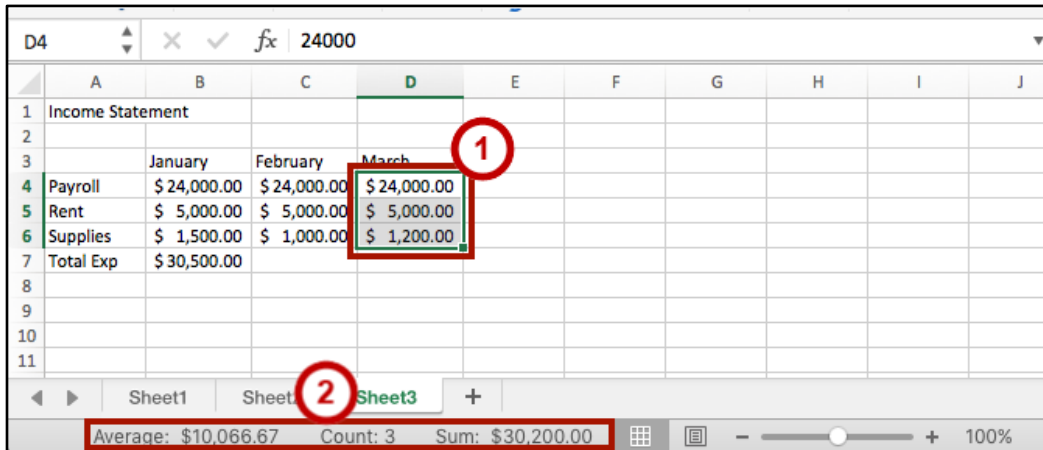


Figure 19 - Auto-Calculate

3. Other calculations can also appear on the status bar. To see the other calculations available, right-click on the **status bar**.
4. A list will appear displaying the calculations you can perform.
5. Select any **calculations** you wish to display on the *Status Bar*.

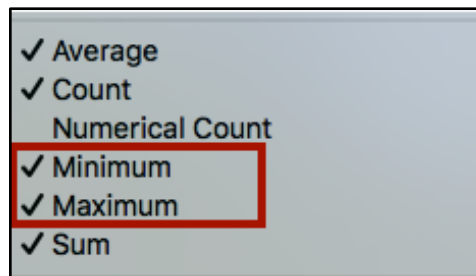


Figure 20 - Status bar calculations

6. The new calculations will appear in the *auto calculate* area of the status bar.

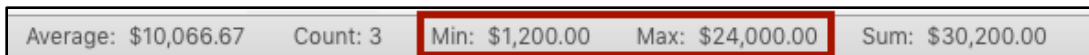


Figure 21 - Added Auto-Calculate Functions

AutoSum

The *AutoSum* tool can quickly enter a basic formula for you in a selected cell. The following example will use the *AutoSum* tool to calculate the *Sum*.

1. Select the **cell** where you want the answer to appear.
2. Under the *Home* tab to the far-right of the *ribbon*, click **AutoSum**.

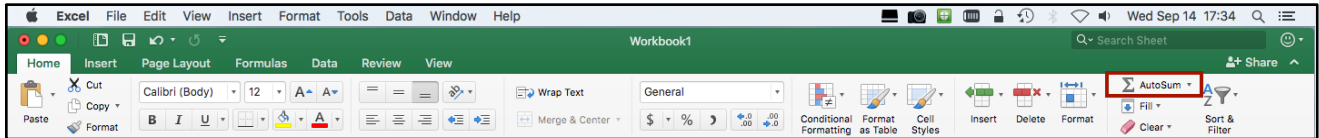


Figure 22 - AutoSum

3. A *selection* box will appear around any numbers directly above your selected cell. Adjust the selection box by **dragging the sizing handles** to include any additional cells.

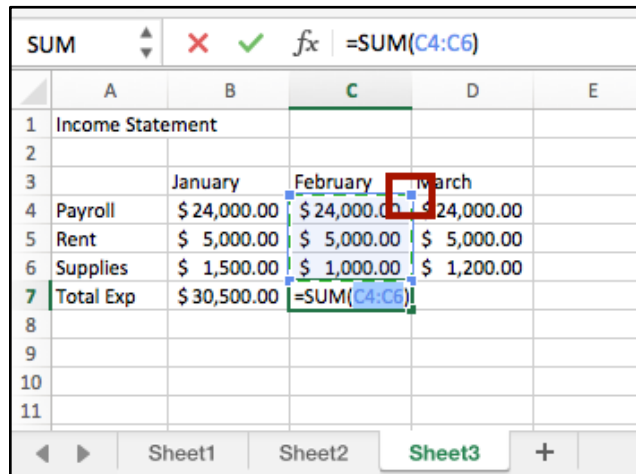


Figure 23 – Selection Box

4. Press the **Enter** key to insert the answer.

Note: The *AutoSum* tool can also be used to run basic functions like AVERAGE, COUNT, MIN, and MAX. Click the **drop-down** arrow next to *AutoSum* to make a selection.

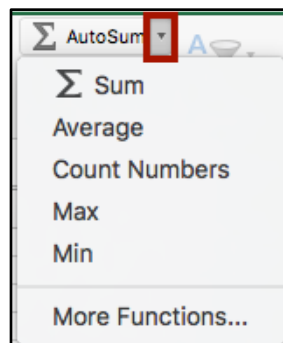


Figure 24 - AutoSum Additional Calculations

Additional Help

For additional support, please contact the KSU Service Desk:

KSU Service Desk for Faculty & Staff

- Phone: 470-578-6999
- Email: service@kennesaw.edu
- Website: <http://uits.kennesaw.edu>

KSU Student Helpdesk

- Phone: 470-578-3555
- Email: studenthelpdesk@kennesaw.edu
- Website: <http://uits.kennesaw.edu>